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ANNUAL REPORT

1951

Chicago Natural History Museum





JOHN P. WILSON

Member of the Board of Trustees since 1932
Member of the Executive Committee and Finance Committee

CHICAGO NATURAL HISTORY MUSEUM

Report of the Director

to the

Board of Trustees

for the year 1951



CHICAGO, ILLINOIS

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Contents

	PAGE
FORMER OFFICERS	10
FORMER MEMBERS OF THE BOARD OF TRUSTEES	11
OFFICERS, TRUSTEES, AND COMMITTEES, 1951	12
LIST OF STAFF, 1951	13
REPORT OF THE DIRECTOR	19
Membership	21
James Nelson and Anna Louise Raymond Foundation	22
N. W. Harris Public School Extension	26
Department of Anthropology	30
Department of Botany	38
Department of Geology	47
Department of Zoology	55
Library	63
Motion Pictures	66
Photography and Illustration	67
Public Relations	67
Publications and Printing	69
Maintenance, Construction, and Engineering	84
Financial Statements	87
Attendance and Door Receipts	89
Accessions, 1951	91
MEMBERS OF THE MUSEUM	101
Benefactors	101
Honorary Members	101
Patrons	101
Corresponding Members	102
Contributors	102
Corporate Members	103
Life Members	104
Non-Resident Life Members	105
Associate Members	105
Non-Resident Associate Members	119
Sustaining Members	119
Annual Members	119
ARTICLES OF INCORPORATION	133
AMENDED BY-LAWS	135

Illustrations

	PAGE
John P. Wilson, Trustee	FRONTISPIECE
Coming to the Museum	9
Chicago Natural History Museum	18
At the Movies	22
Portable Exhibit, N. W. Harris Public School Extension	27
Objects from Tularosa Cave, New Mexico	30
Clay Figurine from Mexico	33
Country around Tularosa Cave	37
Tillandsia	40
Paco Fruits	43
Rhynia	46
Izalco	48
Earthquake, El Salvador	50
Gold and Associated Minerals	53
Ancient Marine Animals	54
Red-tailed Catfish	57
Spectacled Cobra	59
Bushman	61
Special Exhibit	68
Student Assistant	73
Junior Nature-Students	75
Shield of Crow Indians	79
Museum Book Shop	85



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† Retired, 1951

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* Resigned, 1951

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GEORGE WOODWARD, *Captain*

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SOUTH FACADE OF THE MUSEUM

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.

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, 1951.

The year will be remembered for the many important accessions of notable scientific collections received by the various departments of the Museum. We were especially fortunate in obtaining from the Carnegie Museum its entire reference collection of exotic fishes, a collection that more than doubles the number of our type specimens and adds some forty thousand specimens. A gracious gift from Mrs. Sherman C. Bishop and her daughter, Mrs. Daniel W. O'Dell, brought to us the outstanding collection of salamanders accumulated by the late Dr. Bishop of the University of Rochester. This gift was made to this Museum in recognition of its pre-eminence in the field of herpetology. Subsequently the University of Rochester presented to us its own collection of amphibians and reptiles, which, to a large extent, had been collected by Dr. Bishop. Of more than usual importance was the accession of the famous Bernhauer Collection of staphylinid beetles. Arrangements were completed for the purchase of this collection in Vienna, Austria, from Dr. Ilse Himmel, daughter of the late Dr. Max Bernhauer, and at the close of the year Rupert L. Wenzel, Curator of Insects, was on his way to Europe to supervise the details of packing and shipping. This collection consists of perhaps one hundred thousand specimens that include types of from four to five thousand species. The Division

of Insects was fortunate also in obtaining the collection of mordellid beetles purchased from Eugene Ray, a specialist in this group, and the collection of about ten thousand rove beetles presented by Dr. Charles H. Seevers, Research Associate.

Outstanding acquisitions in the Department of Botany are represented by the extensive collections of North American and European cryptogams purchased from Dr. P. O. Schallert, of Altamonte Springs, Florida, and the large herbarium of European lichens, containing many types, purchased from Dr. Camillo Sbarbaro, of Genoa, Italy. Both of these collections were obtained for the Museum through the Elmer J. Richards Fund. After prolonged negotiation, the Department of Anthropology received more than one thousand specimens of Mexican antiquities through an exchange with the National Museum of Mexico. Not only is the collection itself of great archaeological value, but also it is especially pleasing to the Museum to note the cordial co-operation of the officials of the National Museum of Mexico. In return, this Museum sent archaeological and ethnological specimens from our collections from North America as well as from our outstanding collections from Oceania. A noteworthy acquisition that came to the Department of Geology was the paleobotanical collection received from the Walker Museum of the University of Chicago. Again the Museum is pleased to note the cordial co-operation of a friendly neighboring institution. This splendid addition will give world-wide coverage to the Museum's collection of fossil plants from the Paleozoic to Tertiary times. These accessions and others are more fully described under the headings of the scientific departments.

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-third 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. Mr. Dick later resigned as second vice-president although he continued as member of the Board of Trustees and member of the executive and finance committees; Henry P. Isham, Trustee, was added to the executive committee; and Howard W. Fenton retired from the Board of Trustees because of ill health.

MEMBERSHIP

The total number of Members on the Museum roster at the close of 1951 was 4,771. The Museum thanks its many friends who, as Members, have helped to support its scientific and educational activities. It is hoped that those who found it necessary to discontinue their memberships will soon again enroll as Members and resume their association with the work of the Museum. The number of Members in each membership classification on December 31, 1951, was as follows: *Benefactors*—24; *Honorary Members*—8; *Patrons*—16; *Corresponding Members*—6; *Contributors*—176; *Corporate Members*—40; *Life Members*—159; *Non-Resident Life Members*—17; *Associate Members*—2,247; *Non-Resident Associate Members*—12; *Sustaining Members*—24; *Annual Members*—2,042. The names of Members of the Museum during 1951 are listed at the end of this Report.

ATTENDANCE

The number of students visiting the Museum in the spring and fall months continued to increase in 1951 as the result of more use of community resources than ever before in school planning. School busses from all over Illinois and surrounding states brought children to us in great numbers. In May, 1951, for example, the Museum's total attendance was 107,078, and of this number 34,047 (approximately 32 per cent) were in organized school groups on school days. The largest student-group of the year was 1,500 delegates to the National Congress of 4-H Clubs on their annual visit to the Museum. These students, who came from every state, Hawaii, Alaska, Puerto Rico, and Canada, are among our most enthusiastic visitors. Organizations using the Museum for meetings included the American Society of Mammalogists and the American Society of Ichthyologists and Herpetologists for their thirty-first annual meetings, the Lepidopterists' Society for its second annual meeting, the Chicago Ornithological Society, the Illinois Audubon Society, the Kennicott Club, and the Nature Camera Club of Chicago. The total number of visitors at the Museum in 1951 was 1,251,752, an increase of 78,091 over the number for the preceding year. Of the total number, 1,118,412 were admitted without charge—visitors on free days and those admitted free on all days (children, students, teachers, Members of the Museum, and officers and enlisted men of the armed forces). For comparative attendance statistics and door receipts for 1950 and 1951, see page 89.

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

The James Nelson and Anna Louise Raymond Foundation continued to assist students, teachers, and groups of children to understand and enjoy the Museum exhibits and activities. Its program, consisting of tours, illustrated lectures, motion-picture programs, printed stories, and extension lectures in the Chicago public schools is always changing and widening to meet the needs and requests of teachers, students, and children. One extension lecture, "The Indian and His Art," was completely revised and is now illustrated with an all-color motion picture. A new series of film-tour programs

Children see a summer-morning program in James Simpson Theatre of the Museum.



was offered to fit particularly into the courses of study of the Chicago public schools and for general adaptation to the Cook County public schools. "Plant Adventurers" and Nature Magic," two series of Museum Stories for Children, were published and given to the children attending the Saturday morning motion-picture programs for children. The supervisory staff of the Chicago public schools held its January, 1951, monthly meeting in the Museum to learn more about the educational services available to schools. These principals and supervisors were told briefly about the various activities and programs planned especially for students, saw the Museum film, "Through These Doors," and were given short tours of Museum exhibits most useful to school groups as well as a preview of the new hall of historical geology (Hall 37, Frederick J. V. Skiff Hall). Perhaps this meeting and the new series of tours and programs for schools helped to bring about a much greater use of the Museum by the Chicago public schools during this year than has been evident since 1941.

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 . . .	1,081	34,174		
Lectures preceding tours . . .	55	3,551		
Motion-picture programs . .	29	19,385		
TOTAL			1,165	57,110

For adults	Groups	Attendance	Groups	Attendance
Tours in Museum halls . . .	376	6,680		
Lectures preceding tours . . .	43	919		
TOTAL			419	7,599

EXTENSION ACTIVITIES

Chicago public schools				
Elementary schools	139	46,499		
Suburban schools	2	550		
TOTAL			141	47,049

TOTAL FOR RAYMOND FOUNDATION ACTIVITIES 1,725 111,758

LECTURE PROGRAMS FOR ADULTS

The Museum lectures held on Saturday afternoons in March, April, October, and November as an additional educational offering of the Museum were attended by 14,655 persons. An effort is made to bring to our platform authoritative speakers working in any of the sciences within the scope of the Museum, but the difficulty of bringing variety and originality into lecture series that have been established for more than half a century can well be imagined. Further, the necessity of variety is emphasized by the fact that to a great extent the audience remains unchanged year after year. It is most encouraging to receive letters and telephone calls expressing appreciation for certain lectures, and helpful suggestions are welcome.

THE LAYMAN LECTURER

The Layman Lecturer of the Museum, Paul G. Dallwig, continued his popular course of Sunday afternoon lectures with an ever-increasing demand for tickets so that by the end of the year there was a waiting list of 2,330. It is regretted that limited space in the halls of the Museum restricts the number of tickets issued. In order to accommodate as many as possible of those applicants who could not be given tickets, Mr. Dallwig presented additional lectures on December 22 and December 29. Again the Museum thanks Mr. Dallwig for the contribution of his unique services.

MEMBERS' NIGHT

On the evening of October 1, the Museum held its first official Members' Night. On this occasion Members were invited to come to the Museum to see the new motion-picture, "Through These Doors," which tells the Museum's story, to preview the new Hall of Fossil Invertebrate Animals and Fossil Plants (Hall 37, Frederick J. V. Skiff Hall), and to visit any or all of the laboratories and workrooms on the third and fourth floors. The research collections, which contain from thousands to millions of specimens of various kinds, were available for inspection. More than one thousand persons attended, and almost all of them expressed regret that the evening was far too short to permit them to cover their entire range of interests. This special event is one of the ways in which the Museum is trying to express its appreciation to its loyal Members for their helpful interest and support.

GIFTS TO THE MUSEUM

Under the will of the late Boardman Conover, Trustee and Research Associate, the Museum received \$50,000 to establish the Conover Game-Bird Fund. Elmer J. Richards, of Chicago, added \$10,000 to the Elmer J. Richards Fund for the purchase of cryptogamic specimens, and Donald Richards, Research Associate in Cryptogamic Botany, gave \$4,000 to the Donald Richards Fund, also for the purchase of cryptogamic specimens, and \$1,000 to establish a fund for travel and cryptogamic research. Walther Buchen, of Chicago, gave \$7,500 for zoological purposes; S. C. Johnson and Son, Incorporated, of Racine, Wisconsin, again gave \$4,000 for research on wax-bearing palms; and Dr. Maurice L. Richardson, of Lansing, Michigan, added \$1,750 to the Maurice L. Richardson Paleontological Fund. The Museum received \$9,000 from Stanley Field, president, to be added to the Stanley Field Special Fund; \$250 from C. Suydam Cutting, of New York, a Patron of the Museum; \$1,000 from an anonymous friend; \$360.40 from the estate of Mrs. Abby K. Babcock; \$648.52 from the estate of Martin A. Ryerson; and \$6,666.67 from the Mrs. Joan A. Chalmers Real Estate Trust. Memorial gifts of money from Miss Margaret B. Conover and Mrs. Eugene S. Talbot, of Chicago, were added to the Conover Game-Bird Fund. Other gifts of money were received from Peder Christensen, Seattle; Henry S. Dybas, Hazelcrest, Illinois; Edward B. McGuinn, Evanston, Illinois; Clarence B. Randall, Trustee of the Museum; Karl P. Schmidt, Homewood, Illinois; Mrs. Ellen T. Smith, Associate, Division of Birds; Rupert L. Wenzel, Oak Park, Illinois; and a number of anonymous givers.

In recognition of her contributions and services, the Board of Trustees elected Mrs. Stanley Field, wife of the president of the Museum, a Benefactor. Donors who have given to the Museum \$1,000 to \$100,000 in money or materials are elected Contributors by the Board of Trustees (see page 102 for names of Contributors). Contributors elected in 1951 are: Mrs. Sherman C. Bishop, of Rochester, New York, and Mrs. Daniel W. O'Dell, of Ithaca, New York (gift of Bishop Collection of salamanders); Charles B. Cory, Jr., of Homewood, Illinois (gift of ornithological books); Dr. Charles H. Seevers, of Homewood, Illinois (gift of collection of rove beetles); and James Witkowsky, posthumously elected (a bequest). A complete list of gifts of materials from individuals and institutions in 1951 is appended to this Report (see page 91). Some of the collections of especial interest or value are described under the headings of the scientific departments.

SPECIAL EXHIBITS

A special exhibit on peoples of the United States Trust Territory and Guam, held in Stanley Field Hall during December, presented a series of water colors and drawings by Joseph Feher and photographs by Raymond Sato (assembled and lent by the Honolulu Academy of Arts) and illustrative material from the Museum collections. Other special exhibits during the year were "Song Birds of America," a series of twelve paintings by John Atherton (by courtesy of John Morrell and Company, of Ottumwa, Iowa); a pictorial mural map of Alaska by Muriel Hannah (by courtesy of Northern Consolidated Air Lines of Anchorage); paintings and drawings of Museum exhibits by students of the Junior School of the Art Institute of Chicago; the First Annual Amateur Handcrafted Gem and Jewelry Competitive Exhibition, sponsored by the Chicago Lapidary Club; and the Sixth Chicago International Exhibition of Nature Photography, held under the auspices of the Nature Camera Club of Chicago and the Museum.

THE N. W. HARRIS PUBLIC SCHOOL EXTENSION

The program of lending Museum exhibits to Chicago schools through the Department of the N. W. Harris Public School Extension continued in normal operation in 1951. Each public elementary and high school of Chicago received on loan thirty-four portable Museum exhibits of natural-history material. Every tenth school day Harris Extension trucks delivered two exhibits to each school in exchange for the two that they had left at their previous visit. This exchange of exhibits in regular rotation among the schools assures that there will be no repetition in any one school over a period of several years. Since its establishment as a Department of the Museum, Harris Extension has prepared and maintained more than one thousand portable Museum exhibits and has made them available to Chicago public schools to supplement the teaching of natural science. The cases can be carried from classroom to classroom for direct study and discussion, or they can be displayed in the school library or another room accessible to the entire school body.

Over the years many denominational and private schools and other Chicago institutions have made application for Harris Extension service and, after demonstration of their needs and satisfactory guarantees of safe care and adequate utilization of the circulating exhibits, have been added to the list of public schools receiving



Albert J. Franzen, Preparator and Taxidermist, N. W. Harris Extension Department, finishes red-fox exhibit for which Artist John Conrad Hansen painted the background.

service. When the list totaled 514 at the close of the 1950-51 school year, it was clear that, with reduced staff, the preparation of new exhibits was not possible at a rate that would accommodate a growing circulation list. Accordingly, at the beginning of school in September, the policy was adopted of adding to the circulation only newly opened public schools. Special requests for additional instructional material have been increasing somewhat during recent years. Many of these requests come from suburban schools not eligible for regular Harris Extension service. Fifty-one special requests were filled in 1951. Two-thirds of these loans were of bird-skins or mounted birds. In the course of the year, thirty-three of the standard portable exhibits were damaged in circulation, two of them by fire. One hundred and seventy-one cases were repaired in the workshop. Field work of staff members consisted of short trips in the Chicago area for the purpose of collecting botanical and zoological specimens from which to make reproductions for future exhibits and to take color photographs for the assistance of the artists who make the habitat groups for Harris Extension.

STAFF OF THE MUSEUM

E. P. Killip, distinguished botanist and lately retired head curator of the department of botany of the United States National Museum, Washington, D.C., was elected Research Associate in Phanerogamic Botany by the Board of Trustees. John W. Moyer, Chief of the Division of Motion Pictures, was given a leave of absence, effective August 16, to accept a temporary appointment in the foreign service of the Department of State of the United States. On February 1, Mrs. Elsie H. Thomas, who had been employed by the Museum since 1922, retired from her position of Recorder. In order to maintain our association with him, D. S. Rabor of Silliman University, Philippine Islands, visiting Guggenheim Fellow in Zoology, was made a Field Associate on the staff of the Department of Zoology. Ronald J. Lambert and Carl W. Cotton, Assistant Taxidermists, were promoted to Taxidermists; Celestino Kalinowski, of Marcapata, Peru, was appointed Assistant Taxidermist; and Miss Laura Brodie was given the title of Assistant in charge of Illustrations in the Department of Zoology. E. Leland Webber, Assistant Recorder, was made Executive Assistant to the Director of the Museum. Miss Audrey Greeley was appointed Reference Librarian, and Boris Ivanoff was placed in charge of stacks and bindery. Miss Christine Tardy was appointed Assistant in Public Relations following the resignation of Mrs. Helen R. Gordon, who had been secretary in the Division of Public Relations for thirteen years. Other resignations during the year were: George A. Davis, Assistant, Herbarium; Miss Ruth Debus, Reference Librarian; Dr. Sidney F. Glassman, Assistant, Cryptogamic Herbarium; Miss Mary P. Murray, Assistant, Scientific Publications; George Steinhart, Assistant, Department of the N. W. Harris Public School Extension; Miss Phyllis Wade, Secretary, Department of Botany; and Mrs. Winifred E. Weissman, Assistant Reference Librarian.

It is with regret that I record the death on April 7 of John Anderson, employed by the Museum as a carpenter in the Department of Anthropology and in the Division of Maintenance from 1920 until his retirement on pension in 1942.

The Museum thanks its faithful volunteer workers for their help during the year. Names of some of them are included in the List of Staff at the beginning of this Report. Other volunteers are: *Department of Botany*—Miss Margaret Feigley, Dr. George D. Fuller, Philip Garrett, Jack Reeves, Floyd E. Swink, Archie F. Wilson; *Department of Geology*—Mrs. George Langford, Miss Nancy Robertson; *Department of Zoology*—Harry Nelson.

EXPEDITIONS

The Museum conducted eighteen expeditions and field trips in 1951. Their work is described in this Report under the headings of the scientific departments. Expeditions and field trips of 1951 and their leaders are:

DEPARTMENT OF ANTHROPOLOGY: *Southwest Archaeological Expedition*—Dr. Paul S. Martin, Chief Curator

DEPARTMENT OF BOTANY: *Cuba Botanical Expedition, 1950-51*—Dr. B. E. Dahlgren, Curator Emeritus; *Florida Botanical Field Trip*—Emil Sella, Curator of Exhibits; *Southwest Botanical Field Trip*—Dr. Hugh C. Cutler, Curator of Economic Botany; *Texas Botanical Field Trip*—Dr. Theodor Just, Chief Curator

DEPARTMENT OF GEOLOGY: *Eastern States Paleontological Field Trip*—Dr. Robert H. Denison, Curator of Fossil Fishes; *Oklahoma Paleontological Field Trip*—William D. Turnbull, Preparator; *Tennessee Paleontological Field Trips*—George Langford, Curator of Fossil Plants; *Texas Paleontological Expedition*—Bryan Patterson, Curator of Fossil Mammals; *Wilmington (Illinois) Paleobotanical Field Trips*—Curator Langford

DEPARTMENT OF ZOOLOGY: *Colombia Zoological Expedition, 1948-51*—Philip Hershkovitz, Assistant Curator of Mammals; *Co-operative Field Work with United States Fish and Wildlife Service in Gulf of Mexico*—Loren P. Woods, Curator of Fishes; *Field Work for Cave Fishes*—Curator Woods; *Mexico Zoological Field Trip*—Clifford H. Pope, Curator of Amphibians and Reptiles; *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

CHICAGO NATURAL HISTORY MUSEUM (and Instituto Tropical de Investigaciones Cientificas, Universidad Autonoma, El Salvador): *Salvadorean Project*—participants in 1950-51: *Botany*, Dr. Norman C. Fassett, professor of botany, University of Wisconsin; *Geology*, Dr. Sharat K. Roy, Chief Curator of Geology; *Zoology*, Dr. Austin L. Rand, Curator of Birds

Department of Anthropology

Research and Expeditions

The Southwest Archaeological Expedition continued its long-term research-excavation program in west-central New Mexico. The goal of this program is a complete delineation of the Mogollon culture, a newly discovered civilization. During recent years Museum archaeologists have uncovered some of its history—namely, that dating from the beginning of the Christian era down to about A.D. 1000, but the record is far from complete and woefully lacking in many details. From knowledge of the area gained by exploring the country by car and on foot and horseback, it seemed evident that Pine Lawn Valley (near Reserve, Catron County, New Mexico) had been occupied several millenia before A.D. 1. The excavations in Tularosa Cave in 1950 (described in the Annual Report) bore out this assumption and yielded a rich harvest of archaeological data. In analyzing these data, however, it became apparent that

These juniper-berry skewers, reed cigarettes filled with tobacco (the earliest reported use of tobacco), and wooden dice—objects dating from A.D. 200 to A.D. 800—are among materials recovered from dry caves in New Mexico by Museum expeditions.



the materials in many categories (spear-throwers, sandals, bows and arrows, clothing, textiles, corn, beans, squash, to name some) were too few to permit reliable analyses, comparisons with similar materials from near-by and distant areas, and statistical manipulation. Further excavations in another dry cave, Cordova Cave, were therefore planned and carried out.

At this point it is well to explain why so-called "perishable materials" (that is, materials that would disintegrate if not protected from weather—clothing, objects of wood and fiber, fur, and the like) are so important. Suppose that one wanted to study American culture in its entirety and that the only available reference for this study is a large mail-order catalogue. If the catalogue were complete, the student would have first-class source material. He would know something about how we dressed, amused ourselves, recorded time, practiced agriculture, and built houses. He could even make inferences concerning our religious and social organization, density of population, and more. But suppose that this catalogue is mutilated and that all the pages describing perishable items (leather, cloth, fur, hair, hides, wood, rubber, paper) are irretrievably lost. The student would then be faced with the impossible task of describing a culture on the basis of the few remaining items. This situation confronted our archaeologists because the sites that had been exposed to centuries of weather produced only artifacts of stone, bone, and baked clay—materials that could give only an incomplete picture of the culture of the Mogollon peoples.

Therefore during 1951, Cordova Cave, a thousand feet above the San Francisco River Valley and near Reserve, New Mexico, was completely dug, a large kiva in an open site was half excavated, and a reconnaissance was conducted. The field season occupied the months of June through September. Dr. Paul S. Martin, Chief Curator, in charge of the expedition, was assisted by Dr. John B. Rinaldo, Assistant Curator of Archaeology; Miss Elaine Bluhm, Assistant; Thomas P. Alder, photographer; and Arnold Besser, Miss Katherine Marjorie Kelly, and Miss Elizabeth Morris (student assistant from Antioch College).

Cordova Cave was probably occupied from about 1000 B.C. to A.D. 1—a significantly shorter time than was Tularosa Cave, which was lived in for almost two thousand years. A great fire that occurred in Cordova Cave during the Pine Lawn period (150 B.C.—500 A.D.) destroyed many of the precious objects that our archaeologists sought and apparently caused the Indians to shun the cave thereafter except for temporary camping. For these reasons (fire and shorter span of occupation), fewer perishable specimens were re-

covered from this cave than from Tularosa Cave, but some valuable specimens were unearthed that, when added to the 1950 collections, will aid materially in solving some of the problems that have been especially puzzling to our archaeologists.

The positive contributions to the knowledge of the Mogollon culture were many and valuable: (1) Several hundred tools of stone from the Cochise period (before 500 B.C.) were recovered from well-defined layers. Since these layers can be relatively dated, it is now known when certain tools of stone came into use and went out of fashion—a sequence that was previously lacking. This knowledge will enable us to date early stone tools recovered by future explorations. (2) The stratigraphy or dating by position of Cordova Cave corroborated that of the 1950 season. (3) Some artifacts not previously known from the area were unearthed, namely, new types of projectile points, a new sandal type, and painted *tablitas*. (4) Evidence of Apache occupation was found in the top layer of the cave. This consisted of a cache of horse(?)-hides and basketry. From this information it will be possible to place the date of the Apache occupation of the Reserve area relative to other cultures. At the moment it appears probable that the Apaches entered the area some centuries after its abandonment by the Mogollon people. When the specimens are completely analyzed, more information will be forthcoming; but on the basis of only a few hundred specimens from two caves, positive and specific conclusions are, of course, not possible. Only in a most general way can one hazard a guess that the associated complex of traits of the Mogollon culture was similar to those traits possessed by many of the ancient tribes of the Great Basin or Intermontane area (Oregon and Utah southeastward to northern Mexico).

In addition to the work in Cordova Cave, two other important projects were carried forward. One was the partial excavation, under the direction of Miss Bluhm, of a large ceremonial room situated in an open site. Such a structure is usually referred to as a kiva, and on the basis of information derived mainly from Indians it is assumed that such a structure was a sacred place in which secret ceremonies were conducted. Since this kiva is unique in Pine Lawn Valley, it was chosen as a valuable spot for operations. The actual excavation of such a large structure (30 feet long, 25 feet wide, 7 feet deep) was a slow, arduous task because the walls of masonry had toppled into the structure. About 1,000 cubic yards or about 150 tons of dirt and rocks were removed with wheelbarrows. Work will be completed next season, but it is possible to say now that the kiva may fall into the latter part of what we call



Head of a large clay figurine (A.D. 500 to A.D. 800) from Veracruz, Mexico, is one of the antiquities received in an exchange with the National Museum of Mexico.

the Reserve period and may date from about A.D. 1050 or A.D. 1100. The other undertaking was a reconnaissance for new sites in western New Mexico and in east-central Arizona. Dr. Herbert C. Taylor, Jr., of Western Washington College, Bellingham, Washington, formerly a teaching assistant at the University of Chicago, was in charge of this work, which was sponsored by the Department of Anthropology, University of Chicago, and was tailored to dovetail with the intensive investigations carried on by the Museum. Dr. Taylor spent ten weeks on this project, operating within a radius of eighty miles from the Museum camp, and found 75 sites

of major importance. The analysis of the survey is yet to be made, but a few tentative conclusions may be drawn from the data: (1) The late manifestations of the Mogollon culture (Reserve phase) cover a large area—much larger than we had formerly realized. (2) The culture-complex known as Mimbres extends at least as far north-west as Glenwood, New Mexico. (3) The region east of Springerville, Arizona, was a cultural transition zone between the Puebloan and Mogollon peoples. The results of the survey will be ready for publication in 1952.

During the year Dr. Alexander Spoehr, Curator of Oceanic Ethnology, continued preparation for publication of his report on the Anthropological Expedition to Micronesia, 1949–50, which will be issued in two parts: one on the ethnology of contemporary Saipan and the other on the prehistory of the Marianas as revealed by the archaeological survey and excavations conducted by Curator Spoehr on Saipan, Tinian, and Rota. In July he studied documentary material at major libraries in the eastern states in connection with the preparation of the report. This research was made possible by a Grant in Aid awarded to him by the Social Science Research Council.

George I. Quimby, Curator of Exhibits, continued research in North American ethnology in connection with the exhibition program. Particular emphasis was placed on an examination of materials collected from the Crow, Blackfoot, Assiniboin, Plains Cree, Plains Ojibwa, Plains Sioux, Arapaho, Cheyenne, Kiowa, Kiowa Apache, Comanche, Ute, Paiute, Panamint, Shoshone, Paviotso, Flathead, Bannock, Kutenai, Wasco, Klickitat, Yakima, and Nez Perce tribes. He completed a report on Indian trade-silver east of the Mississippi and is preparing a description of the Museum's collection of thirty-five portraits of Indians and western scenes painted in oil by George Catlin during the period from 1831 to 1837, a collection that is significant because it has been intact as a collection since 1837. A number of the portraits (among them "Smoke, Ponca Chief," "Wolf, Mandan Chief," and "White Cloud, Sauk and Fox Chief") have been placed on permanent exhibition in Mary D. Sturges Hall (Hall 5, Indians of the Woodlands and Prairies).

Donald Collier, Curator of South American Ethnology and Archaeology, continued his study of the collection excavated in 1946 by the Archaeological Expedition to Peru and brought nearly to completion his report on this work. In connection with his activities as a member of the committee on carbon-14 dating of the American Anthropological Association and the Geological Society of America, he made a stratigraphic and statistical analysis of Middle and

South American carbon-14 dates that was incorporated in the detailed report published by the Society for American Archaeology. Dr. Wilfrid D. Hambly, Curator of African Ethnology, continued research in craniometry of the Pacific regions. The books by Curator Hambly on craniometry that have been published by the Museum are *Cranimetry of New Guinea*, *Cranimetry of Ambryn Island*, and *Cranial Capacities, A Study in Methods*. "Cranimetry of Malekula and New Calidonia" is in manuscript, and "Cranimetry of the Solomon Islands and New Ireland," last of the series, is in preparation. A bibliography of African anthropology (a supplement to *Source Book of African Anthropology*, Museum Press, 2 volumes, 1937) is awaiting publication.

During the first months of the year Assistant Curator Rinaldo collaborated with Chief Curator Martin in preparing a report on the excavations during the summer of 1950 of Tularosa Cave and, for use in this research, made a graph showing the fluctuations in pottery-type popularity in the various occupation levels of the cave. He also assisted John W. Moyer, staff cinematographer, in the completion of a unified story of the excavations, including several laboratory sequences taken in the Museum. During the summer he assisted Chief Curator Martin in the excavation of Cordova Cave, and after his return from the field in the fall he started a precise analysis of the stone and bone artifacts from the summer's excavations preliminary to a report on the season's work.

Dr. Fay-Cooper Cole, Research Associate in Malaysian Ethnology, worked at the Museum during the month of August on the Bukidnon collection from the Philippines, on which he is preparing a monograph. Research Associate Cole collected the Bukidnon materials in 1910 when he went to the Philippines for the Museum on the R. F. Cummings Philippine Expedition. At that time he was Assistant Curator of Malayan Ethnology at the Museum.

Accessions—Anthropology

At the end of the year the long-pending exchange with the National Museum of Mexico was completed. As a result of this transaction the Museum has received an extensive collection of Mexican antiquities consisting of 1,126 specimens ranging in age from the second millenium before Christ to the Spanish Conquest. Included is a representative selection of figurines and pottery from the Archaic cultures of the Valley of Mexico; pottery, figurines, and ornaments from the various phases of the Classic cultures of Teotihuacan and

Monte Alban; and pottery, ornaments, and stone sculpture from the Toltec and Aztec cultures of the Late period. The prehistoric cultures of western Mexico and the Mexican Gulf Coast are also represented. This collection, which was selected to supplement the Museum's Middle American collections and fill gaps in them, will be important in the future reinstallation of Hall 8 (Archaeology and Ethnology of Mexico and Central America). Archaeological and ethnological specimens from North America and Oceania were exchanged for the Mexican collection. This is the largest and most important anthropological exchange carried out by the Museum in many years. The exchange will benefit both this Museum and the National Museum because now only by exchange could the two museums have acquired collections of this size and quality.

Rearrangements—Anthropology

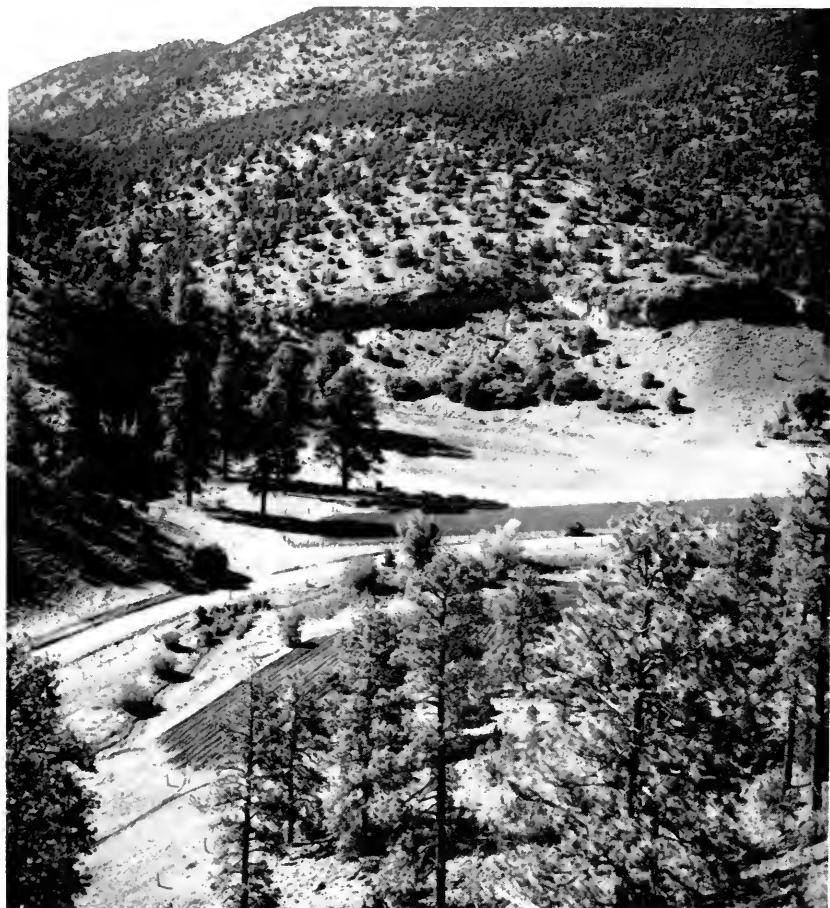
The work of rehousing the extensive collection of prehistoric and recent textiles from many parts of the world was completed during the year by Roger Grange, assistant. Previously the textiles were scattered according to tribe and area in various badly overcrowded storerooms where they were not readily available to the staff or to visiting students. The textiles are now arranged in a single room in steel cases containing flat wooden drawers so big that only the largest specimens need be folded. Fragile textiles are laid on cardboard and covered with clear sheets of polyethylene plastic that can be removed for close study of the textiles and for photography, an arrangement that permits sorting and examination of the specimens without damaging them. Ample work tables and excellent fluorescent lighting make the textile room an ideal place to conduct research. The textile collection in its new housing has already been put to good use by students of textiles.

Exhibits—Anthropology

Under the direction of Curator of Exhibits Quimby nineteen new exhibits (including one diorama) were completed during the year by Gustaf Dalstrom, Artist, and Alfred Lee Rowell, Dioramist, with the assistance of Walter C. Reese, Preparator, and John Pletineckx, Ceramic Restorer. Six of the new exhibits were installed in Mary D. Sturges Hall (Hall 5), thus completing this hall, which was opened to the public on May 1. The new hall shows the culture-

types of the North American woodlands and prairies as they were in historic times (1700-1900). The thirteen remaining exhibits were installed in Hall 6, which, when complete, will contain more than fifty exhibits (including four dioramas). This hall is divided into three sections: Indians of the Plains, Intermountain tribes showing Plains influence, and Indians of the California culture area. During the year some twenty additional exhibits were planned and laid out for installation in the new hall in the first half of 1952.

From the pine-covered mountainous country surrounding Tularosa Cave, a dry cave in Apache National Forest, New Mexico, plants were collected for comparison with the many specimens excavated from the cave by Museum archaeological expeditions.



Department of Botany

Research and Expeditions

During the year Paul C. Standley, Curator Emeritus of the Herbarium, continued his exploration and studies of the flora of middle Central America, devoting his time to collections in Honduras, one of the countries whose vast flora still is imperfectly known. Part of December, 1950, was passed in the Department of Ocotepeque, on the borders of Guatemala and El Salvador, where no botanical work had ever been done. Exploration in 1951 in the central departments of El Paraíso and Francisco Morazán resulted in a collection of some 3,200 specimens that include many species and several genera of flowering plants new to the Honduran flora and a satisfactory number of species new to science. Study and determination of this material and preparation of descriptions of the new species of these and other collections required a great deal of time. Curator Emeritus Standley determined also a large collection of Mexican and Central American plants made more than fifty years ago that was forwarded from Chicago to Honduras for this purpose. Other plants likewise sent from Chicago for study included an extensive collection made in Chiapas, Mexico, by Dr. Margery C. Carlson, of Northwestern University, and smaller ones from Costa Rica transmitted by the Museo Nacional of San José. Some progress has been made in preparation of a dictionary of useful plants of all Central America and a complete catalogue of the whole Central American flora.

The Curator Emeritus of Botany, Dr. B. E. Dahlgren, continued his studies of *Copernicia* palms. With the aid of the S. C. Johnson and Son Fund, two visits were made to Cuba. On the first and more extensive of these, in the early months of the year, localities in Matanzas and Las Villas provinces were visited briefly on the way eastward from Havana to Camagüey. This year, as well as on various former occasions, the savanas readily accessible from this provincial capital proved to be the most important localities discovered. Camagüey also serves as the most convenient point of departure for explorations in the general region of greatest *Copernicia* concentration, which extends into the adjacent easternmost province, Oriente, where more work is planned for 1952. Much new palm material, notes, and several hundred photographs were brought back to the Museum, together with a collection of the phanerogams and soil algae of special ecological interest in connection with the distribution of some of the *Copernicia* species. The latter collections

were made by J. Francis Macbride, Curator of Peruvian Botany, who, after completing the manuscript for another number of his "Flora of Peru," had volunteered his assistance. On the return trip by way of Cienfuego, a hasty excursion was made with Dr. E. D. Clement and Sr. Valiente, of the Atkins Garden and Laboratory of Harvard University at Soledad, to the south coast of the eastern peninsula of Zapata for mature seeds of a species apparently restricted to this area. A brief trip to Cuba in August was undertaken solely for the purpose of gathering the results of experiments made in the early spring and collecting certain seeds for experimental growing at the University of Chicago and elsewhere.

Dr. Earl E. Sherff, Research Associate in Systematic Botany, continued his studies of Hawaiian plants and completed his revision of the genus *Nototrichium*. He also described a number of novelties, especially new sections of *Dahlia* for its epiphytic member and the tree-dahlia, various East African species of *Bidens*, and several Araliaceae and Leguminosae. Llewelyn Williams, Associate in Forest Products, spent considerable time in the Far East and Central America studying forest products and collecting woods for exhibition purposes. Dr. Norman C. Fassett, while on leave of absence from the University of Wisconsin, spent the early part of the year at the Tropical Institute in San Salvador as the botanical representative of the Museum, collecting aquatic plants in El Salvador, Guatemala, and Mexico. His monographic studies of these and other pertinent collections are now essentially completed.

Dr. Theodor Just, Chief Curator, accompanied a small group of paleobotanists of the University of Illinois and the Illinois State Geological Survey on a collecting trip to Iowa and Texas. The party collected large numbers of coal balls for study of structurally preserved plant-fossils and obtained in Texas the trunk of an undescribed cycadeoid and samples of fossil wood found at the type locality. Chief Curator Just continued his studies of fossil cycads and cycadeoids and of the geographical distribution of fossil ferns and pteridosperms. In addition, he prepared in collaboration with Dr. José Cuatrecasas, Guggenheim Fellow, a synopsis of the living and fossil Humiriaceae.

Dr. Hugh C. Cutler, Curator of Economic Botany, continued his studies of the archaeological plant material from Tularosa Cave, New Mexico. On an expedition during June and early July he studied and collected plants now growing about the cave, as the archaeological material of the cultivated plants shows a gradual development of the recent kinds from the more primitive ones of the earlier levels of Tularosa Cave. Modern Indian corn and squash



This reproduction of a subtropical flowering *Tillandsia* shows this air plant of the pineapple family as it is quite often found growing in the branches of trees (Hall 29).

were studied in experimental plantings near Chicago in order to compare the range of variation with that exhibited by the archaeological material. A large part of Curator Cutler's time was spent in organization of the Museum's extensive wood collections, which consist of about forty thousand specimens, a great number of them authenticated by herbarium specimens taken from the same tree as the wood. Mrs. Ann Bigelow and Robert Yule have prepared and labeled more than fifteen thousand specimens for the Museum's collection and for exchange with other institutions. Archie F. Wilson, an experienced amateur wood-collector, assisted in this work by cutting a large collection of Ecuadorean tree trunks to the standard size of the specimens in our collection.

Dr. Julian A. Steyermark, Curator of the Herbarium, continued to devote the greater portion of his time toward completion of the study of his large collections from Venezuela. The first part of his "Contributions to the Flora of Venezuela," consisting of descriptions of new species resulting from his study and that of various specialists, was published by the Museum in May. The second part of this work, which will complete the description of the new species, is now in press. Altogether, close to six hundred species and nine genera new to science, in addition to a large number of new varieties and forms, have resulted from the study of these collections. Critical investigation of particular groups in this study resulted in revisions of the rare genera *Tapeinostemon* (see page 82) and *Platycarpum*, the latter having been brought to light after nearly one hundred and fifty years of obscurity. The families *Rubiaceae*, *Euphorbiaceae*, *Lentibulariaceae*, and *Compositae*, in which Curator Steyermark specializes, continued to yield various novelties now awaiting publication. In addition, much time was given to identification of miscellaneous collections that were sent in for determination from the United States and other countries.

Continuing his field work in Missouri as Research Associate of Missouri Botanical Garden, Curator Steyermark conducted a number of botanical collecting trips to that state between March and October. These trips yielded new information on the detailed distribution of species and varieties of the flora of Missouri and added a total of nine species not previously found in that state. The collections, to be incorporated in the herbaria of Missouri Botanical Garden and Chicago Natural History Museum, will eventually serve as a basis for the complete record of geographical distribution of each species in Missouri as shown on maps to appear in a revised annotated catalogue of the flowering plants and ferns of Missouri, published in 1935 in collaboration with E. J. Palmer, formerly of the Arnold Arboretum, Jamaica Plain, Massachusetts. Work was completed on the separation of type specimens from the main collection, making these important specimens more readily accessible.

The Curator of Cryptogamic Botany, Dr. Francis Drouet, devoted most of the year to curatorial work. The segregation of forty thousand type specimens from among the eight hundred thousand sheets on file in the cryptogamic herbarium was completed. These specimens are now arranged alphabetically in a special case. Another project, with the aid of Dr. Sidney F. Glassman, Assistant from January to September, was likewise finished. The five thousand photographs of fungi and the ten thousand original notes and drawings by the late Dr. Edward Thomson Harper, whose large collec-

tions came to the Museum in 1920, were attached to the herbarium sheets, thus greatly enhancing the value of one of the Museum's most important collections of cryptogams. For this work Dr. Glassman made prints of the Harper negatives, which are now being transferred to the Division of Photography. Curator Drouet and Dr. Glassman spent considerable time in preparing various collections of cryptogams for mounting and in filing the twenty-five thousand new specimens that were mounted during the year. Dr. Drouet identified some eight thousand algae received for determination from correspondents in various parts of the world. Harold B. Louderback and Dr. Joseph Rubinstein, of Chicago, assisted in the onerous work of shifting the entire herbarium so that the collections would be equally distributed within the cases.

Some progress was made toward completing Curator Drouet's revision of the unicellular blue-green algae in co-operation with William A. Daily, of Butler University, who has now made photomicrographs of more than five hundred of the type specimens involved. Mr. and Mrs. Daily spent several weekends at the Museum in research on the collections of Myxophyceae and Characeae. Dr. Hanford Tiffany, Research Associate, completed in collaboration with Dr. Max Britton, also of Northwestern University, a treatise on the algae of Illinois now awaiting publication. Donald Richards, Research Associate, continued his studies of bryophytes, and Miss Margaret Feigley, volunteer worker, identified large numbers of bryophytes. Dr. Glassman completed his manuscript on the flora of Ponape (Caroline Islands) before he left in September for the University of Wyoming.

While holding a John Simon Guggenheim Memorial Foundation Fellowship, Dr. José Cuatrecasas, former Curator of Colombian Botany, carried on necessary studies at the Museum preliminary to the preparation of a catalogue of the flora of Colombia, using as a basis his own extensive collections as well as others represented chiefly in the Museum's own herbarium. In addition he studied numerous specimens received on loan from the United States National Museum, New York Botanical Garden, Herbario Nacional Colombiano, and Facultad de Agronomía del Valle. The Colombian species of the following families have already been studied critically: *Araliaceae*, *Anacardiaceae*, *Bombacaceae*, *Burseraceae*, *Caprifoliaceae*, *Connaraceae*, *Euphorbiaceae* (gen. *Hieronyma*), *Linaceae*, *Myrsinaceae*, *Proteaceae*, *Rutaceae*, *Sapindaceae*, *Simarubaceae*, *Sterculiaceae*, *Theophrastaceae*, *Thymeleaceae*, *Tiliaceae*, and certain difficult genera of the *Compositae*. Critical taxonomic work on some members of the flora of Colombia necessitated study of species and specimens



Paco fruits (4 inches long and 2 inches in diameter) belong to a new species from Colombia discovered and described as *Grias multinervia* Cuatr. by Dr. Jose Cuatrecasas.

from other South American countries (Venezuela, Ecuador, Peru, and Brazil), especially in the families *Bombacaceae*, *Sterculiaceae*, *Tiliaceae*, *Moraceae*, and *Brunelliaceae*. Taxonomic studies of several genera of *Compositae* (*Senecionae*, *Diplostephium*, *Espeletia*) were continued, and several contributions dealing with many new or critical species gleaned mainly from his personal collections were published or are awaiting publication. About two thousand South American specimens (chiefly Colombian) sent by collectors or various institutions as gifts, exchanges, or loans have been named, especially in the groups on which Dr. Cuatrecasas worked in recent years.

Emil Sella, Curator of Exhibits, and Artist-Preparator Samuel H. Grove, Jr., left early in March on a five-week trip to Florida covering most of the state, including some of the keys, to collect flowering specimens from plants of local and tropical species needed to supplement various families in the synoptic exhibits in Hall 29. A stop of several days was made near Tallahassee, where a number of branches of southern conifers were collected with the generous assistance of Dr. Herman Kurz and Dr. Chester S. Nielsen, of Florida State University. After restoration these branches will be added to the exhibits of North American woods in Hall 26. Several visits were made to the United States Plant Introduction Garden at Coconut Grove, where photographs of tropical species and some important specimens for reproduction were obtained through the kindness of Dr. Harold F. Loomis.

Mrs. Effie M. Schugman, with some assistance during the summer, mounted more than twenty-five thousand specimens of cryptogams and attended to the packaging of numerous loans and of the 5,870 cryptogams sent to other institutions and individuals in exchanges. Mr. Yule prepared most of the paper packets used as containers for these specimens, in addition to those required during the first few months of 1952, before he was transferred to the phanerogamic division in September. Approximately twenty-six thousand specimens were wet-poisoned and mounted for the phanerogamic herbarium by George A. Davis, Assistant, and associates. Mrs. Jennie Beitzel mounted thousands of type photographs and filed these and all mounted phanerogamic specimens.

Accessions—Botany

Although no major collections were added to the phanerogamic herbarium during the year, numerous smaller ones were received. The largest single collection, of 862 plants of Honduras collected by Dr. Louis O. Williams and Antonio Molina of the Escuela Agrícola Panamericana, was sent in exchange. Gifts include 209 plants of Missouri from E. J. Palmer, 644 plants of Illinois and Indiana from Floyd E. Swink, 187 plants of Utah and Indiana from John W. Thieret, and 125 plants of Illinois from G. S. Winterringer of Illinois State Museum. Other accessions include 410 plants of Peru from Dr. Felipe Marín (purchase); 830 miscellaneous plants, mostly from Central and South America, from the United States National Museum (exchange); 500 plants of Sweden from Gosta Kjellmert (exchange); 200 plants of Japan from J. Ohwi, of Tokyo Science

Museum (exchange); 200 plants of Austria from the Botanisches Institut und Botanischer Garten of the University of Vienna, collected by Dr. H. Neumayer (exchange); 182 plants of Mexico from the University of California, collected by Annie Alexander and Louise Kellogg (exchange); and 175 plants of Costa Rica from Missouri Botanical Garden, collected by Hugh Iltis and Richard Holm (exchange). More than 29,500 cryptogams were purchased with the Elmer J. and Donald Richards Funds. Noteworthy among the collections thus acquired are 20,000 cryptogams from Dr. P. O. Schallert, of Altamonte Springs, Florida; 5,600 lichens from Dr. Camillo Sbarbaro, of Genoa, Italy; and 1,067 algae and bryophytes from the Vitenskapselskapets Museum of Trondheim, Norway. Cryptogams received in exchanges include 2,104 from the Conservatoire Botanique of Geneva, Switzerland, and 1,600 from the Naturhistorisches Museum of Vienna, Austria.

Exhibits—Botany

Two important reproductions were added to the flowering-plant exhibits in Martin A. and Carrie Ryerson Hall (Hall 29, Plant Life). One model is a fruiting branch of elderberry (*Sambucus canadensis*), a local member of the honeysuckle family, assembled by Artist-Preparator Grove. The other model, made by Curator of Exhibits Sella, is an epiphytic bromeliad (*Tillandsia fasciculata*) in flower, strikingly different in appearance from the related and well-known Spanish moss of the South of the same genus of the pineapple family. The living material required for this reproduction was collected during the Florida Botanical Field Trip. The exhibits in Hall 29 of mushrooms, liverworts, and mosses and of the birch family were reconditioned and rearranged in rebuilt cases of increased depth. In the Hall of Foreign Woods (Hall 27) a specimen of Norfolk Island pine (*Araucaria*), a gift from O. A. Oaks, of Wilmette, Illinois, was installed by Preparator Mathias Dones. The following leafy branches were added to the wood exhibits in Charles F. Millspaugh Hall (Hall 26, North American Trees): cucumber tree (*Magnolia*), persimmon (*Diospyros*), beech (*Fagus*), red oak (*Quercus*), river and yellow birch (*Betula*), black walnut (*Juglans*), and black tupelo (*Nyssa*). These were assembled by Artist-Preparator Milton Copulos, except the branch of beech, which was made by Artist-Preparator Grove. The life-like appearance of the plastic leaves used in these exhibits invites close observation. The success of preparing leaves in plastic, a technique developed at the Museum,

depends largely on the transfer of natural details to metal dies and proper control of heat and pressure during the process of molding. Preparator Frank Boryca is continuously occupied with making the foliage needed for all reproductions. A preserved branch of white cedar (*Thuja*) for Hall 26 was restored by Curator Sella. Chief Curator Just planned and supervised the preparation and installation of the paleobotanical exhibits now on display in Hall 37.



Rhynia Gwynne-Vaughani Kidston and Lang is one of the earliest and most primitive vascular plants ever found. It was discovered about forty years ago near the village of Rhynie in Aberdeenshire, Scotland, in chert of Lower-Middle Devonian age and later described in great detail because of the remarkable state of preservation of its external and internal structural features. It was a rootless and leafless marsh plant about eight inches high, with creeping underground and upright stems. This life-size reconstruction, the first ever made, was modeled in glass by Emil Sella, Curator of Exhibits, Department of Botany, and is exhibited in the case showing the principal groups of the plant kingdom now placed on display in the new Hall of Fossil Invertebrate Animals and Fossil Plants (Hall 37).

Department of Geology

Research and Expeditions

Dr. Sharat K. Roy, Chief Curator of Geology, spent six months in El Salvador as the Museum's representative in geology at the Tropical Institute. El Salvador being primarily a land of volcanoes, both active and dormant, Chief Curator Roy availed himself of the opportunity offered and devoted most of his field work to studying the structure of the main groups of volcanoes and making a representative collection of the rocks composing them. Other important field work in El Salvador consisted of securing pertinent data on the fossiliferous marine limestone at Metapan and on the lacustrine limestone, partly oolitic and partly fossiliferous, near Carolina (Metapan and Carolina are small towns located, respectively, at the northwest and northeast sides of El Salvador). While engaged in work around Carolina, a rather uncommon occurrence of asphalt mixed with opalized silica in basalt was observed. Samples were collected with the hope that the origin of the asphalt could be determined. The occurrence of asphalt and other varieties of bitumen in igneous rocks has been noted previously, but the determination of their origin has been difficult and not always conclusive.

Early in May a major disaster again struck southeastern El Salvador. Without a warning tremor, two shocks of magnitude 6-6 $\frac{1}{4}$ all but destroyed several towns and killed and injured several hundred people. The catastrophe offered Chief Curator Roy an unexpected opportunity for first-hand field study of the stricken areas. He visited the devastated towns and neighboring regions several times and took numerous photographs and copious notes on evidences that might furnish information regarding the origin, epicenter, and intensity of the earthquake. On his way back to the States he spent some days in Mexico and made a preliminary survey of the new volcano Paricutin. He expects to return to Mexico in 1952 for a more detailed study of the volcano.

Studies of meteorites by Chief Curator Roy in collaboration with Robert K. Wyant, Curator of Economic Geology, continued, and a paper on the Benld meteorite was published by the Museum during the year. Curator Wyant, who was to accompany Chief Curator Roy to El Salvador but was unable to do so, prepared a complete bibliography of the geology of El Salvador that was of great help in familiarizing Chief Curator Roy with the various aspects of the geology of El Salvador and will be of still greater help when the



Izalco, newest volcano in El Salvador (born in 1770), was photographed midway in his successful climb to the summit by Dr. Sharat K. Roy, Chief Curator of Geology.

results of the work done in El Salvador are being made ready for publication. Curator Wyant spent much of his time in the chemical laboratory in analytical work. He made detailed quantitative chemical analyses of several stone meteorites and of sedimentary rocks and from the bulk analyses determined the mineralogical composition of the stone meteorites. In addition he made a statistical study of the distribution of calcium, magnesium, and silica in meteorites and examined thin-sections of all the feldspar-rich silicate meteorites in the Museum collection.

George Langford, Curator of Fossil Plants, devoted his time almost entirely to cataloguing, preparing, and identifying Upper Cretaceous and Lower Eocene plants from the clay deposits of western Tennessee, northern Mississippi, and northern Alabama. The specimens, represented largely by leaves, were collected by him in June and October with the assistance of Dr. R. H. Whitfield, Associate in Fossil Plants, and Eugene S. Richardson, Jr., Curator of Fossil Invertebrates. Curator Langford also spent several days at various times at the strip coal mines near Wilmington, Will County, Illinois, collecting Pennsylvanian flora and fauna. On these trips he was frequently accompanied by Mrs. Langford, who also volunteered her services to the Museum for nearly a month to assist in preparing the fossil plants collected during the year. As all of these fossils were collected from a clay deposit, it was

necessary to remove the adhering clay before the fossils could be identified and permanently preserved. She did this with great skill and patience.

Until the reopening on October 1 of Frederick J. V. Skiff Hall (Hall 37, Fossil Invertebrate Animals and Fossil Plants) Curator Richardson was engaged almost entirely in selecting, checking, identifying, and labeling specimens for the new exhibits in that hall. Since then he has been occupied chiefly in reorganizing the storage of specimens in the study collection. In the new exhibits fewer specimens have been used, with the result that several thousand excellent fossil invertebrates were left over as surplus and had to be removed to the study collection. Most of these have now been placed in their proper sequence in the study collection, after their identifications were checked and new labels typed. In the course of this work many poor specimens or specimens with incomplete data were put aside to provide more space for the ever-increasing study collection.

Dr. Robert H. Denison, Curator of Fossil Fishes, completed a paper on the Late Devonian fresh-water fishes of the western United States that was published during the year by the Museum. He is now engaged in working on the Early Devonian fishes collected in Utah in 1949 and 1950. The first part of this study dealing with one group of ostracoderms (Osteostraci) is ready for publication, and work on other ostracoderms (Heterostraci) is under way. The environment of the earliest vertebrates is another problem that has occupied his attention. Curator Denison visited a number of fossil-fish localities in the eastern states during August and obtained collections of Silurian ostracoderms in Pennsylvania, northern New Jersey, and southeastern New York and a number of Devonian fishes from the black shales of western New York and from the limestones of Ohio.

Dr. Rainer Zangerl, Curator of Fossil Reptiles, prepared an annotated bibliography on marine paleoecology of fossil reptiles and Recent turtles for the National Research Council's "Treatise on Marine Ecology and Paleoecology." His revision of the turtles of the family Toxochelyidae is expected to be ready for publication early in the year. He also spent a considerable amount of time in preparing in detail one of the nothosaur skeletons from the Alcova limestone of Wyoming in anticipation of a visit by Professor Bernhard Peyer of the University of Zurich, the foremost authority on nothosaur morphology. Curator Zangerl made a study trip to the University of California at Berkeley, accompanied by Professor Peyer, and visited the major fossil-vertebrate localities along the

way. Of particular interest were the Western marine Triassic areas and the collections from these beds at the University of California. On a weekend excursion to investigate some Pennsylvanian deposits in west-central Indiana, noticed by Curator Zangerl earlier in the year, he and Professor Peyer discovered a narrow band of highly bituminous shale that is extremely rich in vertebrate and invertebrate fossil remains. Curators Zangerl, Richardson, and Denison made a second trip to this locality later in the year.

The most interesting event in the Division of Fossil Mammals during the year was the discovery in the Early Cretaceous of northern Texas of molar teeth of the group from which all living mammals, with the exception of the egg-laying monotremes, have descended. Although few in number, these teeth demonstrate that the origin of mammals of placental and marsupial grade dates back to at least 125 million years ago. In addition, they further clarify our knowledge of mammalian relationships during the Age of Reptiles and, most important of all, perhaps, contribute greatly to an understand-

The intensity of the disastrous earthquake that struck southeastern El Salvador in May, 1951, may be judged by these photographs taken by Chief Curator Sharat K. Roy.



ing of the course of evolution followed by the mammalian dentition. An account of these specimens and a discussion of their significance will be prepared by Bryan Patterson, Curator of Fossil Mammals. One of the most notable achievements in the history of the Department of Geology was the work of the Marshall Field Paleontological Expeditions to Argentina and Bolivia during 1922-24 and 1926-27. These expeditions, under the direction of Elmer S. Riggs, Curator of Paleontology at that time, brought together magnificent collections of fossil mammals from a number of Cenozoic formations. Unfortunately, it has not been possible to realize the potential importance of these collections because precise identification of many of the specimens was not feasible from the literature alone and could only be done by examination of material in the museums of Argentina. The opportunity to carry out this long-needed work has now been afforded by the award of a John Simon Guggenheim Memorial Foundation Fellowship to Curator Patterson for research on South American fossil vertebrates. Curator Patterson left for Argentina near the end of the year and will devote 1952 to the task. Upon his return it will at least be possible to describe the collections in a manner that they deserve.

The program of field work in the Early Cretaceous Trinity sands of northern Texas, a collaborative undertaking with Texas Memorial Museum, begun in 1950, was continued during the year. Curator Patterson and Chief Preparator Orville L. Gilpin devoted most of April and May and part of June to excavating, washing, and sifting the bone-bed that yields the fragmentary remains of mammals and other vertebrates. The concentrate from approximately thirteen tons was brought back to the laboratory, where it was reprocessed before the laborious task of sorting under the microscope was begun, and, to date, nearly eighty specimens of mammals have been found. The significance of this figure becomes apparent when it is realized that in all the world only some half-dozen mammals of Early Cretaceous age had previously been discovered. In addition to these forms, additional specimens of triconodonts have been recovered and multituberculates have begun to appear for the first time since this study began.

In September Preparator William D. Turnbull and Priscilla F. Turnbull, Assistant in Fossil Vertebrates, accompanied by Richard Konizeski, of the University of Chicago, made a short trip to Norman, Oklahoma, and collected an excellently preserved and well-articulated skeleton of the early Permian pelycosaur *Cotylorhynchus romeri*. It is closely allied to *Casea* and will be an important addition to the Museum's collection of Permian reptiles.

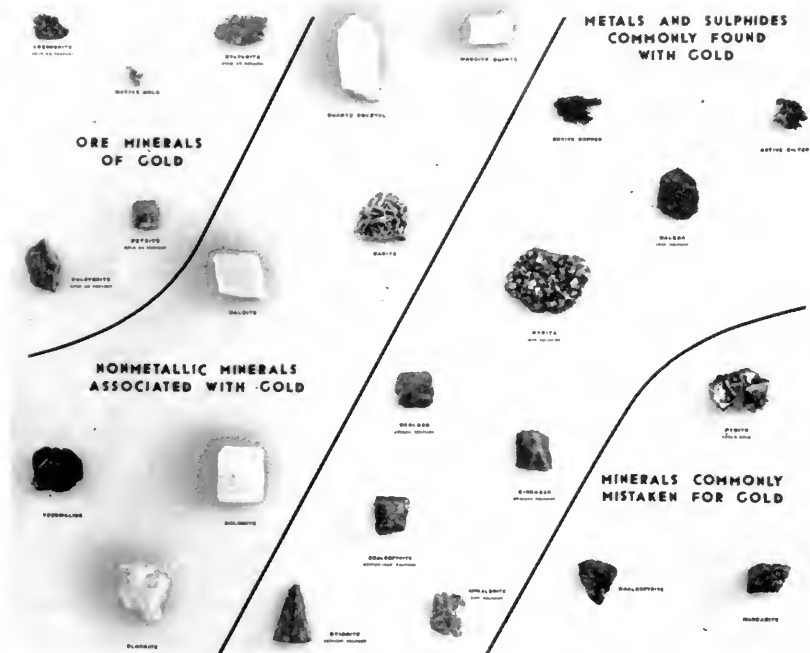
Accessions—Geology

The most valuable accession of fossil plants this year was the paleobotanical collection of the Walker Museum of the University of Chicago. This extensive collection of fossil plants from various geological ages and from various localities, received by the Museum as a gift, was assembled during a period of nearly fifty years by expeditions, purchases, and donations from many individuals. Coal-measure plants, including numerous coal balls, constitute the largest single part of the collection, and specimens from the Mesozoic and Tertiary complement the Museum's existing collection. This gift will permit expanded activity in the field of paleobotany and provide excellent material for exhibition. Through the generosity of Jon S. Whitfield, of Evanston, Illinois, the invertebrate-fossil collection was enriched by 87 specimens from the Pennsylvanian coal-swamp nodules of the Braidwood-Wilmington area, Illinois. These specimens are the cream of Mr. Whitfield's personal collection made during the past several years and add significantly to the unparalleled representation of this fauna brought together by Curator Langford as a valuable by-product of his years of collecting fossil plants from the same region. It is noteworthy that Mr. Whitfield's gift includes 19 specimens of the small horeshoe crab *Euprops* and 21 specimens of small aquatic crustaceans, all commonly regarded as rather rare fossils. As in the past, the Museum has benefited greatly from the gifts of fossil plants and contribution of time and effort by Mr. Whitfield's parents, Dr. and Mrs. R. H. Whitfield, Associates in the Division of Fossil Plants. Gifts to the collection of fossil vertebrates include a large and well-preserved *Ceratodus* tooth from the mammal-bearing Early Cretaceous Trinity sands of northern Texas from L. H. Bridwell, four Devonian fishes from New York from Alick L. Carter, and several Permian reptile and amphibian specimens collected by Dr. Everett C. Olson, Research Associate, from the University of Chicago. To the gem collection were added two beautiful pieces of East Indian jewelry, a bracelet and a necklace, gifts from Mrs. Samuella Crosby, of Chicago.

Exhibits—Geology

Thirteen exhibits (including four habitat groups) were completed during the year and installed in the new Hall of Fossil Invertebrate Animals and Fossil Plants (Hall 37, Frederick J. V. Skiff Hall), which was reopened on October 1. By using modern methods to

GOLD AND ASSOCIATED MINERALS



Three minerals commonly mistaken for gold are shown in this exhibit of native gold and gold ores, one of the fifty-four exhibits in the Hall of Economic Geology (Hall 36).

display carefully selected material of educational value, it has been possible to present to the public one of the outstanding halls of this kind in the world. The hall now contains fifty-three exhibits arranged in two sequences. On the south side of the hall twenty-three screens and ten habitat groups constitute a historical sequence of the life and geology of twelve geologic periods emphasizing 540 million years of earth-history. Twenty cases on the north side of the hall show fossil invertebrate animals and fossil plants systematically arranged by natural groups to form a biological sequence.

The success of Hall 37 is in a large measure the result of the concerted effort of all concerned in the Department of Geology and to the hearty co-operation of all other departments of the Museum. Curator Richardson, Curator of Exhibits Harry E. Changnon, and Preparators Henry Horback and Henry U. Taylor gave their undivided attention to the hall for the period of three years during

which it was being installed. They are to be congratulated for the results achieved. Many of the illustrations in color and paleogeographic maps were done by John Conrad Hansen, departmental Artist. The series of cases displaying fossil plants was prepared and installed under the direction and advice of Dr. Theodor Just, Chief Curator of Botany, in co-operation with Curator Langford. The ten restoration groups are the work of George Marchand, sculptor-artist, of Ebenezer, New York.

Installations in the Hall of Economic Geology (Hall 36) were completed during the year with the addition of two exhibits. The hall now contains fifty-four exhibits showing the minerals and ores of economic importance and their uses. The mineral and meteorite exhibits were moved from Hall 34 to Hall 35 (Clarence Buckingham Hall) and the physical-geology exhibits formerly in Hall 35 were removed from exhibition for modernization and reinstallation in a new hall of physical geology (Hall 34). No new exhibit was installed during the year by the Division of Vertebrate Paleontology, although three Permian reptile skeletons were prepared and mounted for exhibition by Chief Preparator Gilpin and Preparator Stanley Kuczek.

This habitat group in Hall 37 shows some of the typical marine animals that lived among the coral reefs on the present site of Chicago about 365 million years ago.



Department of Zoology

Research and Expeditions

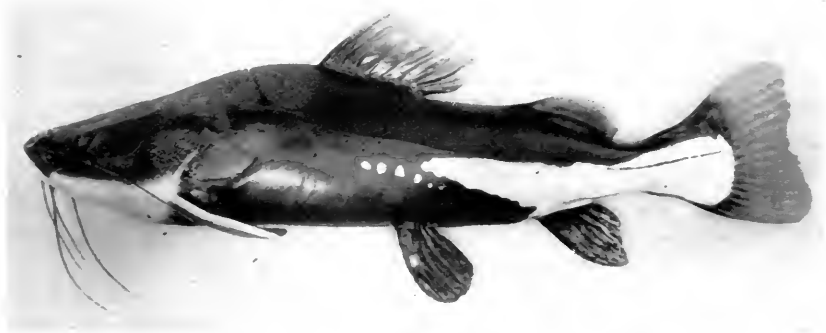
The principal research project for the year in the Division of Mammals resulted in completion by Curator Colin C. Sanborn of the report on the mammals collected by the Philippines Zoological Expedition of 1946-47. Further studies were made by Curator Sanborn of mammals from Yemen, Arabia, and from southeastern Peru and of bats from Northeast Africa. He has begun the study of a collection of rodents from Angola and has identified small collections from Siam and Bolivia for the National Museum of Siam and for the branch of the Rockefeller Foundation in La Paz, Bolivia. Philip Hershkovitz, Assistant Curator, was occupied throughout the year with his mammal survey of Colombia, which lays the foundation for further researches on the mammals of Colombia. His third year in Colombia was devoted mainly to the exploration of the Bogotá region. Although activities of revolutionary bands made certain areas inaccessible and the expedition was hampered by unfavorable weather, the collections for the year amount to more than one thousand specimens.

In the Division of Birds the principal research activities of Dr. Austin L. Rand, Curator, were devoted to his field work in El Salvador as the Museum's representative in zoology at the Tropical Institute and to the subsequent completion, with Melvin A. Traylor, Jr., Research Associate, of the manuscript for a handbook on the birds of El Salvador to be published in Spanish translation. Curator Rand was also engaged in study of a collection of birds from Nepal, in various revisionary studies of African birds, and in further researches on Philippine birds in association with D. S. Rabor, of Silliman University, Philippine Islands, visiting Guggenheim Fellow. Emmet R. Blake, Associate Curator, was occupied throughout the year with his field guide to Mexican birds, to be published by the University of Chicago Press. It should be emphasized that summaries of this nature, like that of Curator Rand for the birds of El Salvador, form a by-product of the more technical researches in museums and that their preparation is an essential service that can come only from museums and museum scientists. Research Associate Traylor, in addition to working with Curator Rand, made taxonomic studies of bird collections from Peru and Paraguay. Mrs. Ellen T. Smith, Associate, devoted much of her time to curatorial work, and her aid has been especially valuable during the year in connection

with the rearrangement of the Conover Collection. A program of collecting, mainly birds, in the rain-forest of Gabon, French Equatorial Africa, was continued for the Museum by Harry A. Beatty, of New York.

Clifford H. Pope, Curator of Amphibians and Reptiles, continued his studies of North American salamanders, completing a study of the interesting Ouachita Mountain species *Plethodon ouachitae* and extending his field work to Mexico, where July and August were spent with Charles M. Bogert, of the American Museum of Natural History, New York, and Dr. Archie F. Carr, of the University of Florida, in exploration of the Volcán Toluca on the escarpment of the Mexican plateau. Curator Pope has conferred with the staff of the School of Medicine, Northwestern University, and Lincoln Park Zoo regarding initiation of a program of study of snake venoms. He joined J. D. Romer, of Hong Kong, in the description of a new species of frog from that island. Chief Curator Karl P. Schmidt resumed his study of American coral snakes, prepared a paper on a collection of amphibians and reptiles of Iran, and continued work on a new edition of the *Checklist of North American Amphibians and Reptiles*. Stanley Rand, who accompanied his father to El Salvador, worked on his resulting collection of amphibians and reptiles during July and August for the purpose of preparing a report for publication by the Museum. A long-term interest of the Division of Reptiles, the measuring and marking of blue racers from a hibernation aggregation of this interesting local species of snake, was continued in the Indiana dunes region by Miss Laura Brodie, Assistant. This activity was begun in 1935 by Chief Curator Schmidt and has been carried on intermittently by various members of the zoology staff.

Loren P. Woods, Curator of Fishes, continued his investigations of the ecological distribution and taxonomy of the fishes of the Gulf of Mexico. Trips to the northern Gulf and to the Campeche Banks were made on the United States Fish and Wildlife Service research vessel *Oregon* at the invitation of Stewart Springer, fishery engineer. Robert F. Inger, Assistant Curator, continued his studies of the brackish and fresh-water fishes of Borneo, based on the collections of the Museum's Borneo Zoological Expedition of 1950. His collections and studies in North Borneo form a valuable supplement to our knowledge of the fishes of the vast island, whose area amounts to nearly three hundred thousand square miles. He completed his review of the Amphibia of the Philippine Islands, drawn up in comprehensive form in the hope of making it useful to the new generation of students of zoology in the Philippines. His report is based on the Philippines Zoological Expedition of 1946-47. As part of a



This model of the handsome red-tailed and shield-headed catfish of the Amazon Basin, from a specimen presented by John G. Shedd Aquarium, is shown in Hall O.

program of renewed study of cave fishes of North America, Curator Woods and Assistant Curator Inger made three field trips to southern Indiana, Illinois, and Missouri and to Kentucky, where they visited a total of twenty-four caves and fourteen springs. A checklist of the fishes of the deep sea (below 1,000 fathoms) is in preparation by Mrs. Marion Grey, Associate.

Research activities in the Division of Vertebrate Anatomy were curtailed by its transfer to new quarters. Curator D. Dwight Davis worked on the anatomy of the head of the salamander *Cryptobranchus* and on the baculum of the gorilla and, in relation to the monograph on the giant panda, continued studies of the anatomy of carnivores. Dr. R. M. Strong, in addition to his work for the Conservation Council of Chicago and management of the Illinois Audubon Society, continued study of the anatomy of the mud-puppy *Necturus*.

The most important completed research in the Division of Insects was the study of rove beetles of the group Gyrophaenae by Research Associate Charles H. Seevers. Curator Rupert L. Wenzel continued his studies of the beetles of the family Histeridae and at the end of the year was engaged in the study of types in various European museums. Associate Curator Henry S. Dybas made a study trip to several museums in the eastern states, where he examined important type-material to further his studies of the minute fungus inhabiting beetles of the family Ptiliidae. William J. Gerhard (who became Curator Emeritus on January 1 at his own request and completed in September his fiftieth consecutive year in the Division of Insects) has been occupied since his retirement chiefly with the organization of the Division's large library of pamphlets and the

transfer of the Strecker Collection of butterflies and moths to permanent drawers in the new metal cases made possible by the expansion of the Division of Insects in 1950-51. In addition, the great experience and knowledge of the Curator Emeritus are being constantly drawn upon by his fellow workers in the Division and in the Museum. Field work of the Division of Insects was limited to local trips to investigate such special habitats as tree-holes and pocket-gopher burrows, which are still quite inadequately known even in the Chicago area.

Dr. Fritz Haas, Curator of Lower Invertebrates, finished his study of the brackish and fresh-water mollusks of Bermuda based on his collections of 1947, 1948, and 1950 and completed a report on a collection of shells from the Near East made in 1950 by Dr. Henry Field, former member of the Museum staff, on his expedition for the Peabody Museum of Harvard University. Curator Haas made a study of the Unionaceae for the forthcoming "Treatise on Invertebrate Paleontology," and at the end of the year final work was under way on his monograph of the bivalves (begun long before World War II) for *Bronn's Klassen und Ordnungen des Tierreiches*, the great German work on the animal kingdom.

The routine work of the Department of Zoology operates as an essential aid to the research program as a whole. The organization of the departmental files of illustrations continued under the direction of Miss Brodie, Assistant. Miss Margaret G. Bradbury, Artist, prepared drawings for the Divisions of Reptiles and Fishes and for a paper by the Chief Curator. Mrs. Dorothy B. Foss, Osteologist, continued the work of preparing skeletons for the Division of Vertebrate Anatomy and of skulls for the Division of Mammals. Hymen Marx, Assistant, bore the load of accessioning, cataloguing, numbering, and labeling incoming material in the Division of Reptiles, and August Ziemer, Assistant, had charge of pinning and preparation in the Division of Insects.

Exhibits—Zoology

The body of Bushman, the famous gorilla of Lincoln Park Zoo, was prepared for exhibition by a combination of techniques. The face and feet were made as celluloid models by the Walters Process and these were combined with the mounted skin, the assembled whole being a combination of the skills of Taxidermists Leon L. Walters and Frank C. Wonder and Artist Joseph B. Krstolich. After temporary exhibition in Lincoln Park Zoo, Bushman was returned



This celluloid model of the spectacled cobra of southeastern Asia shown in its warning attitude is based on a specimen that was received from the Chicago Zoological Society.

to the Museum for a permanent place in the Museum's hall of African mammals (Hall 22, Carl E. Akeley Memorial Hall). No technique other than celluloid reproduction could have made the hairless face, with its translucent fleshy skin, appear so life-like, and Bushman's expression of repose and of almost arrogant indifference to his multitude of visitors has been wonderfully caught by Taxidermist Walters. The addition of the new gorilla makes possible the retirement from exhibition of three gorillas that date from the early years of the Museum and represent the style of taxidermy in vogue in the last century.

Two cases were added to the series of subjective exhibits that supplement the systematic collection of birds of the world in Boardman Conover Hall (Hall 21). The first of these shows the principles of camouflage by countershading and adaptive resemblance as well as the less evidently adaptive conspicuous colorations. The second shows noteworthy types of hybridization in birds and sets forth a

series of the remarkable natural hybrids between the blue-winged warbler and the golden-winged warbler in the eastern United States, which segregate out as Brewster's warbler and Lawrence's warbler in the second generation. Work is in progress on the synoptic series of birds of the world by Taxidermist Carl W. Cotton. Taxidermist Walters and Taxidermist Ronald J. Lambert have revised and relettered the screens of cobras and their allies and of vipers, and these exhibits have been reinstalled in Albert W. Harris Hall (Hall 18, Reptiles, Amphibians, and Insects). Revision of the screens of turtles has involved field work by Taxidermist Lambert, who is making natural ground-work bases for the specimens by a celluloid infiltration technique. A model of the red-tailed catfish of South America, prepared by Taxidermist Wonder, was placed on exhibition in the Hall of Fishes (Hall O). The species is remarkable for the bony shield that covers the head and back as well as for brilliant coloration. The specimen on which the model is based was received from the John G. Shedd Aquarium. Artist Krstolich resumed work on the exhibit for the Hall of Anatomy (Hall 19) that will answer the question "What Is a Muscle?"

Accessions—Zoology

By far the most important accession in the year for the Division of Reptiles was the gift from Mrs. Sherman C. Bishop, of Rochester, New York, and Mrs. Daniel W. O'Dell, of Ithaca, New York, of the collection of salamanders accumulated by the late Professor Bishop that formed the basis of his *Handbook of North American Salamanders*. The active study of these creatures initiated by Curator Pope makes it appropriate that the Bishop Collection should be in his charge. Because of the transfer of the Division of Reptiles to the ground floor in 1952, the collection, in its 1,500 jars, will not be unpacked until the new storage space is prepared. With this collection, thanks to the authorities of the University of Rochester, the Museum received also the university's entire collection of amphibians and reptiles, including excellent series of turtles. Other significant gifts are 52 amphibians and reptiles of Colombia from Hermano Daniel; 26 salamanders of Kentucky from Dr. Roger W. Barbour; and 72 salamanders of North Carolina from Dr. James Kezer. A share of the amphibians and reptiles collected by the Hopkins-Branner Expedition to Brazil in 1911 was acquired in exchange for the preparation of a report on the collection, which is now in the California Academy of Sciences, San Francisco.

The outstanding gift in the Division of Insects is the collection of about 10,000 rove beetles (including 24 holotypes and 1,800 paratypes of 33 species) that formed the basis for the paper by Research Associate Seevers on the Gyrophaenae published this year by the Museum. A notable purchase is the Eugene Ray Collection of mordellid beetles, which adds to the collections another broadly representative world-wide family unit consisting of about 6,000 specimens, with 13 holotypes and some 200 paratypes. The collections of this family available in the Museum include the Liljeblad Collection on long-term loan from the Museum of Zoology

Bushman, famous gorilla of Lincoln Park Zoo, is now on exhibition at the Museum.



of the University of Michigan. The major accession of the year and one of the most important acquisitions in the history of the Division of Insects is the Bernhauer Collection of Staphylinidae, including library and correspondence, which was purchased from an heir in Vienna, Austria, but had not yet arrived at the end of the year. A preliminary examination of the collection in Vienna by Curator Wenzel indicates that types of from 4,000 to 5,000 species of Staphylinidae are represented in the collection of perhaps 100,000 specimens, but a more detailed inventory must await the arrival of the collection at the Museum. Packing and shipping of insects is always a special problem because of the delicate nature of the material. The Bernhauer Collection, because of its location in a distant country (Vienna is surrounded by a Soviet Zone), posed an especially exacting problem. Curator Wenzel devoted more than a month before his type-study project in European museums to the arduous and intricate preparations involved in transferring this unique scientific material to this Museum, where it will be integrated with the Museum's other important collections of beetles.

The acquisition by purchase of the collection of fishes of Carnegie Museum, Pittsburgh, represents the most important single accession in the history of the Division of Fishes. This collection, of approximately 40,000 specimens, comprises more than 11,000 lots of fishes, including the famous South American material gathered by Dr. Carl H. Eigenmann and his students, several large collections from Japanese waters, and many smaller series from areas until now unrepresented in the Museum. The collection more than doubles the number of type specimens of fishes in the Museum and adds a large number of genera and families hitherto not available to the staff. It is anticipated that students from other institutions as well as the staff of this Museum will benefit by having this extremely important material made available for study.

Gifts of outstanding importance in the Division of Lower Invertebrates came from Peabody Museum, Harvard University, and Leslie Hubricht, of Danville, Virginia. Exchange relations for mollusks were maintained with the United States National Museum, Washington, D.C., by which paratypes are acquired by both institutions. Generous gifts of shells, fishes, mammals, birds, reptiles, and amphibians of Yemen collected by Field Associate Harry Hoogstraal represent in the Museum collections for the first time this little-known corner of Arabia. The body of the gorilla Bushman, who died at Lincoln Park Zoo on New Year's Day, 1951, was received by the Museum and formed the basis of the reproduction for permanent exhibition by the Museum's taxidermy staff.

LIBRARY OF THE MUSEUM

Any library bears the marks of the individuals who have contributed to its growth, and this is especially true of the Library of Chicago Natural History Museum. Throughout the years the Library has participated in the generous gifts made to the Museum by those having its welfare at heart. Represented among the holdings in the four major divisions of the Library are contributions consisting of individual volumes, complete sets of works covering special fields, and entire private collections. This past year the Library has again been the fortunate recipient of another generous gift—the large personal collection of ornithological books and periodicals bequeathed to it by the late Boardman Conover, Trustee of the Museum and Research Associate in the Division of Birds. (For names of all donors in 1951, see page 100.)

In accordance with the traditional policy of building up the Library's collection by a highly selective process, the year has been characterized by important acquisitions to meet the expanding needs in research of the staff and of scholars who depend upon the Library's resources. The addition of 1,956 volumes represents both books and serials. This aggregation includes publications covering the newer branches of scientific endeavor in the four major divisions of the Museum's field of interest as well as rare and difficult-to-obtain desiderata. The following selections are some of the long-wanted items that recently have been acquired:

BOOKS

- Bernardi, A. C., *Monographie du genre Conus* (1861)
- Bordas, Léonard, *Recherches sur les organes reproducteurs mâles des coléoptères (anatomie comparée, histologie, matière fécondante)* (1900)
- Bourguignat, Jules René, *Aperçu sur les Unionidae de la péninsule italique* (1883)
- , *Histoire des Méléniens du système Européen* (1884)
- , *Histoire malacologique du Lac Tanganika (Afrique équatoriale)* (1890)
- , *Mélanidies du Lac Nyassa suivies d'un aperçu comparatif sur la faune malacologique de ce lac avec celle du grand Lac Tanganika* (1889)
- Buitenzorg, Java. 's Lands plantentium, *Icones borgorienses*, 4 v. (1897–1914)
- Candolle, Augustin Pyramus de, *Théorie élémentaire de la botanique, ou Exposition des principes de la classification naturelle et de l'art de décrire et d'étudier les végétaux*, 2nd ed. (1819)
- Casey, Thomas Lincoln, *Contributions to the descriptive and systematic coleopterology of North America*, 2 pts. (1884–85)
- Clerck, Frederik Sigismund Alexander de, *Nieuw plantkundig woordenboek voor Nederlandsch Indië* (1927)
- De Geer, Charles, *Mémoires pour servir à l'histoire des insectes*, 7 v. (1752–78)
- Devold, J., and P. F. Scholander, *Flowering plants and ferns of southeast Greenland* (1933)

BOOKS (continued)

- Fabricius, Johann Christian, *Epitome Entomologiae Fabricianae, sive Nomenclator Entomologicus emendatus, sistens Fabriciani Systematis cum Linneano comparationem* (1797)
- Ganglbauer, Ludwig, *Die Käfer von Mitteleuropa*, Bd. 1-4 (1892-1904)
- Hagelstein, Robert, *The Mycetozoa of North America* (1944)
- Harcourt, Raoul d', and Marguerite (Béclaid) d' Harcourt, *La musique des Incas et ses survivances* (1925)
- Hawks, Ellison, *Pioneers of plant study* (1928)
- Hegi, Gustav, *Illustrierte flora von Mitteleuropa*, Bd. 1-2, 2 auf. (1936-39)
- Herzog, Theodor, *Geographie der Moose* (1926)
- Holandre, Jean Joseph Jacques, *Faune du département de la Moselle* (1836)
- Holder, Charles Frederick, *Living lights, a popular account of phosphorescent animals and vegetables* (1887)
- Kerner, Anton Joseph, Ritter von Marilaun, *Pflanzenleben*, 3 auf. neubearb., 3 v. (1913-16)
- Kerner, Anton Joseph, Ritter von Marilaun, and Francis Wall Oliver, *The natural history of plants, their forms, growth, reproduction, and distribution*, 2 v. (1902)
- Kobelt, Wilhelm, *Studien zur zoogeographie*, 2 v. (1897-98)
- Kudo, Yushun, *Taxonomy of Japanese useful trees and shrubs (Nihon yuyo jumoku bunruigaku)* (1943)
- Linné, Carl von, *Caroli Linnaei Entomologia, faunae suecicae descriptionibus aucta*, 4 v. (1789)
- Lister, Arthur, *A monograph of the Mycetozoa, a descriptive catalog of the species in the Herbarium of the British Museum* (1925)
- Lucas, H., *Entomologie de l'expédition de Castelnau dans les parties centres de l'Amerique du Sud* (1843-47)
- Mellis, John Charles, *St. Helena: a physical, historical and topographical description of the island, including its geology, fauna, flora and meteorology* (1875)
- Miller, William, *A dictionary of English names of plants applied in England and among English-speaking people to cultivated and wild plants, trees and shrubs* (1884)
- Mousson, Joseph Rudolph Albert, *Révision de la faune malacologique des Canaries* (1873)
- Oviedo y Valdés, Gonzalo Fernández de, *Historia general y natural de las Indias, islas y tierra firme del mar océano*, 14 v. (1844-45)
- Pabst, G., ed., *Koehler's medizinal-Pflanzen in naturgetreuen abbildungen mit kurz erläuterndem Texte*, 4 v. (1883?-1914?)
- Rondani, Camillo, *Dipterologiae italicae, facsimili ed.*, 8 v. (1856-80)
- Rossi, Pietro, *Fauna Etrusca, sistens insecta quae in provinciis Florentina et Pisana praesertim collegit Petrus Rossius*, 2 v. (1790)
- Scott, Dukinfield Henry, *Studies in fossil botany*, 3rd ed. (1920-23)
- Sim, Thomas Robertson, *The ferns of South Africa*, 2nd ed. (1915)
- Sowerby, James, *English botany*, 13 v. (1863-1902)
- Thunberg, Karl Peter, *Dissertatio entomologica novas insectorum species, sistens insecta suecica*, 9 pts. (1781-91)
- , *Dissertatio entomologica sistens insecta suecica*, 7 pts. (1784-95)
- Tierwelt Deutschlands und der angrenzenden Meeresteile nach ihren Merkmalen und nach ihrer Lebensweise*, 40 pts. (1925-42)
- Tierwelt Mitteleuropas. Insecta*, Bd. 4-6 (n.d.)
- Walker, Francis, *Insecta Britannica. Diptera*, v. 1-3 (1851-56)
- Watson, H. C., *Compendium of the Cybele Britannica*, 3 v. (1868-70)
- Zahlbruckner, Alexander, *Catalogus lichenum universalis*, 10 v. (1922-40)

SERIALS

- Abeille; journal d'entomologie* (Société Entomologique de France), v. 1-10 (1864-73)
- Acta phytotaxonomica et geobotanica* (Societas Phytogeographica), v. 3-14 (1933-50)
- Anatomical record*, v. 52-108 (1932-50)
- Anatomische nachrichten; amtliches organ der Anatomischen Gesellschaft*, v. 1— (1949—)
- Annals of botany*, n.s., v. 9— (1945—)
- Deutsche Geologische Gesellschaft, Berlin. *Zeitschrift*, v. 4-16, 18-22, 25-39 (1851-89)
- Index of fungi*, v. 1— (1940—)
- Konowia: Beiträge zur systematischen Insektenkunde*, v. 1— (1922—)
- Linnaea entomologica*. Zeitschrift hrsg. von dem Entomologischen Vereine in Stettin, v. 1-15 (1846-63)
- Magazin der entomologie*. Hrsg. von Dr. E. F. Germar, 4 v. (1813-21)
- Magazin für Insektenkunde*. Hrsg. von Karl Illiger, v. 1-5 (1802-06)
- Münchener Koleopterologische Zeitschrift*. Organ für allgemeine Systematik der Koleopteren und für die Koleopteren-fauna der Paläarktischen Region, 3 v. (1902-08)
- Naturwissenschaften, Die*, v. 23-37 (1935-50)
- Petites nouvelles entomologiques*, v. 1-2, nos. 1-216 (1869-March 1879)
- Præhistorische zeitschrift*, v. 1-4 (1902-12)
- Revue Suisse de Zoologie*. Annales de la Société Naturelle de Genève. v. 1-53 (1893-1946)
- Società Entomologica Italiana, Florence. *Memorie*, v. 1-9, 11-12 (1922-34)
- Société Fouad ler d'Entomologie, Cairo, *Bulletin*, v. 1-9, 11-12, 14-21, 24-29 (1908-45)
- Suomen Hyönteistiellinen aikakauskirja* (Annales Entomologici Fennici) v. 1-10 (1935-44)
- Wiener Entomologen Verein, Vienna. *Zeitschrift*, v. 1-27 (1916-42)

One of the major current activities of the Library, the reclassification of its collection according to the Library of Congress classification, long retarded by the lack of an adequate cataloguing staff, made unusual progress during 1951 because of the assignment in March of a special separate project to each of the three classifiers. The outstanding progress made in classification this year is due primarily to the organizing ability of the Librarian, Mrs. Meta P. Howell, who has inspired her group of loyal and capable assistants to exert their best efforts in attaining the results noted. The fine co-operation of the Library staff with the members of our own scientific staff and with visitors interested in using the facilities of our Library is a matter in which the Museum takes keen pride.

During the period from December, 1950, through November, 1951, a total number of 7,267 volumes were classified under the Library of Congress classification. Of this number, 5,509 covered reclassified material and 1,758 new publications. The number of

cards filed during the year in the author, title, and subject catalogue totaled 18,568. The complete report of volumes classified under Library of Congress classification to November 30, 1951, numbers 30,724, with a total of 63,329 cards covering author, title, and subject entries. Approximately 750 volumes were sent to the bindery, including new and reclassified material. Weeding-out of material not directly related to the Museum's needs or falling within the scope of its activities has continued to provide valuable stack space for new acquisitions, including important serial publications of scientific societies and research organizations.

Although interlibrary-loan service has long been an important function of the Library, the service continues to expand to include more allied institutions. A library is as essential to research as are modern equipment and methods, and yet libraries cannot hope to acquire all the vast amount of scientific research data now being published throughout the world. Thus the exchange of material through the co-operative system of interlibrary loan provides satisfactory distribution of data needed for research. The courtesy and co-operation of all libraries participating in this valuable endeavor is profoundly appreciated by the Museum Library. The exchange of both domestic and foreign publications has also expanded, and the Library now has an active file of 1,855 publications received in exchange. Revision of the exchange files is a daily procedure and, although some foreign files still are incomplete for the war years, the vast amount of correspondence outstanding should bring results in filling these gaps. In addition, the Library subscribes for 277 scientific journals. The number of research publications received regularly, both in exchange and through subscription, totals 2,132, 87 per cent of which number is received through exchange.

MOTION PICTURES

The Museum film, "Through These Doors," has been used widely throughout the Middle West and occasionally in distant cities to tell the story of what the Museum is doing. Miss Harriet Smith, of the James Nelson and Anna Louise Raymond Foundation, left the Museum in September to make an extended tour with the film under the direction of the International Film Bureau of Chicago. She will return to the Museum in February, 1952. Work in the Division of Motion Pictures, in addition to the normal care of our films, consisted largely in producing short-subject films for the use of the Raymond Foundation.

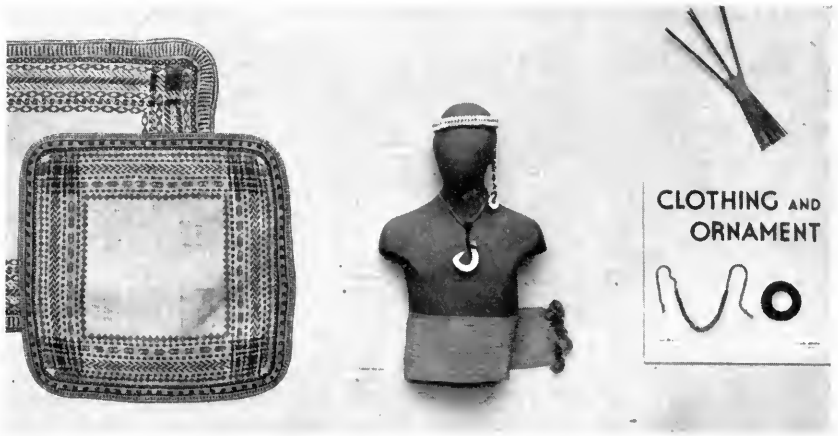
PHOTOGRAPHY AND ILLUSTRATION

Douglas E. Tibbitts, Staff Illustrator, finished during the year more than 350 separate pieces of miscellaneous art work for the departments and divisions of the Museum. Major projects, of which sixteen remained in progress at the end of the year, included illustrations for two series of Museum Stories for Children and for future publications such as "The Orchids of Guatemala" and "Guide to the Birds of Mexico," semidiagrammatic floor plans for the Museum guide, drawings of the dentition of early Cretaceous mammals, and charts of diggings at a site of early culture in South America. The Division of Photography made during the year a total of 9,670 negatives, prints, enlargements, and lantern slides. More than 108,000 negatives are now in the photography files.

PUBLIC RELATIONS

From the standpoint of publicity the most important events of the year at the Museum were the opening of Frederick J. V. Skiff Hall (Hall 37) with its new series of spectacular exhibits of fossil invertebrate animals and fossil plants and the acquisition for permanent exhibition of the gorilla Bushman of Lincoln Park Zoo after his death on New Year's Day. The press also gave generous amounts of space and impressive layouts of pictures and stories to the annual exhibit of nature photography sponsored by the Nature Camera Club of Chicago and the Museum, the special exhibit of the work of amateur jewelry craftsmen held at the Museum by the Chicago Lapidary Club, and other events.

Stories released directly to the press by the Public Relations Counsel totaled 258. Many of them were accompanied by photographs made by the Museum's staff photographer, while others attracted the attention of editors who assigned their own reporters and photographers to give more extensive coverage. As usual, publicity was augmented by issuing to newspapers advance proofs of the more important stories published in the Museum *Bulletin* and by a variety of other means customarily employed in public relations work. The Museum is pleased to make special acknowledgment to the publishers, executives, and editorial staffs of the *Chicago Herald-American*, *Chicago Tribune*, *Chicago Sun-Times*, *Chicago Daily News*, Associated Press, Acme News Pictures, International News Service, United Press Association, Science Service, and International News Photos. For its important assistance in



A special exhibit, "Peoples of the U. S. Trust Territory and Guam," included a loan collection from Honolulu Academy of Arts and objects from the Museum collections.

the transmission on frequent occasions of urgent news matter to the Chicago newspaper offices by its pneumatic tubes, special thanks are given to the City News Bureau of Chicago. Additional publicity, obtained through the co-operation of radio and television stations and networks, reached audiences on news broadcasting programs, feature programs, and educational forums. Among the radio stations and networks that contributed time to the Museum were WGN, WGN-TV, WMAQ, WIND, WBBM, WENR, WLS, WJJD, National Broadcasting Company, Mutual Broadcasting System, American Broadcasting Company, and Columbia Broadcasting System.

The Museum *Bulletin* was published and distributed regularly each month. This organ, which maintains monthly contact between the Museum and its several thousand Members, serves as a publication for exchange with scientific and civic institutions and also for carrying information about the Museum to the press. Travel bureaus, department stores, civic agencies of many types, and the other museums of Chicago assisted in the distribution of many thousands of folders planned particularly to attract tourists in Chicago to visit the Museum. Posters advertising the Museum's two lecture courses for adults and the Raymond Foundation's three series of programs for children were placed on station platforms and in passenger coaches through the co-operation of the Chicago and North Western Railway, the Illinois Central System, the Chicago, Aurora and Elgin Railroad, and the Chicago Transit Authority.

PUBLICATIONS AND PRINTING

In accordance with the Museum's custom, a large part of the distribution of its scientific publications during the year was made without charge to the institutions and scientists in forty-seven states and seventy foreign countries with which the Museum has exchange relations. Forty-seven new exchanges were established. A total of 22,551 copies of scientific papers was distributed in exchange, while sales included 4,603 copies in the scientific series, 7,900 copies in the popular series, and 28,549 copies of miscellaneous publications, most of which were copies of the *General Guide* to the Museum's exhibits (see page 89). It is of interest that twenty-one colleges and universities used the Museum's popular-series booklet *Prehistoric Men* as a supplementary text in 1951. For future distribution 22,700 copies of publications were wrapped and stored.

The Museum printed during the year twenty-nine publications in its scientific series, four (three reprints) in its popular series, one annual report, and nine indexes to volumes. The total number of copies printed was 52,546, of which 50,696 copies were printed by letterpress, with a total of 1,720 pages of type composition, and 1,850 copies were printed by the Vari-type-offset process, with a total of 360 pages of 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 715,606 impressions. Two series of Museum Stories for Children and miscellaneous work by the Vari-type-offset process totaled 229,596 impressions.

Publications printed in 1951 by the Division of Printing of Chicago Natural History Museum are:

DEPARTMENT OF ANTHROPOLOGY

BRAIDWOOD, ROBERT J.

Prehistoric Men, Popular Series, Anthropology, no. 37, 122 pages, 28 illustrations (reprint)

LEWIS, ALBERT B.

People of the South Pacific, Handbooks, Anthropology, 259 pages, 60 illustrations (reprint)

MARTIN, RICHARD A.

Mummies, Popular Series, Anthropology, no. 36, 18 pages, 20 illustrations (reprint)

QUIMBY, GEORGE I.

The Medora Site, West Baton Rouge Parish, Louisiana, Anthropological Series, vol. 24, no. 2, 59 pages, 21 illustrations

DEPARTMENT OF ANTHROPOLOGY (*continued*)

QUIMBY, GEORGE I., AND ALEXANDER SPOEHR

Acculturation and Material Culture—I, Fieldiana: Anthropology, vol. 36, no. 6, 41 pages, 29 illustrations

DEPARTMENT OF BOTANY

CUATRECASAS, JOSÉ

Contributions to the Flora of South America: Studies on Andean Compositae—II, Studies in South American Plants—III, Fieldiana: Botany, vol. 27, no. 2, 113 pages, 7 illustrations

MACBRIDE, J. FRANCIS

Flora of Peru, Botanical Series, vol. 13, part 3A, no. 1, 290 pages

STEYERMARK, JULIAN A., AND COLLABORATORS

Contributions to the Flora of Venezuela, Fieldiana: Botany, vol. 28, no. 1, 242 pages, 42 illustrations

DEPARTMENT OF GEOLOGY

DENISON, ROBERT H.

Evolution and Classification of the Osteostraci and The Exoskeleton of Early Osteostraci, Fieldiana: Geology, vol. 11, nos. 3 and 4, 64 pages, 18 illustrations

Late Devonian Fresh-Water Fishes from the Western United States, Fieldiana: Geology, vol. 11, no. 5, 43 pages 12 illustrations

HOOIJER, DIRK A., AND EDWIN H. COLBERT

A Mastodont Tooth from Szechwan, China, Fieldiana: Geology, vol. 10, no. 12, 6 pages, 2 illustrations

OLSON, EVERETT CLAIRE

Diplocaulus, A Study in Growth and Variation, Fieldiana: Geology, vol. 11, no. 2, 115 pages, 18 illustrations

Fauna of Upper Vale and Chozas: 1-5, Fieldiana: Geology, vol. 10, no. 11, 40 pages, 16 illustrations

ROY, SHARAT KUMAR, AND ROBERT KRISS WYANT

The Benld Meteorite, Geological Series, vol. 7, no. 11, 13 pages 13 illustrations

DEPARTMENT OF ZOOLOGY

DAVIS, D. DWIGHT

The Baculum of the Gorilla, Fieldiana: Zoology, vol. 31, no. 54, 3 pages, 1 illustration

HAAS, FRITZ

Non-Marine Shells from Borneo Collected by the Borneo Zoological Expedition, 1950, Fieldiana: Zoology, vol. 31, no. 52, 6 pages, 3 illustrations

Remarks on and Descriptions of South American Non-Marine Shells, Fieldiana: Zoology, vol. 31, no. 46, 43 pages, 30 illustrations

HAAS, GEORG

On the Clausiliidae of Palestine, Fieldiana: Zoology, vol. 31, no. 45, 24 pages, 8 illustrations

DEPARTMENT OF ZOOLOGY (continued)

HERSHKOVITZ, PHILIP

Mammals from British Honduras, Mexico, Jamaica and Haiti, Fieldiana: Zoology, vol. 31, no. 47, 23 pages, 1 map

HOOGSTRAAL, HARRY

Philippine Zoological Expedition, 1946-1947, Narrative and Itinerary, Fieldiana: Zoology, vol. 33, no. 1, 93 pages, 14 illustrations

MERTENS, ROBERT

A New Lizard of the Genus Varanus from New Guinea, Fieldiana: Zoology, vol. 31, no. 43, 5 pages, 1 illustration

POPE, CLIFFORD H., AND J. D. ROMER

A New Ranid Frog (Staurois) from the Colony of Hongkong, Fieldiana: Zoology, vol. 31, no. 50, 4 pages, 2 illustrations

RAND, AUSTIN L.

Birds from Liberia, with a Discussion of Barriers between Upper and Lower Guinea Subspecies, Fieldiana: Zoology, vol. 32, no. 9, 96 pages, 1 map

Birds of Negros Island, Fieldiana: Zoology, vol. 31, no. 48, 26 pages

Review of the Subspecies of the Sunbird, Fieldiana: Zoology, vol. 31, no. 49, 11 pages, 1 map

SANBORN, COLIN CAMPBELL

Two New Mammals from Southern Peru, Fieldiana: Zoology, vol. 31, no. 44, 5 pages, 2 illustrations

SCHMIDT, KARL P.

The Truth about Snake Stories, Popular Series, Zoology, no. 10, 23 pages, 9 illustrations

SCHMIDT, KARL P., AND ROBERT F. INGER

Amphibians and Reptiles of the Hopkins-Branner Expedition to Brazil, Fieldiana: Zoology, vol. 31, no. 42, 27 pages, 1 illustration

SEEVERS, CHARLES H.

A Revision of the North American and European Staphylinid Beetles of the Subtribe Gyrophaenae, Fieldiana: Zoology, vol. 32, no. 10, 105 pages, 26 illustrations

STORY, H. ELIZABETH

The Carotid Arteries in the Procyonidae, Fieldiana: Zoology, vol. 32, no. 8, 82 pages, 17 illustrations

TRAYLOR, MELVIN A., JR.

A Review of the Woodpeckers Chrysoptilus melanochloros and C. melanolaimus, Fieldiana: Zoology, vol. 31, no. 41, 17 pages, 1 illustration

Notes on Some Peruvian Birds, Fieldiana: Zoology, vol. 31, no. 51, 9 pages

WOODS, LOREN P., AND ROBERT H. KANAZAWA

New Species and New Records of Fishes from Bermuda, Fieldiana: Zoology, vol. 31, no. 53, 16 pages, 4 illustrations

ADMINISTRATIVE PUBLICATIONS

Report of the Director to the Board of Trustees for the Year 1950, 142 pages, 24 illustrations

CO-OPERATION WITH OTHER INSTITUTIONS

The research collections and laboratories of the Museum were open to scientists, as in past years, and through interlibrary loan the resources of its Library were available to other institutions. Twelve young men and women were employed in 1951 by the Museum in its scientific departments under the co-operative educational plan adopted in 1946 by the Museum and Antioch College, Yellow Springs, Ohio. The Museum continued its co-operative educational relations with the University of Chicago, Northwestern University, and the School of the Art Institute of Chicago.

The Museum exhibits are used constantly by art students who seek authentic materials for their sketches, models, and designs. The School of the Art Institute of Chicago sends the greatest number of students to the Museum, and selected results of their work form a special exhibit in Stanley Field Hall of the Museum for one month in the summer. Other art schools that use the Museum exhibits are Academy of Applied Arts, Chicago Academy of Fine Arts, and Institute of Design. Adult visitors in increasing numbers also use the Museum exhibits. These visitors range from officers in the Quartermaster Corps of the United States Army to students training to be teachers, who come from Ball State Teachers College, De Paul University, National College of Education, Pestalozzi-Froebel Teachers College, and Roosevelt College.

Members of the staff continued to conduct classes at the Museum and to lecture before classes and seminars at several universities. Advanced courses in archaeology were held at the Museum for the University of Chicago by Dr. Paul S. Martin, Chief Curator of Anthropology, Donald Collier, Curator of South American Ethnology and Archaeology, and George I. Quimby, Curator of Exhibits. Dr. Alexander Spoehr, Curator of Oceanic Ethnology, gave a graduate course at the University of Chicago in the ethnology of Oceania and took part in a series of lectures on New World ethnology. Dr. Theodor Just, Chief Curator of Botany, who was appointed to the faculty of the University of Chicago, lectured at the University of Chicago and, during the fall quarter, conducted a seminar at Northwestern University on speciation. The advanced course in vertebrate paleontology of the University of Chicago again was held at the Museum, with Bryan Patterson, Curator of Fossil Mammals, Dr. Rainer Zangerl, Curator of Fossil Reptiles, Dr. Robert H. Denison, Curator of Fossil Fishes, and D. Dwight Davis, Curator of Vertebrate Anatomy, participating in the program of lectures and laboratory work. Loren P. Woods, Curator of Fishes, lectured at the Gulf



Karl Kettner, one of the student assistants at the Museum from Antioch College, is shown here preparing a fish skeleton in the new laboratory of the Division of Fishes.

Coast Research Laboratory of the University of Mississippi and before the seminar in zoogeography at the University of Illinois. As in other years classes in botany from the University of Chicago, University of Illinois, Roosevelt College, and Valparaiso University were taken on tours of the Museum's herbaria.

A number of students carried on graduate or special study at the Museum under the supervision of staff members. Graduate students from the University of Chicago were Roger Grange, George Talbot, and Howard Winters, with Chief Curator Martin and Dr. John B. Rinaldo, Assistant Curator of Archaeology; Lawrence Kaplan, with Dr. Hugh C. Cutler, Curator of Economic Botany; John W. Thieret (Chicago Natural History Museum Fellow), with Chief Curator Just; Gordon Johnson, with Dr. Everett C. Olson, Research Associate in Fossil Vertebrates; Robert F. Inger, Walter T. Stille, and Gordon Thurow, with Karl P. Schmidt, Chief Curator of Zoology; William J. Beecher, with Curator Davis; and Harry Nelson and Ronald Ward, with Alfred E. Emerson, Research

Associate in Insects. Chester Hansen, graduate student at Northwestern University, is preparing his thesis under the direction of Chief Curator Just.

Scientists from other institutions continued to use the research collections and laboratories of the Museum. Dr. Karin Hissink, of Frobenius Institute and Museum for Ethnology, Frankfurt-am-Main, Germany, visited the Museum to obtain information on museum techniques, organization, and current research. Dr. F. A. Kuttner, who is writing a book on the history of Chinese music, made a study, with the help of special electronic equipment, of the pitch and overtone characteristics of ancient Chinese jade gongs in the Museum's collection. Dr. Cesar Cisneros, director of the Institute of Anthropology and Geography, Quito, Ecuador, spent several days studying the anthropological exhibits and collections and conferring with the staff of the Department of Anthropology on methods of research. John C. Ewers, of the United States National Museum, examined the Blackfoot Indian collection; Dr. Erna Gunther, director of Washington State Museum, the Northwest Coast Indian collection; Dr. David French, of Reed College, the Wasco Indian materials; and Ray Thompson, who is making a study of modern Maya ceramics for the Carnegie Institution, the collection of recent pottery from Yucatan. Junius Bird and Miss Joy Mahler, of the American Museum of Natural History, spent ten days photographing textiles of the Eastern Woodlands Indians and ancient pottery and textiles from Nazca, Peru, and conferred with Dr. Hugh C. Cutler, Curator of Economic Botany, who is analyzing the plant material excavated by Mr. Bird at Huaca Prieta, Peru, the site of the earliest-known Indian farmers in South America. Dr. Moreau Maxwell, of Beloit College, and Robert Burgh conferred with the staff and made use of the collection of anthropological photographs and publications in connection with research projects of the Arctic-Desert-Tropic Information Center of the United States Army Air Force. Robert B. Fox, of the Philippine National Museum, spent several weeks going over the field notes of Dr. William Jones, who was killed in 1909 by Ilongot tribesmen while on a Museum expedition to study this group.

E. D. Hester, for a long time economic advisor to the High Commissioner of the Philippine Islands and now research associate in the department of anthropology of the University of Chicago, has carried on important investigations in the Department of Anthropology of the Museum. His studies have been devoted to a re-examination of the Chinese pottery that he collected in the Philippine Islands and generously lent to the Museum and a thorough



Enthusiastic junior nature-students learn about the bongo from their group leader.

analysis of the Museum's extensive ethnological research collections from the Philippines. Further, Mr. Hester has been of great aid in questions concerning Malayan ethnology, in which he is an expert. The Museum continued its co-operation with Dr. Willard F. Libby, of the Institute for Nuclear Studies, University of Chicago, in his research on carbon-14 dating by furnishing selected samples of vegetal material from Tularosa Cave, New Mexico, and, in order to check a discrepancy in dates previously obtained for two Early Nazca wood samples from the Museum's Peruvian collection, a sample of textile from an Early Nazca grave.

Visiting botanists who consulted with the staff of the Department of Botany or used the Museum's botanical collections and laboratories include: A. R. Roos, M.D., Los Angeles; Colin Marshall, British Colonial Forest Service; Miss Jeanette Kryn, Richard D. Scott, and Dr. Rogers McVaugh, University of Michigan; Dr. Norman C. Fassett and Mason E. Hale, University of Wisconsin; Dr. Adolph Meyer-Abich, Instituto Tropical de Investigaciones Cientificas, Universidad Autonoma, El Salvador; Dr. E. Lucy Braun, Cincinnati; Dr. Harlan P. Banks, Cornell University; Dr. Fred

Barkley, Chicago; Dr. Donovan S. Correll, Bureau of Plant Industry Station, Beltsville, Maryland; Dr. Dwight Moore, University of Arkansas; Dr. C. V. Morton, United States National Museum; Dr. David D. Keck, New York Botanical Garden; Dr. Lyman Benson, Pomona College; Dr. Hermann Silva, Michigan State College; Dr. William Bridge Cooke, Dr. George W. Fischer, and Dr. Charles G. Shaw, State College of Washington; Dr. F. R. Fosberg, Catholic University of America; Sister M. Cecelia Bodman, Mundelein College; Rodrigo G. Orellana, Quito, Ecuador; Dr. Maxwell S. Doty, University of Hawaii; Miss Martha Thurlow, Enoch Pratt Library, Baltimore; Dr. Bolton Davidheiser, Westmont College; Dr. Stanley R. Ames, University of Rochester; Dr. Max E. Britton, Northwestern University; Donald F. Chapp and Dr. Paul D. Voth, University of Chicago; and Dr. George A. Zentmyer, Jr., University of California. Dr. Roland W. Brown, paleobotanist, United States National Museum, examined the Upper Cretaceous and Lower Eocene plants collected during the year by the staff of the Department of Geology.

Scientists who continued important studies in the Department of Zoology were Dr. Walter C. Brown, Northwestern University; Dr. E. L. Du Brul, College of Dentistry, University of Illinois; Dr. Nicholas Hotton III, University of Kansas; Dr. Waldemar Meister, Chicago College of Osteopathy; and Dr. Edward M. Nelson, Strich School of Medicine, Loyola University. Dr. M. B. Troutman, of Franz Theodore Stone Institute of Hydrobiology, Put-in-Bay, Ohio, examined fishes of Ohio in the collections and was able to confirm records of species now extinct in the state. R. M. Darnell, whose extensive collection of fishes of Mexico is deposited in our collections, began extensive research on material from northwestern Mexico. Dr. José Herrera, of Santiago, Chile, spent four days in the study of Chilean butterflies, and Mrs. Katherine V. W. Palmer, of Cornell University, worked on the paratypes of mollusks in the Carpenter Collection, a part of the Webb Collection purchased by the Museum some years ago. The anatomy collections were consulted by W. B. Quay and P. S. Humphrey, of the University of Michigan; H. A. Ogren, of Montana State University; and Dr. C. C. Cheng, of Yenching University, Peking, China. D. S. Rabor, of Silliman University, first Guggenheim Fellow in zoology from the Philippines to study in the United States, prepared during his stay at the Museum comprehensive accounts of the vertebrates of Negros Island (on which Silliman University is located), in addition to several research papers. Leon R. Aboulafia, visiting fellow from the Biological Institute, Tel Aviv, Israel, studied museum techniques.

Under the agreement between this Museum and the Instituto Tropical de Investigaciones Cientificas of the Universidad Autonoma of El Salvador for co-operation in field work and scientific research (see 1950 Report, page 73), now known as the Salvadorean Project, Dr. Norman C. Fassett, of the University of Wisconsin, Dr. Sharat K. Roy, Chief Curator of Geology, and Dr. Austin L. Rand, Curator of Birds, were sent to El Salvador by the Museum as its representatives in botany, geology, and zoology (see pages 29, 39, 47, and 55). The Museum thanks Dr. Carlos Llerena and Dr. Aristedes Palacios, directors of the Tropical Institute, and Dr. Adolph Meyer-Abich, technical director, for their kind helpfulness and Dr. Helmut Meyer-Abich, government geologist, for generous assistance in the field.

ACTIVITIES OF STAFF MEMBERS IN SCIENTIFIC SOCIETIES

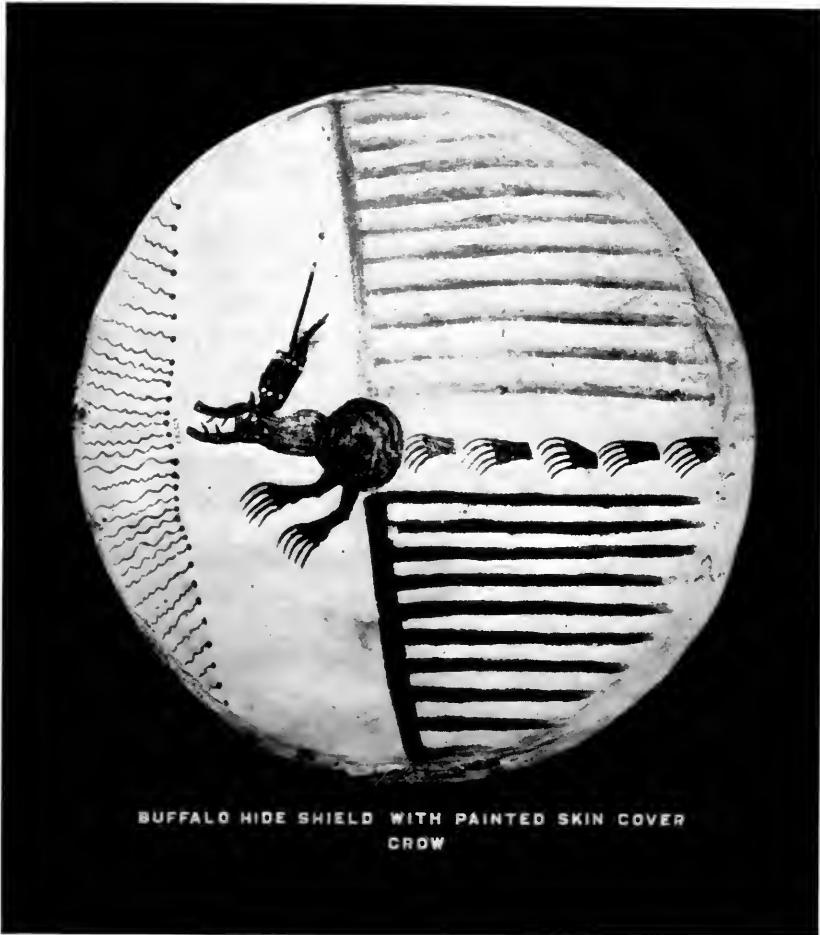
Dr. Paul S. Martin, Chief Curator of Anthropology, and members of the staff of the Department of Anthropology attended the annual meetings of the Society for American Archaeology and the Central States Branch of the American Anthropological Association at Northwestern University, Evanston, Illinois. The same staff members attended the fiftieth-anniversary meetings of the American Anthropological Association in Chicago, for which Dr. Alexander Spoehr, Curator of Oceanic Ethnology, was chairman of the program committee, Donald Collier, Curator of South American Ethnology and Archaeology, chairman of local arrangements, and George I. Quimby, Curator of Exhibits, representative of the Society for American Archaeology. Curator Spoehr, who is chairman of the newly formed subcommittee on Pacific archaeology of the National Research Council, attended a special conference on coral atoll ecological research called in Washington, D.C., by the Pacific Science Board of the National Research Council and, later, two meetings of the advisory committee for the Board's program of ecological research on the coral atolls of the Pacific to plan field work. Curator Collier is representative of the American Anthropological Association to the National Research Council, member of the executive committee of the Division of Anthropology and Psychology of the National Research Council, and member of the committee on carbon-14 dating of the American Anthropological Association and the Geological Society of America. He was chairman of the nominating committee of the Society for American Archaeology, of which society Curator Quimby is secretary and Dr. John B. Rinaldo,

Assistant Curator of Archaeology, is member of the executive committee. Curator Rinaldo attended the Southwestern Archaeological Conference at Point of Pines, Arizona, and Curator Quimby attended a conference on Hopwellian pottery at Illinois State Museum.

Dr. Theodor Just, Chief Curator of Botany, attended the meeting in Washington, D.C., of the Division of Geology and Geography of the National Research Council as chairman of the committee on paleobotany, the annual meeting of the Society for the Study of Evolution in Berkeley, California, as secretary of the society, and the meeting of the Botanical Society of America, American Institute of Biological Sciences, in Minneapolis. He is a member of the divisional committee of the Division of Biological Sciences of the National Science Foundation, Washington, D.C., and of the American Society of Naturalists. Dr. Julian A. Steyermark, Curator of the Herbarium, conducted the Central States Section of the Botanical Society of America on a three-day field trip in the Ozarks of Missouri. As member of the committee on preservation of indigenous strains of maize of the National Research Council, Dr. Hugh C. Cutler, Curator of Economic Botany, attended a meeting in Washington, D.C., to discuss methods of collection and preservation of valuable native varieties of New World corn.

Robert K. Wyant, Curator of Economic Geology, attended the annual meetings of the Geological Society of America in Detroit, and Bryan Patterson, Curator of Fossil Mammals, Dr. Rainer Zangerl, Curator of Fossil Reptiles, and Dr. Robert H. Denison, Curator of Fossil Fishes, attended the concurrent meetings of the Society of Vertebrate Paleontology. Curator Denison was appointed to the committee on fish classification of the American Society of Ichthyologists and Herpetologists at its annual meeting held this year in Chicago Natural History Museum.

Karl P. Schmidt, Chief Curator of Zoology, resigned the treasurer-ship of the Society for the Study of Evolution and was elected vice-president at the annual meeting of the society in Berkeley, California. He was made a member of the Board of Governors of the American Society of Ichthyologists and Herpetologists and was elected a Fellow of the American Academy of Arts and Sciences. Emmet R. Blake, Associate Curator of Birds, attended the meetings of the American Ornithologists' Union in Montreal, and Dr. Fritz Haas, Curator of Lower Invertebrates, attended the meetings of the American Malacological Union in Buffalo. Dr. R. M. Strong, Research Associate in Anatomy, was elected a fifty-year member of the American Association for the Advancement of Science in recognition of his fifty years of continuous membership.



BUFFALO HIDE SHIELD WITH PAINTED SKIN COVER
CROW

This shield of the Crow Indians will be shown in Hall 6 (Indians of the Plains).

The Director of the Museum and Chief Curator Schmidt attended the annual meeting in Philadelphia of the American Association of Museums, where Chief Curator Schmidt gave an address on the functions of university museums as part of a symposium on the problems of the university museum. The Director also attended the meeting of the council of the association. He visited during the year the Mariners' Museum, Newport News, Virginia, the American Museum of Natural History, New York, and the University Museum of the University of Pennsylvania and the Commercial Museum,

Philadelphia. The midwinter conference in Chicago of the American Library Association and sessions of various professional library organizations were attended by Mrs. Meta P. Howell, Librarian, and members of the Library staff.

A number of staff members serve on editorial boards of scientific journals. Curator Spoehr continued his review editorship of the *American Anthropologist* (official journal of the American Anthropological Association). Chief Curator Just continued as editor of *Lloydia* (quarterly journal of biological science published by Lloyd Library and Museum, Cincinnati), as editor of *Paleobotanical Report* (published by the Division of Geology and Geography of the National Research Council), and as member of the editorial board of *Evolution* (international journal of organic evolution) and was appointed a member of the editorial board of *American Journal of Botany* (official publication of the Botanical Society of America). Curator Zangerl continued as foreign-news editor of the *Society of Vertebrate Paleontology News Bulletin*. Chief Curator Schmidt continued as section editor (amphibians and reptiles) of *Biological Abstracts* (published under the auspices of the Union of American Biological Societies), consulting editor of *American Midland Naturalist* (published by the University of Notre Dame), and member of the editorial board of *Ecology* (official publication of Ecological Society of America).

Publications of staff members during 1951 besides those issued by Chicago Natural History Museum include the following:

DEPARTMENT OF ANTHROPOLOGY

COLLIER, DONALD

"Carbon-14 Dating," in *Essays on Archaeological Methods*, edited by James B. Griffin (Anthropological Papers, Museum of Anthropology, University of Michigan, no. 8), pp. 97-101

"New Radiocarbon Method for Dating the Past," reprinted from *Chicago Natural History Museum Bulletin* in *Biblical Archaeologist*, vol. 14, no. 1, pp. 25-28, and *Museums Journal*, vol. 51, no. 2, pp. 41-43

"Radiocarbon Dating, a Summary," *American Antiquity*, vol. 17, no. 1, part 2 (memoir no. 8), pp. 58-62 [with Frederick Johnson, Froelich Rainey, and R. F. Flint]

Review of *Indians of Peru* (by Pierre Verger), in *American Anthropologist*, vol. 53, no. 2, p. 273

MARTIN, PAUL S.

"The Peoples of Pine Lawn Valley," *Scientific American*, vol. 185, no. 1, pp. 46-51

"The Southwestern Co-Tradition," *Southwestern Journal of Anthropology*, vol. 7, no. 3, pp. 215-229 [with John B. Rinaldo]

DEPARTMENT OF ANTHROPOLOGY (continued)

SPOEHR, ALEXANDER

"Dioramas and Archaeology," *Archaeology*, vol. 4, no. 2, pp. 71-75

"John Fee Embree, 1908-1950" (obituary), *Human Organization*, vol. 10, no. 1, pp. 33-34

Review of *Anthropology in the Trust Territory Administration* (by Philip Drucker), in *Clearinghouse Bulletin of Research in Human Organization*, vol. 1, no. 1, p. 17

Review of *The Pacific Islands and Planning Micronesia's Future* (by Douglas Oliver), in *Human Organization*, vol. 10, no. 1, pp. 42-43

DEPARTMENT OF BOTANY

CUATRECASAS, JOSÉ

"New Proteaceae from Colombia," *Lloydia*, vol. 13, pp. 198-204

"New Species of *Lueheopsis* and *Quararibea*," in "Plantae Austro-Americanae VII" by Richard Evans Schultes, *Botanical Museum Leaflets* (Harvard University), vol. 15, pp. 49-55

"Notas a la Flora de Colombia XI," *Revista de la Academia Colombiana de Ciencias*, vol. 8, pp. 33-64

CUTLER, HUGH C.

"The Geographic Origin of Maize," *Chronica Botanica*, vol. 12, no. 4-6, pp. 167-169

DROUET, FRANCIS

"Cyanophyta," in *Manual of Phycology* by G. M. Smith and others (Waltham, Massachusetts: The Chronica Botanica Company), pp. 159-166 (chapter 8)

JUST, THEODOR

"Anton Kerner von Marilaun," in *The Background of Plant Ecology* by Henry S. Conrad (Iowa State College Press), pp. 5-6

"Citation of Specimens in Cytotaxonomic Literature," *Evolution*, vol. 5, no. 3, pp. 280-281

"Geología y Distribución de las Plantas," *Anuario del Instituto Tropical de Investigaciones Científicas, Universidad Autónoma de El Salvador*, vol. 1, pp. 85-103

"Mesozoic Plant Microfossils and Their Geologic Significance," *Journal of Paleontology*, vol. 25, no. 6, pp. 729-735

Report of the Committee on Paleobotany, No. 19, 10 pages, mimeographed,

Report of the Committee on Paleobotany, No. 20, 20 pages, mimeographed,

Report of the Committee on Paleobotany, No. 21, 31 pages, mimeographed

(Washington, D.C.: National Research Council, Division of Geology and Geography)

Review of *A Revision of Fossil Sequoia and Taxodium in Western North America Based on the Recent Discovery of Metasequoia* (by Ralph W. Chaney), in *Journal of Paleontology*, vol. 25, no. 4, p. 542

Review of *Flore du Congo Belge et du Ruanda-Urundi, Spermatophytes* (by W. Robyns and others), in *Quarterly Review of Biology*, vol. 26, no. 2, pp. 205-6

Review of *Les Legumineuses du Gabon* (by François Pelligrin), in *Quarterly Review of Biology*, vol. 26, no. 3, p. 293

Review of *Plant Embryology, Embryogeny of the Spermatophyta* (by Donald Johansen), in *Quarterly Review of Biology*, vol. 26, no. 4, pp. 395-397

Review of *Plants of Bikini and Other Northern Marshall Islands* (by William Randolph Taylor), in *Quarterly Review of Biology*, vol. 26, no. 4, pp. 394-395

Review of *The Piperaceae of Northern South America* (by William Trelease and Truman G. Yuncker), in *Botanical Gazette*, vol. 112, no. 4, p. 536

DEPARTMENT OF BOTANY (*continued*)

SHERFF, EARL E.

"A Revision of the Hawaiian Island Genus *Nototrichium* Hillebr. (fam. Amaranthaceae)," in *Botanical Leaflets* (published by the author), no. 4, pp. 2-20

"*Dahlia Moorei*, a New Dahlia (fam. Compositae) from Northwestern Hidalgo," in *Botanical Leaflets* (published by the author), no. 5, pp. 22-24

"Epiphytum, a New Section of the Genus *Dahlia* Ca. (fam. Compositae)," in *Botanical Leaflets* (published by the author), no. 4, p. 21

"Miscellaneous Notes on New or Otherwise Noteworthy Dicotyledonous Plants," *American Journal of Botany*, vol. 38, no. 1, pp. 54-73

"New Entities in the Genus *Cheirodendron* Nutt. ex. Seem. (fam. Araliaceae) from the Hawaiian Islands," in *Botanical Leaflets* (published by the author), no. 5, pp. 2-14

"Notes upon Certain New or Otherwise Interesting Plants of the Hawaiian Islands and Colombia," in *Botanical Leaflets* (published by the author), no. 3, pp. 2-8

"Some New or Otherwise Noteworthy Members of the Genus *Bidens* L. (fam. Compositae) from Tropical East Africa," in *Botanical Leaflets* (published by the author), no. 5, pp. 14-22

"Two Hawaiian Species of the Genus *Sophora* L. (fam. Leguminosae)," in *Botanical Leaflets* (published by the author), no. 5, pp. 24-25

STEYERMARK, JULIAN A.

"A Glabrous Variety of *Silphium terebinthinaceum*," *Rhodora*, vol. 53, pp. 133-135

"A New *Utricularia* from Honduras," *Ceiba*, vol. 1, pp. 125-126

"Botanical Areas in the Missouri Ozarks," *Missouri Botanical Garden Bulletin*, vol. 39, no. 6, pp. 126-135

"Plant Survey of Missouri," *Missouri Botanical Garden Bulletin*, vol. 39, no. 2, pp. 31-38

"The Genus *Tapeinostemon* (Gentianaceae)," *Lloydia*, vol. 14, no. 1, pp. 58-64

"The Snow Trillium," *Missouri Botanical Garden Bulletin*, vol. 29, no. 3, pp. 55-56

DEPARTMENT OF GEOLOGY

PATTERSON, BRYAN

"Early Cretaceous Mammals from Northern Texas," *American Journal of Science*, vol. 249, pp. 31-46

"Evolutionary Importance of the South African 'Man-Apes,'" *Nature*, vol. 167, p. 650 [with S. L. Washburn]

RICHARDSON, EUGENE S., JR.

"The Age of the Earth," *Pick and Dop Stick*, vol. 6, no. 3, pp. 2-6

DEPARTMENT OF ZOOLOGY

DYBAS, HENRY S.

"Albert Burke Wolcott, 1869-1950," *Coleopterist's Bulletin*, vol. 15, pp. 33-38, 1 illustration

GREY, MARION

"Additions to the Fish Fauna of Bermuda, with the Description of *Grammos mowbrayi*, a New Brotulid," *Copeia*, 1951, no. 2, pp. 153-161, 2 illustrations

DEPARTMENT OF ZOOLOGY (continued)

HAAS, FRITZ

"Notes on Some Streptaxids," *Nautilus*, vol. 64, pp. 133-134

POPE, CLIFFORD H.

"A Study of the Salamander *Plethodon ouachitae* and the Description of an Allied Form," *Bulletin of the Chicago Academy of Sciences*, vol. 9, pp. 129-152, 6 illustrations

RAND, AUSTIN L.

"A Blue Jay's World," *Bulletin to the Schools*, vol. 37, no. 6, pp. 189-192

"Boardman Conover, 1892-1950," *Auk*, vol. 68, pp. 17-23 [with S. Gregory]

"Geographical Variation in the Pearl-spotted Owllet, *Glaucidium perlatum* (Vieillot)," *Natural History Miscellanea*, no. 86, pp. 1-6

"H. B. Conover's Bird Work in the Yukon," *Canadian Field-Naturalist*, vol. 64, no. 6, pp. 214-220

"On Enemy Recognition," *Auk*, vol. 68, no. 4, pp. 524-525

"The Nests and Eggs of *Mesoenas unicolor* of Madagascar," *Auk*, vol. 68, no. 1, pp. 23-26

SANBORN, COLIN CAMPBELL

"Mammals from Marcapata, Southeastern Peru," *Publicaciones del Museo de Historia Natural "Javier Prado"*, Lima, Peru, Ser. A., Zoologia, no. 6, pp. 1-26

SCHMIDT, KARL P.

"Annotated Bibliography of Marine Ecological Relations of Living Amphibians," *Marine Life Occasional Papers*, vol. 1, no. 9, pp. 43-46

"Annotated Bibliography of Marine Ecological Relations of Living Reptiles (except Turtles)," *Marine Life Occasional Papers*, vol. 1, no. 9, pp. 47-54

"The Amphibia and Pisces in the First Edition of the *Systema Naturae*," *Copeia*, 1951, no. 1, pp. 2-7

TRAYLOR, MELVIN A., JR.

"Notes on the Barbet Genus *Eubucco* (Capitonidae) in Southern Peru," *Auk*, vol. 68, pp. 508-510

THE BOOK SHOP

It seems almost incredible that the Book Shop, founded in 1939 with an appropriation of \$1,000, has so well served Museum visitors that its net sales during the year exceeded \$56,000. The principal purpose of the Book Shop continues to be that of providing authoritative books written in popular style on the subject-matter within the scope of the Museum. In response to popular demand, souvenirs and novelties have been added to our inventory, and this merchandise now accounts for an important proportion of total sales. The proceeds of the Book Shop have been used to create a new endowment fund for general Museum purposes. This fund at the end of the year totaled slightly more than \$67,000.

CAFETERIA

Another popular service of the Museum is the cafeteria and lunchroom. The total number of persons served this year was 309,370, an increase of more than 27,000 over last year. A study was made during the year of operations in the kitchen, with the result that several new pieces of equipment were added. These are listed in this Report in the following section.

MAINTENANCE, CONSTRUCTION, AND ENGINEERING

The program of moving, remodeling, and reconditioning storage and research areas took a large percentage of the time and effort of the Divisions of Maintenance and Engineering. Work was completed for the new quarters of the Division of Fishes and started on the newly assigned adjacent area in Hall B for the Division of Reptiles. The Division of Anatomy was moved and expanded, and twenty-four bays of steel shelving with doors were installed and steel doors were applied to fifty-four cases built in our own shops. The Division of Insects was expanded into the area vacated by the anatomists, with the installation of twenty-four bays of library shelving and forty-eight new cases of either steel or aluminum. Eighteen steel cases were installed for the Division of Mammals and twenty-eight for the Division of Fossil Plants. The Herbarium received one new six-door case and four eight-door cases. The necessary construction, lighting, and painting were done to permit the reopening of Hall 5 (Mary D. Sturges Hall) in the Department of Anthropology and the new Hall of Fossil Invertebrate Animals and Fossil Plants (Hall 37, Frederick J. V. Skiff Hall). An exhaust hood was installed and placed in operation in the plant-poisoning room, and an overhead hoist system was installed in one of the anthropology preparation rooms. The botany departmental library was enlarged by closing off certain adjacent unnecessary corridor space. Necessary bookshelves were installed and the new area was adequately lighted. Five new map cases were installed in the office of the Chief Curator of Geology. The Division of Photography was extensively remodeled.

In the James Simpson Theatre 250 chair seats and ten backs were reupholstered, and this work will continue in the coming year. It is impossible and fortunately unnecessary to recount all the details of the continual maintenance within the building, for, as with all large buildings, repairs are endless. Cleaning and painting of the building, improvement of lighting equipment, and replacement of



Books for children, books on natural history and anthropology, picture post-cards, and souvenirs make the Museum Book Shop a favorite spot for visitors of all ages.

burned-out bulbs go on ceaselessly. So, too, the Museum shops are constantly being called upon to make, invent, or devise labor-saving devices and auxiliary equipment for the various departments and divisions of the Museum. Every new or special exhibit, though planned in the scientific departments, calls heavily upon maintenance personnel for execution.

Keeping a building weatherproof in a very exposed position in a northern climate requires eternal vigilance and unceasing attention. During the year a weatherproofing compound was applied to the black-topped terrace areas between the upper and lower flights of steps. Both the north and the south steps were tuckpointed. Experimentation was continued with certain mastic compounds to find the one that best meets the requirement of adhesive and elastic qualities to waterproof the joints between the marble blocks that constitute the exterior of the building. Test coatings of waterproofing materials were sprayed on four areas, preparatory to a future project of coating the entire outside of the building. Eighty

broken skylight glasses were replaced and the entire skylight was washed. Thermopane windows were installed in the Division of Fishes on the ground floor and in all windows on the west façade on the third floor. Heating economies and elimination of condensation of moisture on the windows result from these installations. The windows on the south wall of Hall 34 were bricked up, preparatory to the complete reinstallation of the hall by the Department of Geology. New lighting conduits and outlets were provided so that the new installation may be entirely case-lighted.

Together with the normal maintenance of the building we are carrying out a program of modernization with regard to electric lighting. Replacement of old-type equipment with modern fluorescent lighting gives considerably better visibility to our exhibits and results in important savings of electric current. We are gradually shifting from general lighting to case lighting and are doing the work as fast as materials are obtainable. During the summer months extensive repairs are habitually made in the heating system of the building. A change in the angle of slope of certain return lines gave considerably better efficiency to the heating plant. The coal conveyor was overhauled. Twenty-five new buckets were installed, several sheets and channels replaced, and exposed steel was painted to retard corrosion. The usual summer inspection and care were given to boilers, pumps, and accessory equipment. In the cafeteria the scullery sink was replaced with a new three-compartment sink, and a new deep-fat frier and a steam-chef cooker were purchased and installed. Under existing contracts with the Chicago Park District and the Shedd Aquarium 39,725,966 pounds of steam were furnished at 100-pound pressure. Total steam generated throughout the year amounted to 72,794,850 pounds.

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 STATEMENT OF INCOME AND EXPENDITURES CURRENT FUNDS

FOR YEARS 1951 AND 1950

Operating Fund

INCOME	1951	1950
From investments of:		
General endowment funds.....	\$ 689,554.11	\$ 694,106.31
Life and associate membership funds.....	<u>27,335.22</u>	<u>25,106.83</u>
	\$ 716,889.33	\$ 719,213.14
Chicago Park District.....	128,620.29	128,776.81
Annual and sustaining memberships.....	20,305.00	19,880.00
Admissions.....	33,335.00	30,310.25
Sundry receipts, including general purpose contributions.....	34,736.16	30,851.09
Restricted funds transferred to apply against Operating Fund expenditures (per contra)	<u>106,812.52</u>	<u>65,818.34</u>
	<u>\$1,040,698.30</u>	<u>\$ 994,849.63</u>
EXPENDITURES		
Collections:		
Purchases and expedition costs.....	\$ 77,777.27	\$ 39,483.34
Museum operating expenses capitalized....	<u>61,916.51</u>	<u>75,141.85</u>
	\$ 139,693.78	\$ 114,625.19
Furniture, fixtures, and equipment.....	57,083.42	57,322.60
Pensions and group and life-insurance pre- miums.....	74,072.46	72,620.66
Departmental operating expenses.....	101,587.66	105,501.80
General operating expenses.....	537,143.12	520,451.01
Building repairs and alterations.....	108,066.22	118,653.06
Provision for mechanical plant depreciation (per contra).....	10,000.00	10,000.00
Provision for contingencies (per contra).....	10,000.00
Appropriated to cover operating deficit of The N. W. Harris Public School Extension (per contra).....	<u>421.27</u>	<u>863.74</u>
	<u>\$1,038,067.93</u>	<u>\$1,000,038.06</u>
EXCESS (DEFICIENCY) OF INCOME OVER EX- PENDITURES.....	<u>\$ 2,630.37</u>	<u>\$ (5,188.43)</u>

CONTINUED ON NEXT PAGE

COMPARATIVE STATEMENT OF INCOME AND EXPENDITURES—CURRENT FUNDS

FOR YEARS 1951 AND 1950 (CONTINUED)

The N. W. Harris Public School Extension	1951	1950
Income from endowments.....	\$ 20,208.02	\$ 19,625.98
Expenditures.....	<u>20,629.29</u>	<u>20,489.72</u>
DEFICIT TRANSFERRED TO OPERATING FUND (PER CONTRA).....	<u>\$ 421.27</u>	<u>\$ 863.74</u>

Other Restricted Funds

INCOME

From Specific Endowment Fund investments.	\$ 49,005.36	\$ 43,962.32
Contributions for specified purposes.....	36,850.65	25,804.62
Operating Fund appropriations for mechanical plant depreciation and contingencies (per contra).....	20,000.00	10,000.00
Sundry receipts—net.....	<u>25,803.33</u>	<u>21,986.02</u>
	<u>\$ 131,659.34</u>	<u>\$ 101,752.96</u>

EXPENDITURES

Transferred to Operating Fund to apply against expenditures (per contra).....	\$ 106,812.52	\$ 65,818.34
Added to Endowment Fund principal.....	<u>25,000.00</u>	<u>.....</u>
	<u>\$ 131,812.52</u>	<u>\$ 65,818.34</u>
EXCESS (DEFICIENCY) OF INCOME OVER EX- PENDITURES.....	<u>\$ (153.18)</u>	<u>\$ 35,934.62</u>

TO THE TRUSTEES
CHICAGO NATURAL HISTORY MUSEUM
CHICAGO, ILLINOIS

In our opinion the accompanying statement presents fairly the income and expenditures of the current funds of Chicago Natural History Museum for the years 1950 and 1951, in conformity with generally accepted accounting principles consistently applied during the periods. Our examination of the statement was made in accordance with generally accepted auditing standards and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

ARTHUR YOUNG AND COMPANY

Chicago, Illinois
January 31, 1952

COMPARATIVE ATTENDANCE STATISTICS AND DOOR RECEIPTS

FOR YEARS 1951 AND 1950

	1951		1950
Total attendance.....	1,251,752		1,173,661
Paid attendance.....	133,340		121,241
Free admissions on pay days:			
Students.....	32,771		31,474
School children.....	87,590		81,601
Teachers.....	4,387		3,675
Members.....	492		531
Service men and women.....	3,128		1,061
Special meetings and occasions.....	3,377		4,083
Admissions on free days:			
Thursdays (52).....	172,376	(52)	161,721
Saturdays (52).....	316,178	(52)	309,188
Sundays (52).....	498,210	(52)	459,086
Highest attendance on any day (September 2).....	16,266	(September 3)	13,889
Lowest attendance on any day (December 21).....	61	(December 6)	98
Highest paid attendance (September 3)...	4,244	(September 4)	3,100
Average daily admissions (363 days).....	3,448	(363 days)	3,233
Average paid admissions (207 days).....	644	(207 days)	586
<hr/>			
Copies of <i>General Guide</i> sold.....	25,410		21,722
Number of articles checked.....	43,321		31,802
Number of picture post-cards sold.....	228,192		177,051
Sales of Museum publications (both scientific and popular) and photographs; rental of wheel chairs.....	\$10,865.19		\$13,177.60

Contributions and Bequests

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

FORM OF BEQUEST

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

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

ACCESSIONS, 1951

DEPARTMENT OF ANTHROPOLOGY—ACCESSIONS

ABRAMOWSKI, HAROLD, Chicago: 1 full-grooved axe, 2 celts, 2 small projectile points, 3 large points, 2 scrapers—Waukesha County, Wisconsin (gift)

ARIZONA STATE MUSEUM, Tucson: 67 archaeological specimens—Ventana Cave, Papago Indian Reservation, Arizona (exchange)

CHICAGO NATURAL HISTORY MUSEUM:

Collected by Dr. Paul S. Martin (Southwest Archaeological Expedition, 1951): 3,889 specimens, including stone, bone, clay, pottery, leather, wood, cordage, woven, and miscellaneous perishable artifacts—Cordova Cave, Negrito Cave, Kiehne Pueblo, Negrito Cliff Dwelling, and Fox Farm Site Kiva, near Reserve, New Mexico

Collected by Dr. Alexander Spoehr (Micronesia Anthropological Expedition, 1949–50): 50 specimens, including pottery sherds, and artifacts of stone, shell, and metal—Rota, Mariana Islands; 9 specimens, including pottery jar, shell adze, and 7 lots of pottery sherds—Babeldaob, Palau Islands

Purchases: 75 ethnological specimens, 100 photographs and negatives—Upper Orinoco, Venezuela; 2 Menomini Indian medicine pouches—Neopit, Wisconsin; 2 lava lavas—Micronesia; 1 coconut grater—Caroline Islands, Micronesia

DENVER ART MUSEUM, Denver, Colorado: 1 Huron feather headdress—Quebec; 1 Cochiti leather mask—Cochiti Pueblo, New Mexico (exchange)

FAUST, KITTY, Evanston, Illinois: 1 piece of tapa—Tongatabu, Tonga, Polynesia (gift)

LOGAN MUSEUM, BELOIT COLLEGE, Beloit, Wisconsin: 73 specimens, including Mandan and Arikara stone and bone artifacts and pottery sherds—North and South Dakota (exchange)

MANIERRE, FRANCIS E., Chicago: 2 carved wood staffs of African chieftans—Southeast Africa (gift)

NATIONAL MUSEUM OF MEXICO, Mexico City, Mexico: 1,126 archaeological specimens—Mexico (exchange)

PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY AND ETHNOLOGY, Cambridge, Massachusetts: type collection of archaeological material—Coclé, Panama (exchange)

SMITH, MRS. ISABEL COLDREN, Glencoe, Illinois: 1 Sioux dress, 1 pipe bag, 2 arrows, 1 pipe and pipe cover—Western Plains, United States (gift)

STARBUCK, MRS. FRED L., Northbrook, Illinois: 1 copper spear head—Camp McCoy, near Sparta, Wisconsin (gift)

WAHL, ORLIN I., Evanston, Illinois: 1 perforated stone, 2 pipes, 1 celt, 1 copper crescent—McHenry County, Illinois (gift)

WRIGHT, WILLIAM RYER, Highland Park, Illinois: 2 Late North Coast blackware pottery vessels—North Coast of Peru; 5 Indian pipes, pipe bowls, and stems, and 1 Spanish knife—North America (gift)

DEPARTMENT OF BOTANY—ACCESSIONS

ALLAN HANCOCK FOUNDATION, Los Angeles: 160 specimens of algae (exchange)

BARKLEY, DR. FRED A., Chicago: 6 specimens of algae, 8 plant specimens (gift)

BENDER, WILLIAM E., Naperville, Illinois: 1 cryptogamic specimen (gift)

BIALIK, ANTHONY, Chicago: 1 plant specimen, 13 cryptogamic specimens (gift)

BISHOP MUSEUM, BERNICE P., Honolulu, Hawaii, T.H.: 31 plant specimens (gift)

BLOMQUIST, DR. H. L., Durham, North Carolina: 1 cryptogamic specimen (gift)

- BLUM, DR. JOHN L., Buffalo: 14 cryptogamic specimens (exchange)
- BOELCKE, OSVALDO, Acassuso, Argentina: 70 plant specimens (exchange)
- BOTANIC GARDEN, Gothenburg, Sweden: 100 plant specimens, 145 cryptogamic specimens (exchange)
- BOTANISKA MUSEET, Uppsala, Sweden: 38 plant specimens, 724 cryptogamic specimens (exchange)
- BRAUN, DR. E. LUCY, Cincinnati: 3 plant specimens (gift)
- BROWN, WILLIAM L., Johnston, Iowa: 4 economic specimens (gift)
- BUMZAHM, CARLOS, Chicago: 39 cryptogamic specimens (gift)
- CALIFORNIA, UNIVERSITY OF, Berkeley: 320 cryptogamic specimens (gift); 182 plant specimens, 576 cryptogamic specimens (exchange)
- CARLSON, DR. MARGERY C., Evanston, Illinois: 51 cryptogamic specimens (gift)
- CARNEGIE INSTITUTION OF WASHINGTON, Stanford University, California: 91 plant specimens (gift)
- CARNEGIE MUSEUM, Pittsburgh: 339 plant specimens (exchange)
- CASSEL, WILLIAM A., Philadelphia: 24 cultures of algae (gift)
- CASTANEDA, R. ROMERO, Bogotá, Colombia: 89 plant specimens (gift)
- CHAPMAN, DR. V. J., Auckland, New Zealand: 2 specimens of algae (gift)
- CHAPP, DONALD F., Chicago: 3 cultures of algae (gift)
- CHASE, VIRGINIUS H., Peoria Heights, Illinois: 5 plant specimens, 1 cryptogamic specimen (gift)
- CHICAGO NATURAL HISTORY MUSEUM:
Collected by Dr. Hugh C. Cutler and Jack Reeves (Southwest Botanical Field Trip, 1951): 449 plant specimens
Collected by Dr. B. E. Dahlgren (Cuba Botanical Expedition, 1950-51): 2 cryptogamic specimens
Collected by D. Dwight Davis and Robert F. Inger (Borneo Zoological Expedition, 1950): 21 plant specimens, 15 cryptogamic specimens
Collected by Emil Sella and Samuel H. Grove, Jr. (Florida Botanical Field Trip, 1951): 7 cryptogamic specimens
Purchases: 200 plant specimens—Spain; 410 plant specimens—Peru; 94 plant specimens—Africa
- COCKE, DR. E. C., Wake Forest, North Carolina: 3 cryptogamic specimens (gift)
- CONSERVATOIRE BOTANIQUE, Geneva, Switzerland: 2,104 cryptogamic specimens (exchange)
- COOKE, DR. WILLIAM BRIDGE, Loveland, Ohio: 5 cryptogamic specimens (gift)
- COPULOS, MILTON, Chicago: 1 cryptogamic specimen (gift)
- CRIBB, DR. A. B., New South Wales, Australia: 63 specimens of algae (exchange)
- CULBERSON, WILLIAM L., Cincinnati: 38 cryptogamic specimens (gift)
- DAILY, MRS. FAY K., Indianapolis: 2 specimens of algae (gift)
- DAILY, WILLIAM A., Indianapolis: 53 specimens of algae (gift); 85 specimens of algae (exchange)
- DEGENER, DR. OTTO, Honolulu, Hawaii, T.H.: 7 specimens of algae (gift)
- DILLER, DR. VIOLET M., Cincinnati: 54 cryptogamic specimens (gift)
- DONES, MATHIAS, Chicago: 1 cryptogamic specimen (gift)
- DOTY, DR. MAXWELL S., Honolulu, Hawaii, T.H.: 152 cryptogamic specimens (gift)
- DUKE UNIVERSITY, Durham, North Carolina: 100 plant specimens (exchange)
- DUNKESON, R. L., Willow Springs, Missouri: 26 plant specimens (gift)
- EDESIO M., DR. I., Porto Alegre, Brazil: 20 plant specimens (gift)
- EDMONDSON, DR. W. T., Seattle: 1 cryptogamic specimen (gift)
- ESCUELA AGRÍCOLA PANAMERICANA, Tegucigalpa, Honduras: 862 plant specimens (exchange)
- EWAN, DR. JOSEPH, New Orleans: 6 cryptogamic specimens (gift)
- FITZGERALD, GEORGE P., Madison, Wisconsin: 5 cryptogamic specimens (gift)
- FLINT, DR. L. H., Baton Rouge, Louisiana: 7 cryptogamic specimens (exchange)
- FREEMAN, R. B., Western Springs, Illinois: 1 plant specimen (gift)
- FRITSCH, PROFESSOR F. E., Cambridge, England: 4 specimens of algae (gift)
- FULLER, DR. GEORGE D., Springfield, Illinois: 3 plant specimens (gift)

- GILTNER, DR. L. T., Washington, D.C.: 1 cryptogamic specimen (gift)
- GREENBERG, ALBERT, Tampa, Florida: 1 cryptogamic specimen (gift)
- GROSS, R. A., La Ceiba, Honduras: 1 plant specimen (gift)
- GROW, RAY, AND SIMON SEGAL, Chicago: 1 plant specimen (gift)
- GUBA, DR. E. F., Waltham, Massachusetts: 1 cryptogamic specimen (gift)
- HAAS, DR. FRITZ, Chicago: 1 cryptogamic specimen (gift)
- HABEEB, DR. HERBERT, Grand Falls, New Brunswick, Canada: 40 cryptogamic specimens (exchange)
- HERRE, DR. A. W., Olympia, Washington: 1 cryptogamic specimen (gift)
- HEWETSON, W. T., Freeport, Illinois: 1 plant specimen (gift)
- HOLMES, E. D., Hinsdale, Illinois: 1 cryptogamic specimen (gift)
- HUMM, DR. HAROLD J., Tallahassee, Florida: 3 cryptogamic specimens (gift)
- ILLINOIS STATE MUSEUM, Springfield: 125 plant specimens (gift); 50 plant specimens (exchange)
- ILTIS, DR. HUGH, St. Louis: 1 cryptogamic specimen (gift)
- IMSHAUG, H. A., Ann Arbor, Michigan: 3 cryptogamic specimens (gift)
- INSTITUTE OF JAMAICA, Kingston: 72 cryptogamic specimens (gift)
- INSTITUTO AGRONOMOICO DO NORTE, Belem, Brazil: 4 plant specimens (gift)
- INSTITUTO AGROPECUARIO NACIONAL, Guatemala City, Guatemala: 6 plant specimens (gift)
- INSTITUTO DE BOTANICA, Sao Paulo, Brazil: 36 plant specimens (exchange)
- INSTITUTO GEOBIOLOGICO, Porto Alegre, Brazil: 33 plant specimens (exchange)
- ISELY, DR. DUANE, Ames, Iowa: 127 plant specimens (exchange)
- JARDIM BOTANICO, Rio de Janeiro, Brazil: 141 plant specimens (exchange)
- JOLY, DR. AYLTHON B., Ann Arbor, Michigan: 42 cryptogamic specimens (gift)
- KAISER, MARGARET, Carbondale, Illinois: 1 microscope slide of wood section (exchange)
- KILLIP, DR. E. P., Summerland Key P. O., Florida, AND J. FRANCIS MACBRIDE, Stanford University, California: 6 cryptogamic specimens (gift)
- KJELLMERT, GOSTA, Arboga, Sweden: 500 plant specimens (exchange)
- KLEEREKOPER, DR. HERMAN, Hamilton, Ontario, Canada: 331 specimens of algae (gift)
- KOCK, DR. LEO F., Bakersfield, California: 57 cryptogamic specimens (gift)
- KRAUS, E. J., Chicago: 2,000 negatives (gift)
- LAMBERT, RONALD J., Lake Zurich, Illinois: 2 plant specimens: (gift)
- LASKER, DR. RUEBEN, Coral Gables, Florida: 6 specimens of algae (gift)
- LAUGHLIN, KENDALL, Chicago: 7 plant specimens (gift)
- LINDSTEDT, DR. ALF., Yotad, Sweden: 4 specimens of algae (gift)
- LLANO, DR. GEORGE A., Washington, D.C.: 12 specimens of algae (gift)
- LOUDERBACK, HAROLD B., Argo, Illinois: 68 cryptogamic specimens (gift)
- LOUISIANA STATE UNIVERSITY, Baton Rouge: 2 specimens of algae (exchange)
- LUND, UNIVERSITY OF, Lund, Sweden: 176 cryptogamic specimens (exchange)
- MACBRIDE, J. FRANCIS, Stanford University, California: 129 specimens of algae (gift)
- MADSEN, DR. GRACE C., Tallahassee, Florida: 38 specimens of algae (gift)
- MASON, DR. CHARLES T., JR., Madison, Wisconsin: 1 plant specimen (gift)
- MATUDA, EIZI, Mexico City, Mexico: 70 plant specimens (exchange)
- MAURO, SALVATORE, Miami, Florida: 1 plant specimen (gift)
- MAY, DR. VALERIE, Sydney, Australia: 10 specimens of algae (gift)
- MICHIGAN, UNIVERSITY OF, Ann Arbor: 110 cryptogamic specimens (exchange)
- MILLAR, JOHN R., Chicago: 1 cryptogamic specimen (gift)
- MIRANDA, DR. FAUSTINO, Chapultepec, Mexico, D.F.: 6 plant specimens (gift)
- MISSOURI BOTANICAL GARDEN, St. Louis: 160 plant specimens (gift); 175 plant specimens (exchange)
- MOORE, DR. DWIGHT, Fayetteville, Arkansas: 1 plant specimen (gift)
- MULLER, DR. C. H., Santa Barbara, California: 82 plant specimens (gift)
- MUSEUM NATIONAL D'HISTOIRE NATURELLE, Paris, France: 150 cryptogamic specimens (exchange)

NATURHISTORISCHES MUSEUM, Vienna, Austria: 1,600 cryptogamic specimens (exchange)

NEWTON, LINDA, London, England: 2 specimens of algae (gift)

NEW YORK BOTANICAL GARDEN, New York: 22 specimens of algae (gift); 189 photographs of plant specimens, 25 type photographs, 186 plant specimens (exchange)

NIELSEN, DR. CHESTER S., Tallahassee, Florida: 4 plant specimens (gift)

NIELSEN, DR. CHESTER S., AND DR. GRACE C. MADSEN, Tallahassee, Florida: 556 specimens of algae (gift)

OHWI, J., Tokyo, Japan: 200 plant specimens (exchange)

OREGON WOOD CHEMICAL COMPANY, Springfield: 1 economic specimen (gift)

PALMER, E. J., Webb City, Missouri: 209 plant specimens (gift)

PALUMBO, RALPH F., Seattle: 1 cryptogamic specimen (gift)

PENNSYLVANIA, UNIVERSITY OF, Philadelphia: 124 cryptogamic specimens, 520 plant specimens (exchange)

PHILIPPINES, REPUBLIC OF THE, DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES, BUREAU OF FORESTRY, Manila: 32 wood specimens (gift)

PHILIPPINES, UNIVERSITY OF THE, Quezon City, Philippine Islands: 323 specimens of algae (exchange)

POCOCK, DR. MARY A., Cape Town, South Africa: 1 cryptogamic specimen (gift)

PROCTOR, V. W., Columbia, Missouri: 2 specimens of algae (gift)

RAND, DR. AUSTIN L., Chesterton, Indiana: 1 plant specimen (gift)

RHODEHAMEL, JOHN, Indianapolis: 2 plant specimens (gift)

RICHARDS FUND, DONALD: 58 mosses, 32 corallines algae, 310 lichens, 500 cryptogams, 282 specimens of fungi, 122 cryptogams from Canada; 800 specimens of mosses (Herbarium of I. Hagen); 235 specimens of marine algae, 290 specimens of fungi from North America, 111 specimens of moss from New Zealand; 166 cryptogams from Wisconsin, 343 cryptogams (Herbarium of A. B. Seymour)

RICHARDS FUND, ELMER J.: 625 specimens of lichens from Scandinavia, 5,600 specimens of lichens, 20,000 cryptogamic specimens

RIJKSHERBARIUM, Leiden, Netherlands: 23 specimens of algae (exchange)

ROYAL BOTANIC GARDENS, Kew, England: 70 plant specimens (exchange)

SAEGER, DR. ALBERT, Kansas City, Missouri: 1 cryptogamic specimen (gift)

SAINSBURY, G. O. K., Wairoa, New Zealand: 125 cryptogamic specimens (exchange for publication)

SANBORN, COLIN C., Highland Park, Illinois: 29 plant specimens, 2 cryptogamic specimens (gift)

SCHWERDTFEGER, DR. F., Guatemala City, Guatemala: 39 pinus (gift)

SCOLNIK, DR. ROSA, Córdoba, Argentina: 49 plant specimens (gift)

SELLA, EMIL, Chicago: 12 specimens of fungi (gift)

SHERFF, DR. EARL E., Chicago: 77 plant specimens, 119 negatives, 123 photographic prints (gift)

SILVA, HERMAN, East Lansing, Michigan: 2 specimens of algae (gift)

SOUKUP, J., Lima, Peru: 47 plant specimens (gift)

STANDLEY, PAUL C., Tegucigalpa, Honduras: 1 plant specimen (gift)

STANNARD, DR. LEWIS, Urbana, Illinois: 4 plant specimens (gift)

STASZKUS, ADAM, Chicago: 1 cryptogamic specimen (gift)

STEVENSON, DR. JOHN L., Beltsville, Maryland: 1 cryptogamic specimen (gift)

STEYERMARK, MRS. JULIAN A., Barrington, Illinois: 79 plant specimens (gift)

SWINK, FLOYD E., Chicago: 644 plant specimens (gift)

SWINK, FLOYD E., AND A. S. ROUFFA, Chicago: 1 plant specimen (gift)

TAYLOR, DR. WILLIAM R., Ann Arbor, Michigan: 60 specimens of algae (gift)

TEMPLETON, DR. BONNIE C., Los Angeles: 1 cryptogamic specimen (gift)

THIERET, JOHN W., Chicago: 187 plant specimens, 2 cryptogamic specimens (gift)

UNITED STATES DEPARTMENT OF AGRICULTURE, WASHINGTON, D.C.: 179 plant specimens (gift)

UNITED STATES NATIONAL MUSEUM, SMITHSONIAN INSTITUTION, Washington, D.C.: 10 specimens of algae, 20 plant specimens (gift); 234 cryptogamic specimens, 947 plant specimens (exchange)

URIBE, P. URIBE, Bogotá, Colombia: 14 plant specimens (gift)

VAN TRESS, ROBERT, Chicago: 1 plant specimen (gift)

VARGAS C., CESAR, Cuzco, Peru: 30 specimens of algae (gift)

VATTER, ALBERT, Urbana, Illinois: 33 ferns (gift)

VELOSO, DR. HENRIQUE P., Santa Catarina, Brazil: 33 plant specimens (gift)

VIENNA, UNIVERSITY OF, BOTANISCHES INSTITUT UND BOTANISCHER GARTEN, Vienna, Austria: 200 plant specimens (exchange)

VOTH, DR. PAUL D., Chicago: 5 specimens of algae (gift)

WALKER, HARRY G., Langhorne, Pennsylvania: 1 cryptogamic specimen (gift)

WASHINGTON, UNIVERSITY OF, Seattle: 213 plant specimens (exchange)

WHITEHOUSE, DR. EULA, Dallas, Texas: 142 specimens of algae (gift)

WHITTAKER, THOMAS W., La Jolla, California: 8 economic specimens (exchange)

WILLIAMS, LLEWELLYN, Randolph, Wisconsin: 112 economic specimens, 17 wood specimens (gift)

WILLIAMS, DR. LOUIS O., Tegucigalpa, Honduras: 6 plant specimens (gift)

WILSON, ARCHIE F., Flossmoor, Illinois: 111 plant specimens (gift)

WISCONSIN, UNIVERSITY OF, Madison: 19 plant specimens (gift)

WOOD, MIRIAM, Chicago: 3 cryptogamic specimens (gift)

DEPARTMENT OF GEOLOGY—ACCESSIONS

BRIDWELL, L. H., Forestburg, Texas: fossil fish-tooth—Texas (gift)

BUCHANAN, F. D., Chicago: 2 fossil invertebrates—Illinois and Indiana (gift)

CALIFORNIA, UNIVERSITY OF, Berkeley: collection of fossil fish—various localities (gift)

CARTER, ALICK L., Kenmore, New York: 4 fossil-fish specimens—New York (gift)

CHALMERS CRYSTAL FUND: germanite crystal—Africa (gift)

CHICAGO, UNIVERSITY OF, Chicago: fossil vertebrates, paleobotany collection—various localities (gift)

CHICAGO NATURAL HISTORY MUSEUM:

Collected by Dr. Robert H. Denison (Eastern States Paleontological Field Trip, 1951): 207 fossil-fish specimens—various localities

Collected by George Langford, Mrs. Langford, Dr. and Mrs. R. H. Whitfield, and Jon S. Whitfield (Wilmington, Illinois, Paleobotanical Field Trips, 1951): 550 flora and 105 fauna specimens—Illinois

Collected by George Langford, Eugene S. Richardson, Jr., and R. H. Whitfield (Tennessee Paleontological Field Trips, 1951): 1,465 fossil-plant and fossil-invertebrate specimens—Tennessee; 1,167 fossil-plant specimens—various localities

Collected by Bryan Patterson and Orville L. Gilpin (Texas Paleontological Expedition, 1951): collection of microfauna—Texas

Collected by Dr. Sharat K. Roy (Salvadorian Project, 1950–51): 200 volcanic and sedimentary rocks—El Salvador

Collected by William D. Turnbull and Priscilla F. Turnbull (Oklahoma Paleontological Field Trip, 1951): Cotylorhynchus skeleton—Oklahoma

Collected by Dr. Rainer Zangerl, Eugene S. Richardson, Jr., and Dr. Robert H. Denison (Indiana field work): collection of fossil invertebrates and fossil fish—Indiana

Purchases: restoration of Archeopteryx, fossil cycadeoid trunk, 12 fossil invertebrates—various localities

CHLUPAC, H. E., Vienna, Austria: 51 fossil invertebrates—Austria (gift)

CLOUD, F. J., Lilesville, North Carolina: fossil horse-tooth—North Carolina (gift)

CROSBY, MRS. SAMUELLE, Chicago: gold necklace and bracelet set with semi-precious stones—India (gift)

DEO, CLAUDE, Stratford, Iowa: 4 brachiopod specimens—Canada (gift)

EARLE, D. H., Washington, D.C.: 1 fossil invertebrate—Alabama (gift)

EVANS, W. V., Wrigley, California: pelecypod specimens—California (gift)

GENTZ, O. A., Chicago: star ruby—North Carolina (gift)

GRAY, L. Z., Evanston, Illinois: mammoth tooth—Siberia (gift)

HINTON, G. B., Presido, Texas: 2 vanadinite specimens—Mexico (gift)

MICHIGAN, UNIVERSITY OF, Ann Arbor: 3 casts of fossil mammal type-specimens—various localities (exchange)

MISSISSIPPI GEOLOGICAL SURVEY, University: 1 ammonite—Mississippi (gift)

REED, CHARLES, Chicago: 1 fossil invertebrate—Nebraska (gift)

THOMPSON, ROBERT T., Cave Creek, Arizona: 1 specimen of specular hematite—Arizona (gift)

WALKER, ALMA C., Spokane: 18 fossil-leaf specimens—various localities (gift)

WHITFIELD, JON S., Evanston, Illinois: 87 fossil invertebrates—Illinois (gift)

WHITFIELD, DR. AND MRS. R. H., Evanston, Illinois: 140 fossil-plant specimens—Illinois (gift)

WOLEY, VIDA, Evanston, Illinois: carved coral earrings, bracelets, necklace, and broach—(gift)

ZANGERL, DR. RAINER, Hazelcrest, Illinois: 2 fossil-reptile specimens—Nevada (gift)

DEPARTMENT OF ZOOLOGY—ACCESSIONS

ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, Philadelphia: 5 birds—Bolivia (exchange)

ACOSTA Y LARA, EDUARDO, Montivideo, Uruguay: 3 mammals—Brazil and Uruguay (gift)

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Collected by Harry A. Beatty (West Africa Zoological Expedition, 1950–51): 2 mammals, 692 birds—West Africa

Collected by D. Dwight Davis and Robert F. Inger (Borneo Zoological Expedition, 1950): 358 mammals, 449 birds, 873 amphibians and reptiles, 4,416 fishes, 18 lots of lower invertebrates—Borneo

Collected by Henry S. Dybas (Indiana cave field work): 2 fishes, 2,315 insects and their allies, 37 lots of shells—southeastern United States

Collected by Dr. Fritz Haas (Bermuda Zoological Expedition, 1950): 19 fishes—Bermuda

Collected by Philip Hershkovitz (Colombia Zoological Expedition, 1948–51): 1,014 mammals, 30 birds, 186 reptiles and amphibians—Colombia

Collected by Robert F. Inger and Karl Kettner (Field Work for Cave Fishes, 1951): 11 salamanders, 5 fishes, 6 crustaceans—Missouri

Collected by Dr. Paul S. Martin (Southwest Archaeological Expedition, 1951): 1 partial mammal skeleton and skull—New Mexico

Collected by Bryan Patterson (Texas Paleontological Expedition, 1951): 1 reptile—Texas

Collected by Clifford H. Pope (Mexico Zoological Field Trip, 1951): 499 reptiles and amphibians—Mexico

Collected by D. S. Rabor (Philippine Islands field work): 48 mammals, 110 birds, 124 reptiles and amphibians—Philippine Islands

Collected by Dr. Austin L. Rand and Stanley Rand (Salvadorian Project, 1950–51): 7 mammals, 540 birds, 203 reptiles and amphibians—El Salvador

Collected by A. T. Torres (Philippine Islands field work): 16 mammals, 157 birds—Philippine Islands

Collected by Rupert L. Wenzel and Colin C. Sanborn (La Salle, Illinois, bat-cave field work): 20 bats in alcohol, 6 bat skeletons—Illinois

Collected by Loren P. Woods (Co-operative Field Work with United States Fish and Wildlife Service in Gulf of Mexico, 1951): 1 partial mammal skull and skeleton, 2,366 fishes—Gulf of Mexico

Collected by Loren P. Woods and Robert F. Inger (Field Work for Cave

Fishes, 1951): 421 fishes—Illinois, Indiana, and Kentucky

Department of Geology: part of lower jaw of sea otter—California (gift)

Purchases: 646 mammals, 561 birds, 6 eggs, 1,302 reptiles and amphibians, 11,000 lots of fishes; 4,082 fishes, approximately 60,000 insects and their allies; 555 lower invertebrates

CHICAGO ZOOLOGICAL SOCIETY, Brookfield, Illinois: 7 mammals, 8 birds 1 egg, 2 reptiles—various localities (gift)

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Glasser, Joshua B.
Godehn, Paul M.
Goes, Mrs. Arthur A.
Goldberg, Philip S.
Golden, Dr. Isaac J. K.
Golding, Robert N.
Goldman, Mrs. Louis
Goldstein, Dr. Helen L.
Button
Goldstein, Nathan S.
Goldstine, Dr. Mark T.
Goldy, Walter I.
Goltra, Mrs. William B.
Goode, Mrs. Rowland T.
Gooden, G. E.
Goodman, Benedict K.
Goodman, Mrs. Milton F.
Goodman, W. J.
Goodman, William E.
Goodwin, Clarence
Norton
Goodwin, George S.
Gordon, Colin S.
Gordon, Harold J.
Gordon, Dr. Richard J.
Gordon, Mrs. Robert D.
Gorrell, Mrs. Warren
Gottlieb, Frederick M.
Gould, Jay
Gould, Mrs. June K.
Grade, Joseph Y.
Graff, Oscar C.
Graham, Douglas
Graham, E. V.
Graham, Miss
Margaret H.
Gramm, Mrs. Helen
Granger, Mrs. Lillian M.
Grant, James D.
Grant, John G.
Graves, Austin T.
Graves, Howard B.
Grawoig, Allen
Gray, Dr. Earle
Gray, Edward
Green, Michael
Green, Robert D.
Greenacre, Miss Cordelia
Ann
Greenburg, Dr. Ira E.
Greene, Henry E.
Greenlee, Mrs. William
Brooks
Greenman, Mrs. Earl C.
Gregory, Stephen S., Jr.
Gregory, Tappan
Gressens, Otto
Grey, Dr. Dorothy
Griest, Mrs. Marianna L.

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- Griffenhagen, Mrs.
Edwin O.
- Griffith, Mrs. Carroll L.
- Griffith, Mrs. William
- Griswold, Harold T.
- Grizzard, James A.
- Groak, Irwin D.
- Gronkowski, Rev. C. I.
- Groot, Cornelius J.
- Groot, Lawrence A.
- Gross, Henry R.
- Grossman, Frank I.
- Grothenhuis, Mrs.
William J.
- Grotowski, Mrs. Leon
- Gruhn, Alvah V.
- Grunow, Mrs. William C.
- Guenzel, Louis
- Guest, Ward E.
- Gurley, Miss Helen K.
- Gurman, Samuel P.
- Gustafson, Gilbert E.
- Guthman, Edwin I.
- Gwinn, William R.
- Hadley, Mrs. Edwin M.
- Haffner, Mrs.
Charles C., Jr.
- Hagen, Mrs. Daise
- Haight, George I.
- Hair, T. R.
- Hajicek, Rudolph F.
- Haldeman, Walter S.
- Hale, Mrs. Samuel
- Hales, William M.
- Hall, Edward B.
- Hall, Mrs. J. B.
- Halligan, W. J.
- Hallmann, Herman F.
- Halperin, Aaron
- Halverstadt, Romaine M.
- Hamm, Fred B.
- Hammaker, Paul M.
- Hammerschmidt, Mrs.
George F.
- Hand, George W.
- Hanley, Henry L.
- Hann, J. Roberts
- Hansen, Mrs. Carl
- Hansen, Mrs. Fred A.
- Hansen, Jacob W.
- Hanson, Mrs. Norman R.
- Harder, John H.
- Harders, Mrs. Flora
Rassweiler
- Hardin, John H.
- Harding, John Cowden
- Harms, VanDeursen
- Harper, Alfred C.
- Harrington, David L.
- Harris, Mrs. Abraham
- Harris, David J.
- Harris, Gordon L.
- Harris, Stanley G.
- 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.
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- Henkel, Frederick W.
- Henley, Dr. Eugene H.
- Hennings, Mrs.
Abraham J.
- Henry, Huntington B.
- Henschel, Edmund C.
- Herbst, LeRoy B.
- 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.
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- Hibbard, Mrs. W. G.
- Hieber, Master J. Patrick
- Higley, Mrs. Charles W.
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Eugene, Jr.
- Hildebrand, Grant M.
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- Hill, William E.
- Hille, Dr. Hermann
- Hillebrecht, Herbert E.
- Hills, Edward R.
- Hind, Mrs. John Dwight
- Hinman, Mrs. Estelle S.
- Hinrichs, Henry, Jr.
- Hintz, Mrs. Aurelia
Bertol
- 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.
- 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.

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Dodge, Jr.
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Horton, Horace B.
Horween, Arnold
Horween, Isidore
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Hottinger, Adolph
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Howe, Clinton W.
Howe, Mrs. Pierce
Layman
Howe, Ralph B.
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Howie, Mrs. James E.
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Howson, Louis R.
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Hoyt, Mrs. Phelps B.
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Katherine J.
Hudson, Walter L.
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Hughes, John E.
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Huncke, Oswald W.
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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.
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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.
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.
Jolly, Miss Eva Josephine
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.
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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.
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Katz, Solomon
Katzenstein, Mrs.
George P.
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Kauffmann, Alfred
Kaufman, Justin
Kauffmann, Dr.
Gustav L.
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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.
Kemper, Hathaway G.
Kemper, Miss Hilda M.
Kempner, Harry B.
Kempner, Stan
Kendall, Mrs. Virginia H.
Kendrick, John F.
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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.
Kestnbaum, Meyer
Kettering, 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.

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- Kirkland, Mrs.
Weymouth
Kitchell, Howell W.
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Kleinpell, Dr. Henry H.
Kleist, Mrs. Harry
Kleppinger, William H.
Kleutgen, Dr. Arthur C.
Klinetop, 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.
Kohnlein, Wilson O.
Kohler, Eric L.
Konsberg, Alvin V.
Kopf, Miss Isabel
Koppenaar, 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.
Krautter, L. Martin
Kresl, Carl
Kretschmer,
Herman L., Jr.
Krez, Leonard O.
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.
Laffin, Louis E., Jr.
Laffin, 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.
Lebolt, 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
Levitetz, 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.
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.
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

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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.
Maremont, Arnold H.
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.
Masse, B. A.
Massey, Peter J.
Masterson, Peter
Mathesius, Mrs. Walther
Matson, J. Edward
Matter, Mrs. John
Maurer, Dr. Siegfried
Maxant, Basil
Maxwell, Lloyd R.
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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.
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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
McCutcheon, Mrs.
 John T.
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
McLennan, Donald R., Jr.
McLennan, Mrs. Donald
 R., Sr.
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.
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Merrill, William W.
Metz, Dr. Arthur 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.
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Midowicz, C. E.
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Milburn, Miss Anne L.
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Miller, Hyman
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 Beaupre
Miller, Oscar C.
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Miller, R. T.
Mills, Allen G.
Mills, Lloyd Langdon
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Minturn, Benjamin E.
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Mitchell, John J.
Mitchell, Leeds
Mitchell, Oliver
Mix, Dr. B. J.
Mock, Dr. Harry Edgar
Moderwell, Charles M.
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Mong, Mrs. C. R.
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Monroe, William S.
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Moore, Philip Wyatt
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Morrison, James C.
Morrow, Mrs. John, Jr.
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Morse, Leland R.
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Morse, Robert H.
Morton, Sterling
Morton, William Morris
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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.

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- Mulford, Miss Melinda Jane
 Mulhern, Edward F.
 Mulholland, William H.
 Munroe, Moray
 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
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 Newhall, R. Frank
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 Newman, Mrs. Albert A.
 Newman, Charles H.
 Nichols, J. C.
 Nichols, S. F.
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 Nishkian, Mrs. Vaughn G.
 Nitze, Mrs. William A.
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 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
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 Nusbaum, Mrs. Hermien D.
 Nyman, Dr. John Egbert
- Oates, James F.
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 Oberfelder, Walter S.
 Obermaier, John A.
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- O'Connell, Edmund Daniel
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 Oglesbee, Nathan H.
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 O'Keefe, William F.
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 Oldefest, Edward G.
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 Oliver, Mrs. Paul
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 Olsen, Mrs. Arthur O.
 Olson, Gustaf
 Olson, Rudolph J.
 O'Neil, Dr. Owen
 Onofrio, Mrs. Michael J.
 Ooms, Casper William
 Opeka, Frank M.
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 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.
 Paepcke, Walter P.
 Page, John W.
 Palmer, James L.
 Palmgren, Mrs. Charles A.
 Pandaleon, Costa A.
 Pardee, Harvey S.
 Pardridge, Mrs. E. W.
 Park, R. E.
 Paker, Dr. Gaston C.
 Paker, 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.
 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.
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 Krane, Leonard J.
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 Krause, Elmer
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 Landis, Sidney
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 Lane, Howard
 Lang, Eugene C.
 Langan, Harley B.
 Lange, A. G.
 Lange, Hugo C.
 Langen, Ray
 Langer, Joseph S.
 Langert, A. M.
 Langford, Joseph P.
 Laramore, Florian E.
 Large, Judson
 Larkin, R. C.
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 Puzey, Russell V.

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 Dorothy W.
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 Rasmussen, L. M.
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 Reilly, George A.
 Reilly, W. J.
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 Katherine
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 Ricks, Ivan
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 Rinaker, Samuel M.
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 Rivenes, A. I.
 Rivera, J. A.
 Roach, O. R.
 Robandt, Al
 Robbins, Burr L.
 Robbins, Laurence B.
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 Roberts, J. K.

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 Nancy P.
 Robertson, Theodore B.
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 Roche, John Pierre
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 Rogers, Lester C.
 Rogers, Milton P.
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 Rogers, Thomas W.
 Roman, B. F.
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 Ronning, Magnus I.
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 Rose, George
 Rose, Jack
 Roseland, J. G.
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 Bernhard
 Rosenfels, Mrs.
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 Rosenson, Herzl
 Rosenthal, M. A.
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 Ross, Earl
 Ross, Dr. Martin T.
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 Rowley, William F.
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 Rudolph, Walter D.
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 SanFilippo, Dr. Paul D.
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 Sayers, Leon D.
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 Schaefer, W. A.
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 Schultz, W. Norman
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 Toomin, Philip R.
 Topaz, Martin
 Topolinski, J. J.
 Torosian, Peter G.
 Toussaint, S. E.
 Trager, D. C.
 Trainor, H. J.
 Traub, A. C.
 Traut, Bernard H.
- Traver, George W.
 Traynor, William B.
 Traynor, William
 Knowlton
 Treffeisen, Gustave
 Tregenza, A. E.
 Trimarco, Ralph R.
 Troeger, Louis P.
 Trumbull, Mrs.
 Charles L.
 Trumbull, Robert F.
 Trumbull, William M.
 Turner, Dr. Herbert A.
 Turney, Russell J.
 Tuteur, Charles
 Tuteur, Irving M.
 Tyler, Thomas S.
 Tyrakowski, Steven S.
 Tyrrell, Miss Frances
- Ughetti, John B.
 Uhlmann, Richard F.
 Ullmann, S. E.
 Ultsch, W. Lewis
 Urban, Andrew
 Urban, Dr. H. J.
 Uteley, Mrs. Clifton M.
- VanBuskirk, M. G.
 Vanderkloot, Dr. Albert
 VanderKloot, Nicholas J.
 Vanderwicken, Edwin P.
 VanDeventer, William E.
 VanDyk, S. A.
 VanKampen, A. H.
 VanMell, Herman T.
 VanNatta, V. R.
 VanNice, Errett
 VanSchaick, Mrs.
 Ethel R.
 Varty, Leo G.
 Vastine, Lee B.
 Vaughan, Alan W.
 Velvel, Charles
 Vilsoet, William
 Vloedman, Dr. D. A.
 Vogel, James B.
 Vogel, Mrs. Leslie H.
 Vogt, Earle E.
 Voltz, D. H.
 VonGehr, George
 Vose, Mrs. Frederic P.
 Vydra, Frank C.
- Wach, Dr. Edward C.
 Wachter, Frederick J.
 Wade, Albert G., II
 Wadler, Milton Arnold
 Wagner, Richard
 Wahl, Herman L.
 Waite, Roy E.
 Waldeck, Herman
- Waldman, Dr. Albert G.
 Walker, Dr. Alfred O.
 Walker, Frederick W., Jr.
 Walker, Reno R.
 Walker, Wendell
 Walker, Mrs. William
 Ernest
 Wall, Dr. Frank J.
 Wallenstein, Sidney
 Waller, William, Jr.
 Wallerstein, David B.
 Wallgren, Eric M.
 Walters, Gary G.
 Walz, John W.
 Wardwell, H. F.
 Ware, Mrs. Robert R.
 Ware, Willis C.
 Warner, Ernest N.
 Warner, Mason
 Washburn, Dr.
 Kenneth C.
 Wasserman, Hy
 Wasson, Theron
 Waterstreet, W. Neal
 Watkins, George H.
 Watling, John
 Watson, Norman E.
 Watt, Herbert J.
 Way, Mrs. Henry J.
 Weary, Allen M.
 Webb, Dr. Edward F.
 Webber, Harold H.
 Weber, James E.
 Webster, Dr. Augusta
 Webster, Frederick F.
 Webster, N. C.
 Wehmeier, H. A.
 Weidert, William C.
 Weigle, Mrs. Maurice
 Weiner, Charles
 Weinress, S. J.
 Weisbrod, Maxfield
 Weismantel, Miss
 Theresa A.
 Weiss, Alexander
 Weitman, W. E.
 Weitzel, Carl J.
 Welch, M. W.
 Welfeld, Marvin J.
 Wellin, Harold
 Wells, C. A.
 Wendt, Edwin H.
 Wenzholz, Walter W.
 Wenninger, William C.
 Wescott, Dr. Virgil
 Wesley, C. N.
 West, James D.
 Westbrook, Charles H.
 Westerlin, Mrs. J. M.
 Wetmore, Horace O.
 Wetten, Walton
 Wezeman, Frederick H.

ANNUAL MEMBERS (Continued)

Wheeler, Mrs. Seymour	Willy, Gustave J.	Wright, William Ryer
Wheelock, Miss Ellen P.	Wilmarth, Donald G.	Wrisley, George A.
Whipple, Gaylord C.	Wilson, Allen B.	Wyatt, Harry N.
Whipple, Mrs. M. Cox	Wilson, Arlen J.	Wybel, L. E.
Whipple, Miss Velma D.	Wilson, H. Fred	Wyckoff, Dr. Philip H.
Whiston, Frank M.	Wilson, Percival C.	
Whitelock, John B.	Wilson, Dr. William	Yates, John E.
Whitfield, George B.	Windchy, Mrs. Frederick O.	Yohe, C. Lloyd
Whitmore, Lyle S.	Winsberg, Herbert H.	Yonkers, Edward H., Jr.
Whitnell, William W.	Winsberg, Samuel	Youker, Mrs. Claude W.
Whitney, Mrs. Charles R.	Winston, Charles S., Jr.	Young, C. S.
Wible, R. R.	Winston, Mrs. Farwell	Young, Dr. Donald R.
Wickersham, Mrs. Lucille	Winterbotham, John R.	Young, J. L.
Wickman, C. E.	Wiseman, William P.	Youngberg, Arthur C.
Wilbur, Lawrence S.	Wisner, C. V., Jr.	Youngren, W. W.
Wilby, A. C.	Wolchina, R. P.	Zaczek, Miss Genevieve A.
Wilds, John L.	Wolf, Morris E.	Zadek, Milton
Wilhite, James A.	Wolf, Orrin E.	Zatz, Sidney R.
Wilk, Arthur E.	Wolfe, Hubert J.	Zehr, Ores E.
Wilkinson, William D.	Wolff, Frank C.	Zimmer, Harry L.
Willard, Nelson W.	Wolf, Oscar M.	Zimmerman, Austin M.
Williams, Albert W.	Wood, Edward W.	Zimmerman, Carl
Williams, Jay C.	Wood, William A.	Zimmerman, E. W.
Williams, Lawrence	Woodside, John T.	Zimmerman, Dr. Harold W.
Williams, Robert G.	Woodson, William T.	Zimmerman, Preston
Williams, Russell V.	Woodward, Arthur H.	Zimmermann, Mrs. P. T.
Willis, Ivan L.	Woodyatt, Dr. Rollin Turner	Zipse, Edwin W.
Willott, Mrs. Adele	Woolard, Francis C.	Zitzewitz, Arthur F.
	Wolf, Lawrence A.	Zolla, Abner M.
	Woulfe, Henry F.	

DECEASED, 1951

Agar, Mrs. John T.	Hoefler, Max	Ritter, Miss Lavinia
Beaven, Joseph C.	Kidwell, Richard E.	Stoehr, Kurt
Carpenter, John Alden	Low, John M.	Storms, North
Cervenka, John A.	McGuire, F. Willis	Stresen-Reuter, Frederick A.
Cole, Cornelius C.	McHenry, Irving	Symmes, William H.
Dahl, William G.	McLaughlin, A. G.	Wallace, Charles Ross
Douglas, William C.	Meyer, Mrs. Alfred C.	Watkins, Frank A.
Duval, Dr. Emile C.	Novotny, Richard R.	Wanzer, Howard H.
Foster, George P.	O'Hearn, Rev. John J.	Weiler, C. J.

Articles of Incorporation

STATE OF ILLINOIS

DEPARTMENT OF STATE

WILLIAM H. HINRICHSEN, *Secretary of State*

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETING:

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

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

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

W. H. HINRICHSEN,
Secretary of State.

[SEAL]

TO HON. WILLIAM H. HINRICHSEN,

SECRETARY OF STATE:

SIR:

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

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

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

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

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

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

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

(Signed)

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

Buckingham, Andrew McNally, Edward E. Ayer, John M. Clark, Herman H. Kohlsaas, 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.





UNIVERSITY OF ILLINOIS-URBANA



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