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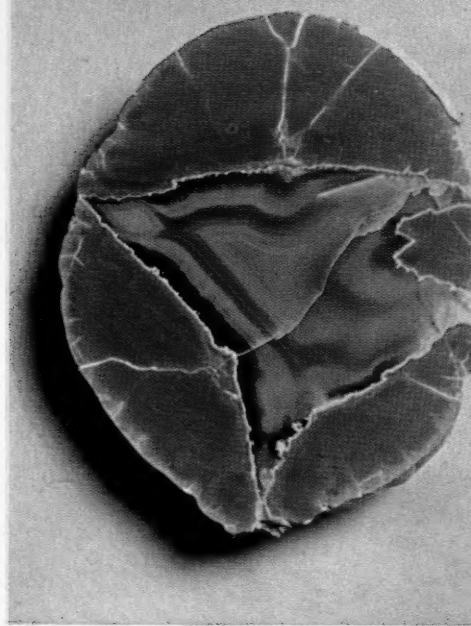
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Annual Report 1964  
Chicago Natural History Museum









COVER: Agate-filled nodules of volcanic origin from Oregon, called "Thunder Eggs" by local Indians.



STANLEY FIELD  
1875 - 1964

**Annual  
Report  
1964**

**Chicago Natural History  
Museum**

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

# Annual Report

Museums are a relatively recent historical development. Libraries, schools, and universities have existed for centuries, available to at least some portions of the population; but it is only within the last 200 years—and most markedly the last 100—that collections of art, antiquities, historical and natural history objects have moved from private collections to public museums. In much of the world the museums are public in the corporate sense and are governmental institutions—owned, operated, and financially supported by governments. In the United States, a strong tradition of private operation of many of our museums has arisen. This is also true in respect to other types of eleemosynary institutions such as hospitals, universities, and symphonies. The touchstone of the tradition is the continuing willingness of Americans to give of their time, their wisdom, and their wealth in fulfillment of their stewardship. The simultaneous existence in various fields of endeavor of public (governmental) and private institutions, such as Chicago Natural History Museum, is one of the great dynamic forces in our cultural and educational heritage.

Many lives have been dedicated in varying degrees to American museums, but of them all, the life of Stanley Field was unique. His death, on October 28, 1964, ended an association of more than 58 years with the Museum, 56 years as the presiding officer of the Board of Trustees. In his memory, the Board of Trustees adopted the following resolution. . .

## STANLEY FIELD 1875-1964

“The Trustees of Chicago Natural History Museum record with deep regret and sorrow the loss they have sustained through the death of Stanley Field on October 28, 1964.

“Mr. Field was born in Manchester, England, on May 13, 1875. After spending his early years in England, he came to Chicago in

1893 to begin work at Marshall Field & Company, an association that continued until his death 71 years later. He served as First Vice President, Member of the Board of Directors, and, from 1939 until 1964, Chairman of the Executive Committee.

“In 1906, Mr. Field was elected to the Board of Trustees of Field Museum of Natural History, and shortly thereafter, in 1908, he was elected President. He headed the Museum for more than 56 years, and built it from a small institution of limited stature to one of the great natural history museums of the world, through firm and wise guidance of policy, through dedicated effort, and through his generous gifts. Never in the history of American museums has there been a comparable career of personal dedication of time and gifts.

“Chicago is indebted to Stanley Field for more than his building of the Museum. He was a guiding force in the building of the Shedd Aquarium and the Brookfield Zoo, and he served the Children’s Memorial Hospital and Chicago Child Care Society for many year’s His contributions ranged throughout the spectrum of Chicago’s cultural and welfare institutions.

“In addition to his association with Marshall Field & Company, he served on the Boards of Commonwealth Edison Company, Public Service Company of Northern Illinois, Continental Illinois National Bank and Trust Company, the Chicago Milwaukee and St. Paul Railroad, and Illinois Central Railroad. His wise counsel and steadfast dedication to principle were anchors of Chicago’s economic life during the depression of the 1930’s.

“The Board of Trustees’ loss of Stanley Field’s guidance and counsel is matched only by the personal and individual loss of his friendship. Therefore, be it resolved that this expression of our sorrow at his death be entered in the permanent records of the Board of Trustees of the Museum; and be it further resolved that our deep sympathy and a copy of this resolution be conveyed to the members of his family.”

The close of Mr. Field’s life of dedication resulted in a major turning point in the leadership of the Museum which was accentuated by the retirement of Dr. Clifford C. Gregg on June 1, 1964. Dr. Gregg had served on the Museum staff for 38 years, including 25 years as Director and 2½ years as President. Throughout this time he had worked closely with Stanley Field in the building of the Mu-





CLIFFORD C. GREGG

Director, 1937 - 1962

Trustee, 1961 -

seum. The combined years of service of almost a century of these two men, and the Museum's progress during these years, bear testimony to the reality of the transition. It is fortunate that Dr. Gregg's counsel will continue through his service as a Trustee, and as First Vice President to which office he was elected in January.



Retiring President Gregg greets President James L. Palmer

Mr. Field, in his usual thorough fashion and with his everpresent concern for the Museum's welfare, foresaw the need for continuity of Board leadership, and he urged the Board of Trustees to make provision for it in the face of inevitable changes. Thus it was that the Board of Trustees, at its January meeting, elected one of its members, Mr. James L. Palmer, to the Presidency, effective June 1, 1964. Mr. Palmer, a Chicagoan distinguished both as a business man and as an academician, immediately began working with the Director and other Staff Members to develop an assessment of future

requirements in the areas of building modernization, exhibit revision, research and educational programs, and personnel.

It is clear that the needs of Chicago Natural History Museum in the decade to come are of major magnitude and that these needs must be met. The alternative is gradual atrophy. But it is equally clear that the stature of the Museum is great. As it moves ahead it builds from a position of strength in terms of personnel, of collections, and of structure. This is a memorial of high distinction to the life of Stanley Field.

Aside from the sadness felt by all of those associated with the Museum at the loss of Mr. Field, the year was a rewarding one. The attendance of 1,511,495 was the highest since 1933-1934, when the Century of Progress, just to the south, produced extraordinarily high attendance. The school group attendance of 228,000 was the highest in our history.

The construction of our long hoped for building addition was begun in June and was well along toward completion by the end of the year. This addition, funded by an \$875,000 National Science Foundation grant, will result in major strengthening of our research and educational program.

As we look toward the future needs of the Museum, which have been mentioned above and in Annual Reports of recent years, it is evident that much of the necessary financial support must come from our Members. It is encouraging to report, therefore, that membership rose again in 1964 and reached 9,442 at year end.

To all of our Members we address this report of our past year's program with deep appreciation for their interest and financial support.

## Gifts to the Museum

One of the major gifts in the history of the Museum was received through the bequest of Mr. Stanley Field. Mr. Field, whose generous gifts throughout his lifetime were of fundamental importance to the growth and strength of the Museum, made a typically munificent gift of \$1,000,000 in his will. The work that he advanced so vigorously will thus be permanently strengthened through the use of this bequest.

Other major gifts increased markedly during the year—a most encouraging trend in the light of our needs mentioned earlier. The Robert R. McCormick Charitable Trust made a grant of \$200,000 in support of our programs of research and education. Mr. Stanley Field added \$40,093 to the Stanley Field Fund; Mr. and Mrs. William S. Street gave \$21,132 toward a zoological expedition to Afghanistan; Mr. John M. Simpson presented a gift of \$34,650; Mr. Henry P. Isham gave \$7,372.50; and Mr. William H. Mitchell gave \$5,000. Mr. Philip K. Wrigley added \$5,000 to the Philip K. Wrigley Marine Biological Research Fund; Mrs. Florence Hurst Hunter made an unrestricted bequest of \$10,000. The National Science Foundation granted \$41,700 in support of 3 research programs, and the U. S. Army Medical Research and Development Command granted \$6,555 toward entomological research. Unrestricted gifts were received from Mrs. James C. Hutchins, \$500; Mr. and Mrs. John Shedd Reed, \$568; and Mr. Kenneth V. Zwiener, \$1,000.

Mrs. Carolyn A. Getz of Moline, Illinois, and her children, Mrs. Carolyn G. Bartholomew, John R. Getz, Thomas G. Getz, William A. Getz, Mrs. Cicely G. Kane, Mrs. Barbara G. Mannon, Mrs. Pamela G. Verehusen, and Mrs. Sara G. Winwood established a memorial fund of \$3,000 in memory of their husband and father, Mr. Harry W. Getz. The income from the fund will be used to aid the publication of anthropological research.

Additional gifts to existing endowment funds were received from Mr. Jack C. Staehle, \$1,612.50; Miss Margaret B. Conover, \$1,086.88, in memory of Boardman Conover; Mr. Edward Byron Smith, \$1,000 in memory of Solomon A. Smith; Dr. Maurice L. Richardson, \$750; Estate of Abby K. Babcock, \$616.91; Mrs. Cyril L. Ward, \$400; Mrs. Walther Buchen, \$300; Dr. Clifford C. Gregg, \$150. Mr. Edward Alexander gave \$500 in support of archaeological field work; Dr. and Mrs. Louis O. Williams gave \$600 toward Central American Botanical exploration; Roosevelt University contributed \$725 in support of a scientific publication.

A large number of memorial gifts were received by the Museum after Mr. Field's death. The Searle Foundation gave \$15,000 in his memory. Others who gave to the Stanley Field Memorial Fund were: Joseph B. Ames, Mr. and Mrs. John Bent, William McCormick Blair, Ralph E. Bowers, John M. Budd, Miss Susanmary Carpenter, Leland C. Carstens, Harry E. Changnon, Roy W. Clansky, Roy W. Clansky, Jr., Miss Margaret B. Conover, Albert B. Dick III, Mrs. James H. Douglas, Mrs. Opal M. Galster, Miss Marion G. Gordon,

Dr. Clifford C. Gregg, Marvin Henschel, Robert Hymann, Misses Ruth and Marion Hoffmann, Mrs. Paul M. Hunter, William V. Kahler, Mr. and Mrs. Donald K. Keith, Mrs. Stanley Keith, Mrs. Cotton Kelley, Mrs. J. Allison Martin, Hughston M. McBain, William R. Odell, James L. Palmer, John T. Pirie, Jr., Karl Plath, George G. Rinder, Gilbert H. Scribner, Gerald A. Sivage, Solomon A. Smith Charitable Trust, Mr. and Mrs. Hermon Dunlap Smith, William S. Street, Willson G. Todd, Mrs. Frederick G. Wacker, E. Leland Webber, Barrett Wendell, Mr. and Mrs. Jay N. Whipple, Mrs. Stanley L. Yonce, Arthur Young & Co., Rainer Zangerl.

Other gifts were received from: Robert S. Adler Family Fund, Mrs. M. A. Appell, Edward C. Austin, Bowen Blair, William McCormick Blair, Mr. and Mrs. C. W. Byron, Mrs. Frederick H. Carpenter, Mr. and Mrs. Walter R. Ceperly, Dr. Thomas S. Chambers, Chicago Mill and Lumber Company, Peder A. Christensen, H. Carmen Crago II, Mr. and Mrs. Gaylord Donnelley, Thomas E. Donnelley II, Robert T. Drake, Walter Erman, Jack Ferguson, Miss Elsie Gadzinski, James R. Getz, Dr. Clifford C. Gregg, Mr. and Mrs. J. F. Griswold, Jr., Mr. and Mrs. Maxwell Hahn, Mrs. Paul V. Harper, John F. Hayward, Mrs. Louise Helton, Misses Ruth and Marion Hoffmann, Harry Hoogstraal, Robert J. Kennedy, Comdr. John F. Kurfess, USN, Louis J. Lewis, Mrs. William B. Lloyd, Jr., Mr. and Mrs. R. J. Loh, E. B. Michaels, Mrs. Arthur T. Moulding, Dr. Robert F. Mueller, Mr. and Mrs. Frank P. Nellis, John Plain Foundation, John A. Quisenberry, Dr. Austin L. Rand, Victor B. Revsine, Melville N. and Mary F. Rothschild Foundation, Judd Sackheim, Henry J. Scavone, Mr. and Mrs. J. R. Shipley, B. L. Smalley, Mr. and Mrs. Douglas B. Smith, Mr. and Mrs. Hermon Dunlap Smith, Dr. and Mrs. Daniel Snyder, Mrs. John V. Spachner, Dr. and Mrs. Roy E. Sturtevant, Walter F. Wallace, Jr., David G. Watrous, E. Leland Webber, Ira E. Westbrook, Mrs. C. J. Whipple, Mrs. Myrtle D. White, Miss Miriam Wood, Perry S. Woodbury, Armand Yarmategui, Arthur Young & Company.

Gifts to the Memorial Fund were received in memory of Walther Buchen, Stanley Field, Commander Frank V. Gregg, Mrs. Marion Grey, George Langford, Karl P. Schmidt, Mrs. Minnie Smith, Solomon A. Smith, Dr. Reuben M. Strong, and Frank R. Williams.

In recognition of its generous gifts, the Board of Trustees elected the Robert R. McCormick Charitable Trust a Benefactor of the Museum.

Other donors, who were elected Contributors, were: Mrs. Walther Buchen, D. Dwight Davis, Mrs. Carolyn A. Getz, C. E. Gurley, Mrs. Florence Hurst Hunter (in memoriam), International Harvester Company, Marshall Field & Company, The Searle Foundation, John M. Simpson, Edward Byron Smith, The Solomon A. Smith Charitable Trust, Dr. Walter Suter, Wenner-Gren Foundation for Anthropological Research, Kenneth V. Zwiener. A list of donors to the collections is shown on pages 57-58.

Sincere thanks are extended to all those whose gifts were so important to the Museum and its program.

## School Programs

A museum, like a book, does not require a teacher for its use. Both museums and books, however, can achieve increased effectiveness when used with the aid and guidance of good teaching. Any normal year finds students from the elementary school to the doctoral level receiving formally organized instruction from the Museum staff. 1964 was no exception. The two departments working with elementary and secondary age students are the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures and the N. W. Harris Public School Extension. More than 4,600 organized groups, most of them school groups, brought almost a quarter of a million students to use our exhibits. It is particularly gratifying that Chicago Public School visitation increased more than 40% in 1964. Offsetting our pleasure at the increasing school attendance, however, is the fact that the Raymond Foundation staff was able to provide educational services for only 25% of the students in the classes. An increase in our educational staff is clearly needed.

A new program of summer science seminars for selected Chicago Public high school students was offered during the year. Chicago high schools nominated 173 students for seminars in anthropology, biology, or earth science. Exhibits formed the background for study. Visits to our massive study collections, study of specimens, films, slides, recordings, and a great deal of discussion all contributed to a highly successful series.

A new program of training for Senior Girl Scouts earned them the designation of Museum Aides. The twelve Museum Aides thus trained gave guided tours to more than 1,000 Brownie Scouts on four Saturdays. A new tape recorded self-guiding lecture system

called Acoustiguide was installed during the summer. Two tours of the exhibits in anthropology and biology were prepared by Raymond Foundation staff.

Harris Extension delivered portable exhibits to more than 500 schools and public service institutions every two weeks during the school year. Thus almost 500,000 school age children are served by this broad program, one of the most extensive in the nation. A staff of three preparators, the largest Harris Extension staff in many years, made accelerated progress in creation of new exhibits.

## Special Exhibits and Programs

A temporary exhibit, "A Growing Museum is a Living Museum," was placed in Stanley Field Hall this year to explain the major functions performed and services rendered by the Museum. Because the present building program benefits primarily the Department of Geology and the Library, the examples chosen pertain mainly to the types of basic research currently in progress in the Department of Geology, the significance of the collections and the role of the Library in fundamental research and in the training of graduate students. But the scope of the exhibit conveyed an idea of the total involvement of the Museum in the study of the universe in which we live, and the dissemination of this knowledge by exhibits and instruction at all levels of age and competence.

"Vikings," a special exhibit held in April and May, incorporated specimens lent by the Oslo University Museum of National Antiq-

Vikings Exhibit, replica of 11th century church portal at center



uities, the Oslo Maritime Museum, and the Bergen University Museum. The materials for the exhibition were brought from Norway to Chicago through the courtesy of Scandinavian Airlines System. The materials, shown for the first time in North America, included Norse weapons, furnishings, and several replicas of Viking ships. At the formal ceremonies opening the exhibition a lecture on the Vikings and their travels in the ninth, tenth, and eleventh centuries was given jointly by archaeologists Anne Stine Ingstad and Arne-Emil Christensen of Oslo, Norway.

The great success of the Ranger moon shot, and the extraordinary photographs taken by Ranger 7 just before impact on the moon were the basis of a special exhibit in Stanley Field Hall in September.

"Weeds," a series of more than 40 water colors by Mary Virginia Roberts, depicted with great skill a number of these unloved but almost universal plants. The show was displayed appropriately in August and September.

A number of exhibits and programs designed especially for school-age children were produced during the year. In May, the Children's Art Show exhibited the work of students at the Junior School of the Art Institute, showing the students' interpretations of a wide variety of Museum exhibits. The Chicago Area Science Fair, sponsored by the Chicago Area Teacher's Science Association, was held in the Museum in May. The Fair exhibits scientific experiments and projects made by students of grades 6 through 12 in the Chicago area.

During the same month, about six hundred persons participated in Chicago Latin Day at the Museum, sponsored by the Illinois Classical Conference for Latin Students of the Chicago Area.

The Saturday afternoon lecture series held in Spring and fall included 17 programs with a total attendance of fifteen thousand people.

An exhibit prepared for a Girl Scout Leaders Conference presented information about the Museum exhibits and some of the ways Girl Scouts made use of them.

Several special exhibits were the result of competitions. In February, the winning entries in the Chicago International Exhibition on Nature Photography were displayed. The competition was sponsored by the Museum and the Chicago Nature Camera Club. June saw the opening of the 14th Annual Amateur Handcrafted Gem and Jewelry Competitive Exhibition, sponsored by the Chicago Lapidary Society and the Chicago Park District.



## Staff of the Museum

The two most senior members of the curatorial staff, John R. Millar and Paul S. Martin, retired during the year. Mr. Millar was employed in 1918 and in the ensuing 46 years served as Preparator in the Division of Botany, Curator of the N. W. Harris Public School Extension, Deputy Director of the Museum, and Chief Curator of the Department of Botany. His contributions to the Museum, both in tenure and in breadth have been among the important ones in the Museum's history. Dr. Martin joined the Department of Anthropology in 1929 and was appointed Chief Curator in 1936. His field work in southwestern United States over a 25 year period has produced major contributions to American archaeology. It has also been a means of training many students in archaeological research—students who are now professional anthropologists in museums and universities throughout the country. Both of these distinguished members of the Staff will continue to be active in their "retirement." Freed of departmental administrative responsibilities, Dr. Martin will continue his research program, with an even stronger emphasis on work with students, and Mr. Millar is supervising the exhibition program of the Department of Botany.

Dr. Louis O. Williams, Curator, Central American Botany, was elected Chief Curator of Botany upon Mr. Millar's retirement, and Dr. Donald Collier, Curator of South American Archaeology and Ethnology, was elected Chief Curator of Anthropology to replace Dr. Martin.

Two curatorial appointments were made during 1964. Dr. Gabriel Edwin, formerly botanist at the National Arboretum, Washington, D.C., was appointed Assistant Curator, Vascular Plants, and Dr. Fred M. Reinman, formerly Lecturer, Department of Anthropology, University of California at Los Angeles, was appointed Assistant Curator, Oceanic Archaeology and Ethnology. Other division head appointments were Mr. Edward G. Nash, Editor, and Mr. Uno M. Lake, Manager of the Book Shop.

Sergeant George A. Lamoreux was promoted to Acting Captain of the Guard and Mrs. Dorothy Gibson from Assistant in Botany to Custodian of the Herbarium.

Dr. George B. Rabb, Associate Director, Research and Education of the Chicago Zoological Society, Brookfield, was elected Research Associate, Amphibians and Reptiles.

The Museum suffered a severe loss in March with the death of Mrs. Marion G. Grey, Associate in the Division of Fishes. Mrs. Grey, an amateur ichthyologist whose work was of professional quality had contributed greatly to the program of the Division of Fishes for more than 20 years. Dr. Reuben M. Strong, Research Associate, Anatomy, died in August at the age of 91, after a remarkable career of teaching and research in several diverse fields. Other Staff whose deaths are recorded with deep regret are Mrs. Helen A. MacMinn, retired Editor, Miscellaneous Publications, George Langford, retired Curator, Fossil Plants, and Vytautas Budrys and Bruno Bernatowicz formerly of the Division of Maintenance.

The quality of an organization is determined in major measure by the caliber of its personnel and their dedication to their work. It is a pleasure to express appreciation to all of our personnel who so effectively give of their many and varied talents toward the building of a better Museum.

## Volunteer Workers

The Museum thanks its volunteer workers for their help during the year. Some of them, designated as Research Associates and Associates, are included in the List of Staff. Others are: Mrs. Alice Burke, Kenneth Davenport, Stanley J. Dvorak, Mrs. Joseph Girardi, Sol Gurewitz, John Lussenhop, Mrs. Nancy Mahlman, Leo Plas, Michael Prokop, Byram Reed, William Walker, and Bruce Weber.

## **The Scientific Departments**

**Anthropology**

**Botany**

**Geology**

**Zoology**



Mask for use in Ritual Festivals  
Bafut People, Cameroons, Early 20th Century.

## Anthropology

The Museum Field Station at Vernon, Arizona, was the scene again this year of the summer excavations which have been conducted by Dr. Paul S. Martin and his associates for more than a quarter-century in Colorado, New Mexico, and most recently in Eastern Arizona. The results of these digs, published in a dozen volumes of *Fieldiana: Anthropology*, have greatly clarified the prehistory of the American Southwest. In 1964, work was concentrated on the pre-agricultural cultures of one valley, with emphasis on climatic environment and the adaptation of cultures to this environment. Among the numerous sites and artifacts found was a circular house carbon-dated at 300 B.C., making it the earliest human dwelling found so far in this area, providing the first glimpse of the architecture of the pre-ceramic people of the southwest. A firepit almost a thousand years older was also discovered. Grants from National Science Foundation helped support this work. Painstaking sorting and analysis of the materials recovered in the summer take place at the Museum during the remaining months of the year. In connection with this, a program to develop electronic computer techniques using multi-variant analysis for archaeological research is being pioneered by the Museum and the University of Chicago, with the assistance of the Wenner-Gren Foundation for Anthropological Research. The initial results, published in 1964, show great promise for this new tool.

George I. Quimby conducted research on the archaeology of the Upper Great Lakes region. Study of private and museum collections and field work in key areas on the shores of the Great Lakes provided much valuable data, particularly concerning the settlement patterns of the Late Woodland Period (A.D. 1000-1600).

After three years of work, a major new exhibit, "China in the Ch'ing Dynasty," was opened in 1964. The exhibit, planned by Dr. Kenneth Starr and designed by Theodore Halkin, deals with life in North China, under the Ch'ing or Manchu emperors, 1644-1911, the final dynasty of imperial China. It is a remarkable display of the many facets of Chinese civilization and the great sophistication of that long-enduring culture.

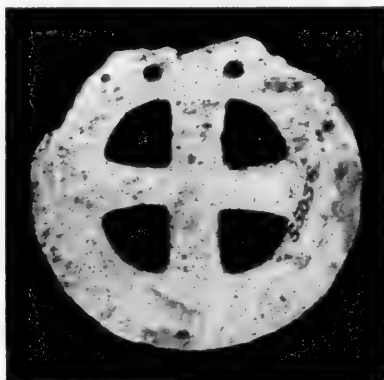
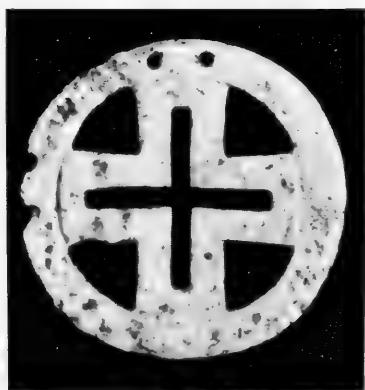
Advances in scientific knowledge are rarely the result of a flash of inspiration or a singular piece of good luck. Almost without exception, good scientific work requires long and careful planning. Thus, many departmental projects do not produce immediate results in terms of theories confirmed or works published. They are, however, necessary and extremely valuable in the long run. One such project is the development of the Robert R. McCormick Conservation Laboratory at the Museum. Mrs. Christine Danziger, Drs. Collier and Lewis, and others, have been engaged in choosing proper equipment, devising new techniques of conservation and planning the layout of the laboratory. Such different materials as bronze, wood, and various textiles will require quite different treatment for preservation. Some methods of preservation are well known, but many others must be developed by Museum staff members. The laboratory will be the first of its kind in the midwest.

It has long been known that students of anthropology, and even scientists themselves are often unaware of the depth and extent of the anthropological collections in museums throughout the nation. As a result, valuable and important collections lie untouched and unworked for decades. One solution to this problem is being studied by a national committee of museum anthropologists of which Dr. Collier is a member. The establishment of a national inventory of collections, available to all students in the discipline, would be a



Curator Kenneth Starr explains the use of Chinese handpuppets to Boardman O'Connor of television station WTTW, during a program entitled "Dragon and Phoenix — Echoes of Old China"

major step in the solution of this difficulty. Such an inventory, if proven feasible by a pilot project now in progress in Oklahoma, would, of course, take a number of years to complete, but it would result in a vastly increased utilization of existing collections, and a great improvement in the quality and thoroughness of anthropological research.



Shell ornaments from Southern Illinois,  
Late Middle Mississippi Period, c. A.D. 1300



"Shaggy Manes", a photo by Grant Haist of Rochester, New York, winner of a First Place Silver Medal in the 19th Chicago International Exhibition of Nature Photography



## Botany

Field work in Central America, directed by Dr. Louis O. Williams, Chief Curator, continued throughout the year, with the support of National Science Foundation grants. Field Associate Ing. Alfonso Jiménez M., Curator of the National Herbarium of San Jose, Costa Rica, collected in that country, and Ing. Agr. Antonio Molina R., Professor and Curator of the Herbarium of the Escuela Agrícola Panamericana, Tegucigalpa, Honduras, collected mostly in Nicaragua, El Salvador, and Honduras. Some 18,000 specimens were added to the Museum herbarium as a result of this field work. Professor Molina came to Chicago in October and, aided by the vast amount of reference and comparative materials in the Museum, devoted a number of weeks to the identification of these specimens.

Mr. Paul Hutchinson, leader of the Eighth Andean Expedition of the University of California Botanical Garden, Berkeley, returned to the Garden after nearly a year of active collecting in Peru. The Museum, as one of the principal sponsors of the expedition, will receive a share of the collection.

Dr. Rogers McVaugh, Curator of Vascular Plants, University of Michigan Herbarium and Research Associate on the staff of the Museum, continued preparation of an annotated catalogue of the Sessé and Mociño collection of Mexican plants. The collection itself was returned in mid-year to the herbarium of the Instituto Botánico A. J. Cavanilles, Madrid, Spain, which had sent it to this country for study.

Dr. Sidney F. Glassman, Professor of Biology, University of Illinois, and Museum Research Associate, in the course of his study of the palm genus *Syagrus*, described and named two new species from Nicaragua which were published in *Fieldiana*.

Dr. In-Cho Chung, Assistant Curator of Vascular Plants, completed a revision of the genus *Barnadesia* in the Compositae, and identified specimens in the Acosta-Solis collection of Ecuadorean plants. Additional papers on new species of South American plants in the Compositae and Mistletoe families were completed.

Dr. Ponce de León, Assistant Curator of the Cryptogamic Herbarium, initiated a study of *Geastrum*, a genus of puff-balls known as

“earth stars” whose relationships within itself and to other genera in its group are poorly known at present.

Dr. Gabriel Edwin joined the staff at the end of February as Assistant Curator of Vascular Plants. He began a study of the Scrophulariaceae of Peru to be published when completed as one of the two or three important groups of plants yet to be treated in the definitive *Flora of Peru* published by the Museum.

Dr. Edwin completed reports on studies begun before joining the staff. Manuscript was submitted on the genus *Ilex* for the “Flora of Santa Catarina” being published by the Herbario Barbosa Rodrigues, Itajai, Santa Catarina, Brazil, and on the same genus for the work “Botany of the Guyana Highlands” to be published in *Memoirs of the New York Botanical Garden*.

Dr. Williams completed work on the Ericaceae of Guatemala, and related families, for publication in the Museum’s *Flora of Guatemala*.

The collections were augmented in 1964 by 86 accessions totaling 30,000 herbarium specimens. Principal among the gifts were almost 1200 plants of the Midwest and New Mexico presented by Mr. Holly Reed Bennet of Chicago, and 1,000 identified cryptogams (non-flowering plants) by the Reverend Dr. Hillary Jurica of St. Procopius College, Lisle, Illinois. One notable exchange was a collection of 650 woody plants from Peru received for identification from the U. S. Forest Service Laboratory, Madison, Wisconsin. The specimens included new species but their distinction lies in the fact that they came from trees previously selected and numbered in the forest and visited at intervals so that a complete series of collections could be obtained from the same tree to include both flowers and fruit as well as wood samples.

Development of the new Hall of Useful Plants (Hall 28) was advanced by the installation of four cases on vegetables, two on legumes and one on edible nuts. More than a dozen models were made for these and future exhibits including models of mung bean sprouts, commonly used in Chinese dishes, and two fruits of Asiatic origin that have recently become available in the Chicago market—carambolas and Chinese gooseberries. About a dozen other plants such as kale and broccoli were represented by realistic paintings. A life-like bust of a betel-nut chewer was completed for addition to an exhibit on “pacifier plants”. A temporary exhibit on the green alga *Chlorella* was placed on display in Hall 25, together with one on slime molds made previously.

## Geology

Construction of new offices and working space in the Geology department began in June, 1964. The unusual bustle of workmen and engineers brought rapid results and the new facilities will be opened formally in 1965. The occasional inconvenience was more than offset by the prospect of bright well-designed new working areas for the Department, as well as space for geological collections.

Care of collections was a major concern in the Department of Geology during 1964 because of the impending move of nearly all parts of the geology collection to new quarters and the transfer of the very large Walker Museum invertebrate collection from the University of Chicago to the Museum. This entire collection had to be transferred to our standard cardboard trays and wooden drawers, a task accomplished by Matthew Nitecki of the Walker Museum, assisted by University of Chicago students. Another large portion of the Walker collection, never unpacked since it was acquired by the University, had to be unpacked and roughly sorted at the Museum. This was more than a year's work on the part of Dr. E. S. Richardson and student help.

Because of the large size of all the collections in the department to be transferred to the new facility, an exact labeling of every wooden drawer with the old and new case locations, and the precise slot in each of the cases was required. This was necessary because space for expansion had to be provided all through the new arrangement, in order to avoid much further reshuffling of the collections in the new facility. In the case of the Walker collection, however, a great deal of additional sorting (not to mention the cataloguing of much of the collection) is needed.

Dr. Edward Olsen, Curator of Mineralogy, made two major field trips, one in June to the basal section of the Duluth Gabbro Complex, and in September to the Stillwater Complex near Nye, Montana and the Laramie Range in Wyoming. The purpose was to collect basic rocks in both of these localities. The Stillwater collection was especially successful.

Dr. Bertram G. Woodland, Curator of Igneous and Metamorphic Petrology, continued his laboratory study of the micro-structures and mineralogy of metamorphic rocks from the Royalton area, Vermont. During the summer Woodland spent four weeks in the Central Black Hills region of South Dakota, where he studied structures in Pre-Cambrian metasediments. He is attempting to determine the structural fabric and deformational history and evolution of the rocks in that area.

Dr. John Clark, Curator of Sedimentary Petrology, concentrated on his monographic study of the paleoclimatological significance of Oligocene sedimentation in the Bad Lands of South Dakota. Two field trips to the Big Badlands furnished a wealth of petrographic and associated fossil specimens, no doubt the largest collection of this type now in existence. The last 10 days of the second trip were spent in consultation with Dr. Denison concerning fossiliferous Ordovician rocks of the Black Hills and the Big Horn Mountains.

Drs. Woodland, Richardson, and Zangerl conducted a 10 day paleontological field trip to Northern Arkansas at the invitation of Dr. James Quinn, Chairman of the Department of Geology, University of Arkansas. The purpose was to get a first hand acquaintance with very interesting depositional features in the Fayetteville black shale. Dr. Quinn and several of his students donated to the Museum a notable collection of the Mississippian cephalopod *Rayonnoceras* and other study material which form an important supplement to the specimens collected by the Museum party. As a whole, this collection contains a wealth of important biostratonomic evidence, revealing something of the mode of life and death as well as the burial environment of that spectacular invertebrate.

Dr. E. S. Richardson, Jr., Curator of Fossil Invertebrates was occupied with the Pennsylvanian (coal age) fauna found in the spoil heaps of the Peabody Coal Company's strip mines. In the course of a dozen field trips to the coal mines in Grundy, Will, and Kankakee counties he added to the Museum's collection about twenty species of crustaceans, clams, and soft-bodied invertebrates hitherto unknown to science. In revealing the existence and the character of such paleontologically ephemeral animals as worms and jellyfish, this deposit rivals the famous Burgess shale of British Columbia.

Dr. Robert H. Denison, Curator of Fossil Fishes, has continued to give much attention to the early Devonian Fishes from the Big Horn Mountains of Wyoming. Most of our extensive and important



Curator Eugene Richardson sorting a part of the enormous Walker Collection of fossils.

collection, acquired over several summers, has now been prepared by Chief Preparator Orville L. Gilpin, and awaits study and description.

William D. Turnbull, Associate Curator of Fossil Mammals, and Dr. Ernest L. Lundelius, Jr., of the University of Texas, collaborated in a year-long expedition to Australia in search of Tertiary mammals. This work was an attempt to reduce the largest single gap remaining in our knowledge of mammalian history: the history of the great and diverse order Marsupialia. Australia is now, and was during the Pleistocene, the land of the marsupials and, in all probability, Australia during the Tertiary was the heartland of marsupial evolution.

They were fortunate enough to find a small datable fauna in the Western District of the state of Victoria. Already, at least six (probably more) species have been recognized, and most of the materials are yet to be sorted. The most fortunate aspect about the fauna, however, is the fact that associated with it is a basalt flow, which can be demonstrated to have been an event contemporaneous with the fauna. Turnbull and Lundelius obtained the assistance of Dr. Ian MacDougall of the Australian National University who ran a Potassium-Argon date on the basalt. This turned out to be 4.35 million years, and constitutes the first absolute time dating for a tertiary mammal fauna in Australia. Further, the date is compatible with the age assignment made strictly on stratigraphic grounds, and thus corroborates it. A grant from the National Science Foundation supported the field work in Australia.

Dr. Rainer Zangerl, Chief Curator of the department, studied a very interesting small shark from the Mecca and Logan Quarries, and nearly completed a manuscript on this. It will be the first in a long series of studies concerned with the Mecca fauna.

## Zoology

Seventeen-year cicadas in Kansas and Oklahoma, the birds of southern Africa, the amphibians and reptiles of Borneo, disease-carrying arthropods and insects in Egypt and Panama and the fishes of the Indian Ocean—these and many other living things, in almost every corner of the world, occupied staff zoologists and research associates in the past year. At the Museum, as well as in the field, scientists continued their studies, prepared for new expeditions and published the results of their labors.

1964 saw the publication of *The Giant Panda, A Morphological Study of Evolutionary Mechanisms*, by D. Dwight Davis, Curator of Vertebrate Anatomy. This monumental work, published by the Museum Press after more than 25 years of work by the author, developed from the study of Su Lin and other pandas well remembered by Chicagoans from their residence at Brookfield Zoo. The book analyzes the structural differences between the panda and its ancestors, the bears, and discusses the way in which these differences arose. Only man and a few domestic animals have been more thoroughly studied from an anatomical point of view.

Field Associates William S. Street and Mrs. Street began preparations for an expedition to Afghanistan in 1965, similar to their 1962 expedition to Iran. Accompanied by Expedition Fellows Jerry Hassinger and Hans Neuhauser, they plan to spend at least six months in the field. Their base will be Kabul.

Joseph C. Moore, Curator of Mammals, returned in March from a round the world study trip begun in 1963. He visited 27 museums and examined 178 specimens of the Beaked Whale, genus *Mesoplodon*, which is his chief research interest at the present time. Research Curator Phillip Hershkovitz concentrated his work on the marmosets of South and Central America.

For a forthcoming revision of "Peters' Check List of The Birds of The World," Emmet R. Blake, Curator, Birds, completed the section on the American family Vireonidae, while Associate Curator Melvin A. Traylor completed the section on the waxbill family,



Su Lin, source of much of the scientific data in D. Dwight Davis  
1964 publication, "The Giant Panda"



Estrildidae. Blake, in cooperation with Miss D. Snyder of Salem Peabody Museum, is preparing a "field guide" for the Birds of British Guiana.

Loren Woods, Curator of Fishes, spent the first half of the year participating in the International Indian Ocean Expedition, sponsored by National Science Foundation and UNESCO. Some 500 scientists from several dozen institutions pooled their talents and efforts in this study of the Indian Ocean and its fauna. Woods spent some months at a Marine Laboratory in southern India, and then joined the Stanford University research schooner *Te Vega*, collecting on the reefs of Ceylon, in the Maldivé Archipelago and around the island of Mauritius.

The extremely rich frog fauna of Borneo, being studied by Robert F. Inger, Curator of Reptiles and Amphibians, has produced several valuable insights concerning the factors involved in animal distribution. For instance, two species of frogs which live in the same place and have the same habits provide an interesting exception to Gause's law, which holds that one species alone must inevitably triumph in a given niche. The Museum field station in Borneo was maintained during the year by William Hosmer of Melbourne and University of Chicago graduate student James Bacon. Associate Curator Hymen Marx and Research Associate George B. Rabb completed a review of the limits and phylogeny of the viper family, Viperidae.

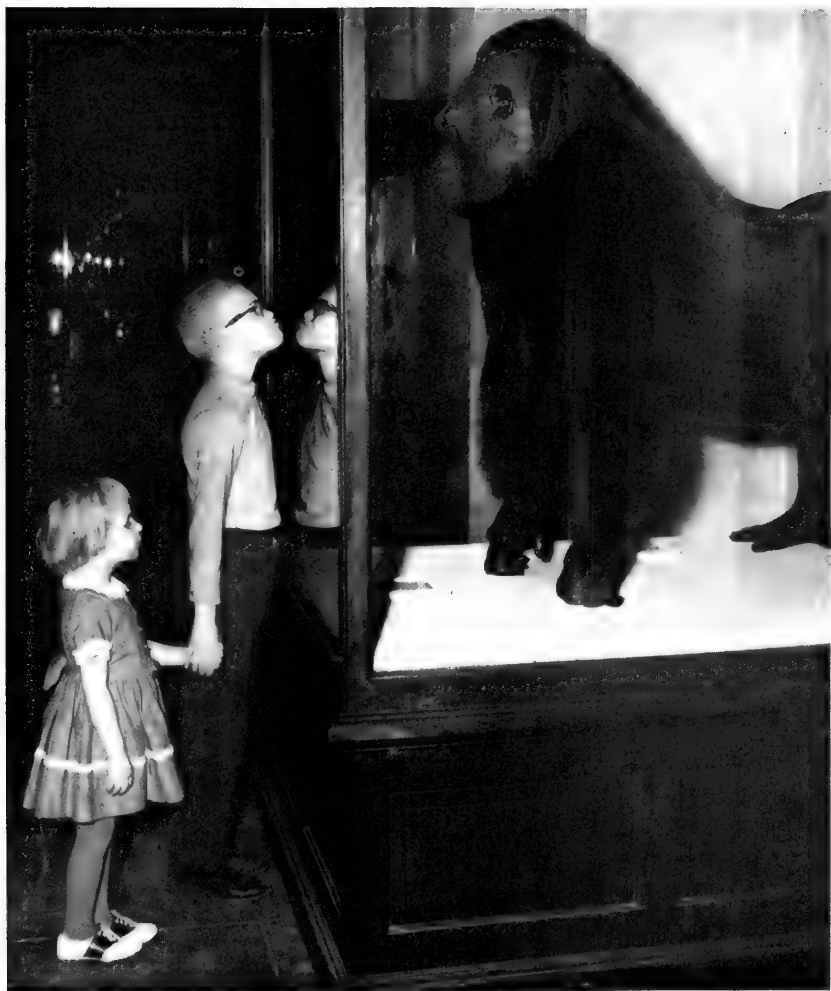
Curator Rupert L. Wenzel, Division of Insects, revised the family Streblidae, the batflies, in connection with his work on Central American insects. He described a new sub-family, five new genera and 55 new species. Henry S. Dybas, Associate Curator, spent several weeks in Kansas and Oklahoma observing the emergence of a 17-year cicada brood.

In the Division of Lower Invertebrates, Curator Emeritus Fritz Haas completed the synopsis of the fresh water unionid clams, a project begun in 1961. Publication of this enormous work is expected to begin in 1965. Curator Alan Solem, whose recent work has been concentrated on the classification and revision of various land snails, completed the preliminary revision of the land snail family Helicarionidae.

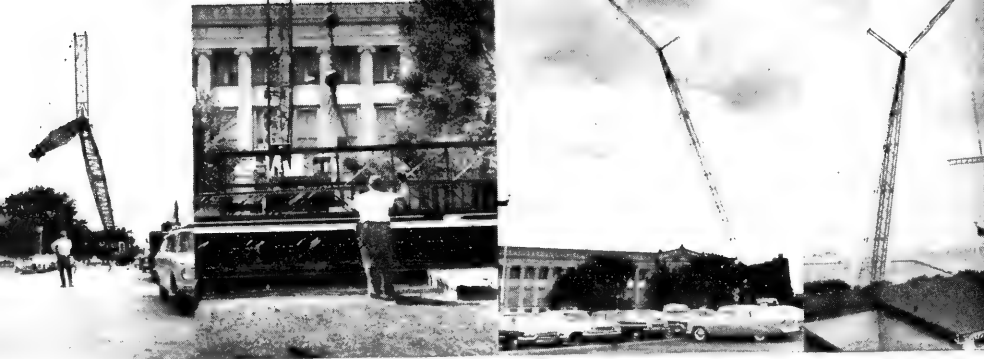
The installation of a case exhibiting "Cranes and their Allies" in 1964 completed the exhibit "Birds of The World," presenting the great range in size, structure, and color of the whole class Aves, the birds. Since there are 10,000 known species of birds, the exhibit is

of necessity selective. It is arranged in groups of families and orders and presents a natural classification from the primitive birds to the advanced, from ostriches to sparrows.

More than 50,000 specimens were added to the zoological collections in 1964. Many of these were gifts from interested friends of the Museum, and many were the result of Museum expeditions. They ranged from the most common to the rarest of animals, from single specimens to large collections. An extremely rare deep sea snail, *Perotrochus adansonianus*, from the deep waters off the West Indies, was presented by Professor H. A. Lowenstam of the University of California. A specimen of a small insectivorous bat, *Mystacina tuberculata*, one of the two native land mammals of New Zealand, is the first representative of its genus and family in our collections. 1686 reptiles and amphibians were added to the Museum collection from field work in Borneo.



A Confrontation of Primates.



## The Museum Expands





Completion in 1965

## Library of the Museum

Construction which would almost double the capacity of the library neared completion at the end of 1964. This expansion, coupled with the improvements in lighting and the addition of air-conditioning in much of the Library will greatly increase its ability to serve staff and public. Further, air-conditioning will reduce the deterioration of books—a serious concern in Chicago, if books are shelved under conditions of uncontrolled humidity and temperature. Much of the year's work centered on the plans for utilizing the new space and preparations for moving many thousands of volumes into new stacks.

Throughout the year, however, the main effort of the Library continued to be service to the Museum scientist and the many students and visitors who have found it to be one of the great natural history libraries of the world. Keeping abreast of new contributions to the natural sciences is, in itself, an enormous job. Publication in the biological sciences has increased by almost 50% in the past five years; in the four disciplines which directly concern the Library of the Museum, the increase has been comparable. Working with the scientific staff, the Library must use great care in selecting from this flood of new literature the most valuable and useful works for a natural history museum. The Library now contains more than 165,000 volumes. 7200 volumes were classified last year (including 4,000 which were recatalogued and reclassified); 9,000 serial publications were received. For all these, more than 27,000 cards were filed into the general, departmental and divisional card catalogues, including several thousand analytics for articles and monographs. The figure of 4,000 volumes reclassified represents accelerated progress in the program of reclassification to the Library of Congress system. This program is being aided by the portion of the Natural Science Foundation construction grant devoted to Library expansion and modernization.

Many important gifts were made to the library by interested donors. Significant among the gifts was a collection contributed by Mrs. A. W. F. Fuller. The John Crerar Library continued its fine cooperation by transferring on permanent loan additional serial publications in the botanical and geological sciences. Exchange arrangements with governments, universities and other scientific research organizations increased by almost 4%. There are now more than

1300 exchange arrangements between the Museum and organizations throughout the world.

## Public Information Services

The Museum's programs of research and public education are the prime responsibilities of the four scientific and two educational departments and the library. In the pursuit of these two main purposes a number of collateral, but important, areas of public service have developed through the years.

The Division of Public Relations activities range from publicizing our exhibits to prospective visitors, to the production of the *Bulletin*, and arrangements for press and other media coverage of our basic research projects. Each sphere of public relations effort contributes to a better public understanding of the Museum and of science. It is of particular interest that three *Bulletin* articles reporting Staff research were either reprinted in their entirety or extensively used as stories in local newspapers, then given national coverage through news services.

The Divisions of Photography, Motion Pictures, and Illustration are devoted to the production of graphic materials for research purposes, for exhibition, and for distribution to the public. During 1964 photographs of our specimens and exhibits produced by the Division of Photography appeared in such diverse media as daily newspapers, textbooks, scientific monographs, educational filmstrips and slides, advertisements for commerce and industry, and trade exhibits and films. The Museum film, "Through These Doors," was shown to more than 20,000 persons in the United States by schools and other organizations to which it was lent without charge. Two prints of the film which were supplied to the United States Information Service for overseas screening were shown to an unknown number of individuals. Other films in the film library were used extensively in the Raymond Foundation's educational programs. The Division of Illustration spent the major part of the year on illustration for research purposes, but still contributed to three exhibits and assumed major responsibility for the installation of one of them.

The output of the Museum Press is integral to the research function of the Museum, for unpublished research is of little use to the scientific community. The largest part of the production time of the Division of Printing, therefore, is devoted to publication of

scientific papers and monographs. The output of the Press goes well beyond research reports, however, and includes Staff writing for all age and educational levels. When the distribution of the Museum *Bulletin*, guidebooks and other adult popular publications, and Museum Storybooks is added to the distribution of scientific works, a substantial annual figure of more than 250,000 copies results.

Many of our visitors wish to follow up their tour of the Museum with additional reading. The Book Shop's stock of more than 1,000 different general books and textbooks is probably the most extensive selection of titles on natural history and anthropology in Chicago. A wide variety of natural history specimens, foreign handicrafts and other novelties also enables the visitor to take along an inexpensive memento. Sales of more than \$197,000, the highest yet recorded, attest to the popularity of The Book Shop as one of the important elements of our information service.

## Cooperation With Other Institutions

Maintaining the flow of ideas and information from scientist to scientist and from teacher to student is an essential function of the scientific community. It provides the material for advancement of knowledge, and the means of its preservation. Chicago Natural History Museum has close relations with many museums, universities, and research institutions throughout the world. Specimens, books and other materials are borrowed, lent, and exchanged. Facilities are provided for visiting scientists and students. Often, close working relationships spring up between scientists at widely separated institutions.

A number of Museum staff members teach regular courses at the University of Chicago and other universities as well as supervise graduate work, give lectures and seminars and serve on academic committees. Among those who taught courses in the past year were Dr. Donald Collier, on Peruvian Archaeology, Mr. George I. Quimby, on Historic Period Archaeology, Dr. Kenneth Starr on the Prehistory of Eastern Asia. Drs. Collier and Starr taught Museology. A graduate course on Phylogeny and Zoogeography was given to fifteen students from the University of Chicago by Curators Dennison, Dybas, Inger, Rand, Solem and Wenzel. Henry S. Dybas taught a course on Entomology at Northwestern University. For the first



three months of the year, D. Dwight Davis served as Acting Head of the Department of Zoology, University of Malaya, Kuala Lumpur.

Other staff members served on particular programs and institutes. John Clark was Visiting Scientist on the National Science Foundation—American Geological Institute Program at Earlham College, Richmond, Indiana, and Bowling Green University, Bowling Green, Ohio. Harry Changnon conducted seven geology field trips, to such places as the Wisconsin Dells and other parts of the Chicago area, as part of a sequence of physical science lectures and field trips for local science teachers and students sponsored by the National Science Foundation.

Cooperative research projects pooling facilities, information, and brains, are an invaluable aid to scientific research. The Museum was engaged in a number of these in the past year, of which the following are a few examples. The Department of Zoology has been working closely with the National Institutes of Health, Middle American Research Unit based in the Panama Canal zone, with the U. S. Army, and with U. S. Naval Medical Research Unit No. 3 Cairo, Egypt, in studies to identify various mammals and birds as hosts of disease-carrying arthropods as well as the parasites themselves. The identification of the rodent carrier of Bolivian hemorrhagic fever by Research Curator Phillip Hershkovitz greatly aided the U. S. Public Health Service in its efforts to control this disease, which has a mortality rate as high as 19% among hospitalized cases. The Division of Fishes is acting in conjunction with the Smithsonian Institution Oceanographic Sorting Center, in the evaluation and distribution of materials collected in the International Indian Ocean Expedition. The Department of Anthropology and the Institute for Computer Research of the University of Chicago are developing data-processing methods for use in Archaeology.

The Children's Orchestra, a newly established unit of the Department of Recreation, Chicago Park District, used the Museum's James Simpson Theatre for the establishment of an "all-city youth symphony orchestra." The Museum is pleased to have been able to lend assistance. Other groups and organizations which used Museum facilities for meetings during the year included the Illinois Audubon Society, Illinois Orchid Society, Kennicott Club, Chicago Nature Camera Club, Citizenship Council of the Board of Education, Children of the Daughters of the American Revolution, and the Chicago Shell Club.

## Activities of Staff Members in Scientific and Professional Societies

Dr. Paul S. Martin, Chief Curator Emeritus, was elected President-elect of the Society for American Archaeology at meetings in Chapel Hill, North Carolina. Dr. Donald Collier, Chief Curator of Anthropology, was elected to the Executive Board of the American Anthropological Association.

Dr. Rainer Zangerl, Chief Curator of Geology, was elected President of the Society of Vertebrate Paleontology for the year 1964-1965. Dr. Edward Olsen, Curator, Mineralogy, was appointed a trustee of the Arizona State Meteorite Collection, purchased with Federal funds for the State of Arizona with the stipulation that an annual meeting of trustees govern its use. The meeting also serves as a discussion of meteorite collections in general.

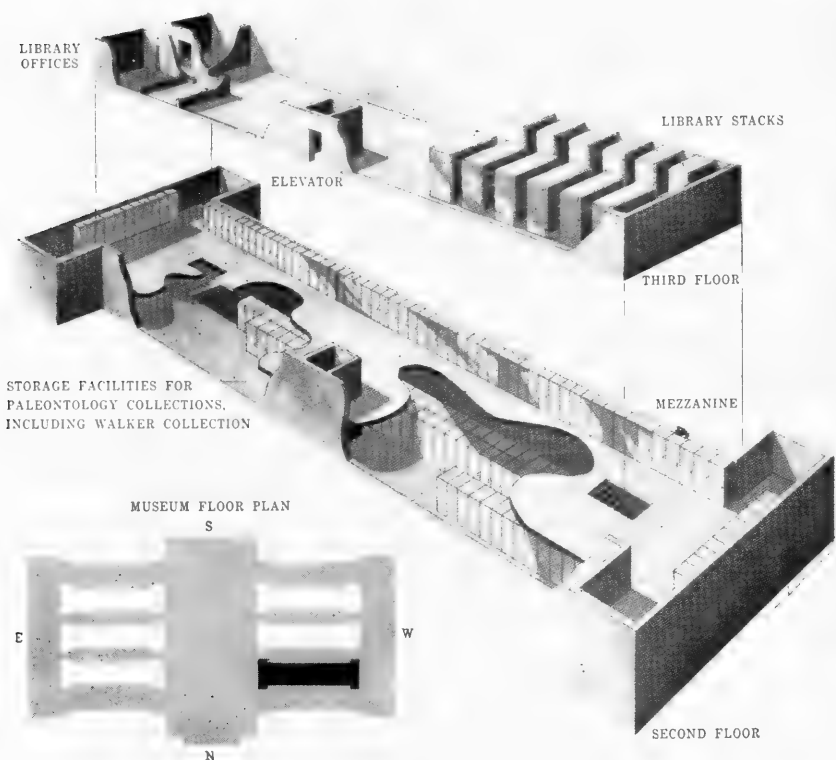
Austin L. Rand, Chief Curator of Zoology, as retiring President of the American Ornithologists' Union, becomes a permanent member of its governing board, the Council. Emmet R. Blake, Curator of Birds, has been elected an Honorary Member of the Asociacion Ornitologica del Plata (Buenos Aires) in recognition of his "valuable contributions to the knowledge of neotropical birds." Dr. Rand was elected a Corresponding member of the same society. Dr. Robert Inger, Curator of Amphibians and Reptiles was elected Vice-President, and Loren Woods, Curator of Fishes, a member of the Board of Governors, of the American Society of Ichthyologists and Herpetologists.

## Building Operations

The principal activity of the year was the building addition to provide enlarged space for the Department of Geology, the Library, and the Division of Insects. This project, the first major construction since the completion of the Museum building in 1921, was begun in June. By year end the basic construction was complete and remodeling of surrounding areas had begun. The additional space created will add more than 15% to the research area of the Museum. A grant of \$875,200 from the National Science Foundation, reported last year, provided funds for the construction. We extend deep appreciation to the National Science Foundation for this very significant contribution to our research potential.

Another construction project completed in 1964 was the Robert R. McCormick Conservation Laboratory in the Department of Anthropology. The program of the laboratory has been discussed earlier in this report.

The increase of more than 100,000 visitors in 1964 over 1963 produced for our building operations forces welcome, but very real, burdens which were capably handled. A new contractor, Szabo Food Services, Inc., assumed responsibility for the management of the cafeteria and lunch room on June 1. Major alterations of our food service facilities are needed and we hope to be able to undertake these much needed improvements in the foreseeable future.



View of new facility with its location shown on Museum floor plan.

CHICAGO NATURAL HISTORY MUSEUM  
COMPARATIVE STATEMENT OF RECEIPTS  
AND EXPENDITURES—CURRENT FUNDS

FOR THE YEARS 1964 AND 1963

GENERAL OPERATING FUND

RECEIPTS	1964	1963
Endowment income—		
From investments in securities . . . . .	\$ 778,586	\$ 735,842
From investments in real estate . . . . .	112,000	112,000
	\$ 890,586	\$ 847,842
Chicago Park District—tax collections . . . . .	\$ 361,267	\$ 360,985
Annual and sustaining memberships . . . . .	35,086	33,610
Admissions . . . . .	48,529	47,413
Sundry receipts . . . . .	128,555	105,883
Restricted funds transferred and expended through Operating Fund . . . . .	448,511	213,041
	\$1,912,534	\$1,608,774
EXPENDITURES		
Operating expenses—		
Departmental . . . . .	\$ 749,876	\$ 705,554
General . . . . .	625,539	628,055
Building repairs and alterations . . . . .	165,652	118,245
	\$1,541,067	\$1,451,854
New geology and library facilities . . . . .	\$ 223,193	
Collections—purchases and expedition costs . . . . .	80,854	103,515
Furniture, fixtures and equipment . . . . .	46,364	31,516
Provision for mechanical plant depreciation . . . . .	22,486	22,486
	\$1,913,964	\$1,609,371
DEFICIT FOR YEAR . . . . .	\$ 1,430	\$ 597

AUDITOR'S CERTIFICATE APPEARS ON FOLLOWING PAGE

CONTINUED ON NEXT PAGE

CHICAGO NATURAL HISTORY MUSEUM

COMPARATIVE STATEMENT OF RECEIPTS  
AND EXPENDITURES—CURRENT FUNDS

FOR THE YEARS 1964 AND 1963 (CONTINUED)

N. W. HARRIS PUBLIC SCHOOL EXTENSION FUND

	1964	1963
Income from endowments . . . . .	\$ 42,606	\$ 38,386
Expenditures . . . . .	39,761	34,961
EXCESS OF INCOME OVER EXPENDITURES . . . . .	<u>\$ 2,845</u>	<u>\$ 3,425</u>

OTHER RESTRICTED FUNDS

RECEIPTS

From Specific Endowment Fund investments . . . . .	\$ 100,331	\$ 96,087
Contributions and grants for specific purposes . . . . .	485,612	130,229
Operating Fund appropriation for mechanical plant depreciation . . . . .	22,486	22,486
Sundry receipts . . . . .	63,115	63,656
Gain on sale of restricted fund securities . . . . .	2,732	1,456
	<u>\$ 674,276</u>	<u>\$ 313,914</u>

EXPENDITURES

Expended through Operating Fund . . . . .	\$ 448,511	\$ 213,041
Added to Endowment Fund principal . . . . .	63,000	73,000
	<u>\$ 511,511</u>	<u>\$ 286,041</u>

EXCESS OF RECEIPTS OVER EXPENDITURES . . . . .	<u>\$ 162,765</u>	<u>\$ 27,873</u>
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THE TRUSTEES,  
CHICAGO NATURAL HISTORY MUSEUM:

We have examined the accompanying comparative statement of receipts and expenditures—current funds of the Chicago Natural History Museum for the year ended December 31, 1964. Our examination 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.

In our opinion, the statement mentioned above presents fairly the receipts and expenditures of the current funds of the Chicago Natural History Museum for the year ended December 31, 1964, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

ARTHUR YOUNG & COMPANY

January 16, 1965

## USE DURING 1964 OF INCOME FROM SPECIAL PURPOSE ENDOWMENT FUNDS

<b>EDWARD E. AYER LECTURE FOUNDATION FUND</b>	
Cost of Museum Lecture Series .....	\$ 4,374.00
Subsidy to Publication Program .....	1,996.42
<b>FREDERICK AND ABBY KETTELE BABCOCK FUND</b>	
Subsidy to Publication Program .....	2,555.11
<b>MRS. JOAN A. CHALMERS BEQUEST FUND</b>	
Purchase of specimens .....	1,286.50
Laboratory equipment and supplies .....	798.23
Field trips .....	1043.78
<b>CONOVER GAME-BIRD FUND</b>	
Purchase of specimens .....	77.00
Field equipment .....	246.80
Expeditions and study trips .....	3,380.18
<b>THOMAS J. DEE FELLOWSHIP FUND</b>	
Fellowship grants to:	
Mrs. Lhadon N. Karsip .....	1,000.00
Mrs. Georgette Katodka .....	900.00
Douglas M. Lay .....	1,200.00
Mrs. Priscilla Turnbull .....	875.00
<b>GROUP INSURANCE FUND*</b>	
Group insurance cost .....	6,820.35
Subsidy to Pension Fund .....	10,000.00
<b>N. W. HARRIS PUBLIC SCHOOL EXTENSION FUND</b>	
Preparation, care, and distribution of exhibits to Chicago schools .....	38,961.31
<b>LIBRARY FUND</b>	
Purchase of books and periodicals .....	8,023.51
<b>JAMES NELSON AND ANNA LOUISE RAYMOND PUBLIC SCHOOL AND CHILDREN'S LECTURE FUND</b>	
Subsidy to public school and children's lecture programs .....	42,525.05
<b>MAURICE L. RICHARDSON PALEONTOLOGICAL FUND</b>	
Expeditions and field work .....	1,453.78
<b>KARL P. SCHMIDT FUND</b>	
Study grant .....	275.00

These funds have been used in accordance with the stipulations under which they were accepted by the Museum. In addition, the income from more than \$16,000,000 of unrestricted endowment funds was used in general Museum operation.

\* Established by Stanley Field

† Established by Edward E. Ayer, Huntington W. Jackson, Arthur B. Jones,  
Julius and Augusta N. Rosenwald

## Contributions and Bequests

The gifts of many individuals have built a great museum. Contributions and bequests now and in the future will permit needed improvement of exhibits, expansion of the educational program, and increased support of scientific research. The following form is suggested to those who wish to provide for Chicago Natural History Museum in their wills:

### FORM OF BEQUEST

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

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*Cash contributions to Chicago Natural History Museum are allowable as deductions in computing net income for federal income tax purposes.*





# BOARD OF TRUSTEES, 1964

## OFFICERS

STANLEY FIELD, *Chairman of the Board\**  
JAMES L. PALMER, *President*  
CLIFFORD C. GREGG, *First Vice-President*  
JOSEPH N. FIELD, *Second Vice-President*  
BOWEN BLAIR, *Third Vice-President*  
EDWARD BYRON SMITH, *Treasurer and Assistant Secretary*  
E. LELAND WEBBER, *Secretary*

## BOARD OF TRUSTEES

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BOWEN BLAIR	J. ROSCOE MILLER
WM. MCCORMICK BLAIR	WILLIAM H. MITCHELL
WALTER J. CUMMINGS	JAMES L. PALMER
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MARSHALL FIELD	JOHN SHEDD REED
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CLIFFORD C. GREGG	JOHN M. SIMPSON
SAMUEL INSULL, JR.	EDWARD BYRON SMITH
HENRY P. ISHAM	LOUIS WARE
WILLIAM V. KAHLER	J. HOWARD WOOD

\*Deceased

# LIST OF STAFF, 1964

E. LELAND WEBBER, B.B.Ad., C.P.A., Director

## DEPARTMENT OF ANTHROPOLOGY

DONALD COLLIER, Ph.D., Chief Curator

PAUL S. MARTIN, Ph.D., Chief Curator Emeritus

GEORGE I. QUIMBY, A.M., Curator, North American Archaeology and Ethnology

KENNETH STARR, Ph.D., Curator, Asiatic Archaeology and Ethnology

PHILLIP H. LEWIS, M.A., Curator, Primitive Art

FRED M. REINMAN, Ph.D., Assistant Curator, Oceanic Archaeology and Ethnology

HOSHIEH TCHEN, Ph.D., Consultant, East Asian Collection

CHRISTOPHER C. LEGGE, M.A., Custodian of Collections

RONNOG SEABERG, Assistant

GUSTAF DALSTROM, Artist

THEODORE HALKIN, B.F.A., M.S., Artist

WALTER C. REESE, Preparator

SUSAN SCHANCK, B.S., Artist-Preparator ¶

STEVENS SEABERG, A.M., Artist-Preparator

CHRISTINE S. DANZIGER, M.S., Conservator

AGNES M. FENNELL, B.A., Departmental Secretary

ROBERT J. BRAIDWOOD, Ph.D., Research Associate, Old World Prehistory

PHILIP J. C. DARK, Ph.D., Research Associate, African Ethnology

FRED EGGAN, Ph.D., Research Associate, Ethnology

J. ERIC THOMPSON, Dipl. Anth. Camb., Research Associate, Central American  
Archaeology

JAMES R. GETZ, B.A., Field Associate

EVETT D. HESTER, M.S., Field Associate

## DEPARTMENT OF BOTANY

LOUIS O. WILLIAMS, Ph.D., Chief Curator

JOHN R. MILLAR, Chief Curator Emeritus

IN-CHO CHUNG, Ph.D., Assistant Curator, Vascular Plants

GABRIEL EDWIN, Ph.D., Assistant Curator, Vascular Plants

PATRICIO PONCE DE LEON, Ph.D., Assistant Curator, Cryptogamic Herbarium

DOROTHY GIBSON, Custodian of the Herbarium

ROBERT G. STOLZE, B.S., Herbarium Assistant

SAMUEL H. GROVE, JR., Artist-Preparator

FRANK BORYCA, Technician

¶ on leave

## DEPARTMENT OF BOTANY (CONTINUED)

WALTER HUEBNER, Preparator

WALTER L. BOYER, B.F.A., Artist

CLARE A. REHLING, Departmental Secretary

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## OTHER MUSEUM PUBLICATIONS

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"Conference in Museum and Anthropology Research." *Fellow Newsletter*, American Anthropological Association, vol. 5, no. 2, p. 3 (also in *Current Anthropology*, vol. 5, no. 3, p. 206).

LEWIS, PHILLIP H.

"A Sculptured Figure with a Modelled Skull from New Ireland." *Man*, vol. 64, article 176, pp. 133-136.

QUIMBY, GEORGE I.

"European Trade Objects as Chronological Indicators." *The Minnesota Historical Society*, pp. 48-52.

"The Stony Lake Mounds, Oceana County, Michigan." *Michigan Archaeologist*, vol. 10, no. 1, pp. 11-16.

"In Diving into the Past, Theories, Techniques, and Applications of Underwater Archaeology." *Minnesota Historical Society*, pp. 48-52.

"The Gros Cap Cemetery Site in Mackinac County, Michigan." *Michigan Archaeologist*, vol. 9, no. 4, pp. 50-57.

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"Maritime Adaptation on San Nicholas Island, California." *U.C.L.A. Archaeological Survey Annual Report 1963-64*, pp. 51-77.

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"A Critical Comment on the Prehistory and Early History of South China." *Current Anthropology*, vol. 5, no. 5, pp. 396-397.

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WOODLAND, BERTRAM G.

"A Note on a New Type of Conical Structure in Shale." *Jour. Sed. Petrology*, vol. 34, pp. 680-683.

ZANGERL, RAINER

REVIEW OF *Problèmes Actuels de Paleontologie (Evolution des Vertebres)*. *Colloques internationaux du Centre National de la Recherche Scientifique*, No. 104 (edited by J. P. Lehman). *Copeia*, 1964 No. 4, pp. 731-732.

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"Addendas a la Avifauna Argentina." *Boletín de la Academia Nacional de Ciencias*, vol. 43, pp. 295-308.

"Birds." *New Frontiers in Science*, pp. 36-38.

"Oriole." *New Dictionary of Birds*, pp. 563-565.

HAAS, FRITZ, and ALAN SOLEM

"*Adelopoma costaricanum* Bartsch & Morrison, 1932, Not an Inhabitant of the United States." *Nautilus*, Vol. 78, no. 2, pp. 68-69.

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"Primates, Comparative Anatomy and Taxonomy." *Edinburg's University Press*, vol. 15.

INGER, ROBERT F., and WALTER C. BROWN

"The Taxonomic Status of the Frog *Cornufer dorsalis* A. Duméril. *Copeia*, vol. 2, pp. 450-451.

SOLEM, ALAN

"A Collection of Non-Marine Mollusks from Sabah." *Sabah Society Journal*, vol. 2, nos. 1-2, pp. 1-40, 38 figs.

"*Foxidonta*, a Solomon Island Trochomorphid Land Snail." *The Veliger*, vol. 6, no. 3, pp. 120-123, 5 figs.

"Neotropical Land Snail Genera *Labyrinthus* and *Isomeria*: A Challenge to Scientist and Collector." *American Malacological Union, Annual Reports for 1964*, pp. 43-44.

"New Hebridean Land Mollusks Collected by Felix Speiser from 1910-1912." *Verhandlungen Naturforschende Gesellschaft*, vol. 54, no. 2, pp. 161-186, 2 figs.

"New Records of New Caledonian Non-Marine Mollusks and an Analysis of the Introduced Mollusks." *Pacific Science*, vol. 18, no. 2, pp. 130-137.

"Shells and Their Keepers, a World Tour of Museums." *American Malacological Union, Annual Reports for 1964*, p. 40.

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"Curse Not the Darkness—Youth and the Eclipse of Field Natural History." *Turtox News*, vol. 42, pp. 26-27.

"Notes on the Bonneville Basin Quaternary Mollusca collected by Richard Ellsworth Call in the U. S. Geological Survey—U. S. National Museum Collections." *Sterkiana* No. 13, pp. 1-5.

"Great Salt Lake—Where Has It Gone?" *Utah Alumnus Magazine*, vol. 40, no. 4, pp. 14-15.

"Lakes." *Earth Science Magazine*, vol. 17, pp. 269-270.

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- REVIEW OF *The Lying Stones of Dr. Johann Bartholomew Adam Beringer Being His Lithographiae Wirceburgensis* (by Melvin E. Jahn and Daniel J. Woolf). *American Midland Naturalist*, vol. 71, pp. 250-251.
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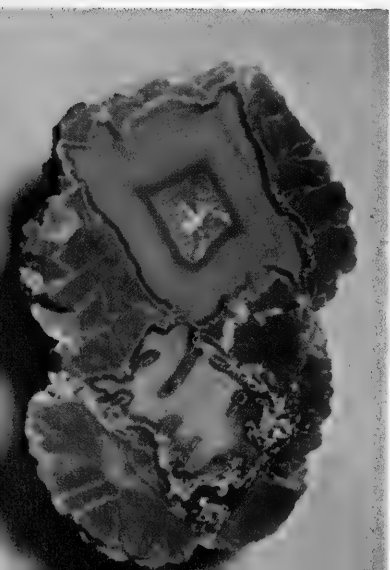
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