Smithsonian Institution

Report of the Secretary and Financial Report of the Executive Committee of the Board of Regents

1957

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For the year ended June 30

1957

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THE SMITHSONIAN INSTITUTION

June 30, 1957

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Division of Archeology: W. R. Wedel, curator; Clifford Evans, Jr., associate curator.

Division of Ethnology: H. W. Krieger, curator; S. H. Riesenberg, C. M. Watkins, associate curators; R. A. Elder, Jr., G. C. Lindsay, Rodris C. Roth, assistant curators.

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Department of Zoology: W. L. Schmitt, head curator.

Division of Mammals: D. H. Johnson, curator; H. W. Setzer, C. O. Handley, Jr., associate curators.

Division of Birds: Herbert Friedmann, curator; H. G. Deignan, associate curator.

Division of Reptiles and Amphibians: Doris M. Cochran, curator.

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Division of Marine Invertebrates: F. A. Chace, Jr., curator; F. M. Bayer, T. E. Bowman, C. E. Cutress, Jr., associate curators.

Division of Mollusks: H. A. Rehder, curator; J. P. E. Morrison, associate curator.

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Division of Phanerogams: L. B. Smith, curator; R. S. Cowan, E. C. Leonard, Velva E. Rudd, E. H. Walker, associate curators.

Division of Ferns: C. V. Morton, curator.

Division of Grasses: J. R. Swallen, curator.

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Division of Mineralogy and Petrology: G. S. Switzer, acting curator; E. P. Henderson, associate curator.

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Division of Vertebrate Paleontology: C. L. Gazin, curator; D. H. Dunkle, associate curator.

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Division of Engineering: R. B. Woodbury, curator.

Section of Mechanical and Civil Engineering: R. B. Woodbury, in charge.

Section of Tools: R. B. Woodbury, in charge.

Section of Light Machinery: A. E. Battison, associate curator.

DEPARTMENT OF ENGINEERING AND INDUSTRIES—Continued

Division of Engineering—Continued

Section of Marine Transportation: K. M. Perry, associate curator.

Section of Electricity: W. J. King, associate curator.

Section of Land Transportation: R. B. Woodbury, in charge.

Section of Physical Sciences and Measurement: R. P. Multhauf, in charge.

Division of Crafts and Industries: W. N. Watkins, curator.

Section of Textiles: Grace L. Rogers, associate curator.

Section of Wood Technology: W. N. Watkins, in charge.

Section of Agricultural Industries: E. C. Kendall, associate curator .

Division of Industrial Cooperation: P. W. Bishop, curator.

Division of Medicine and Public Health: G. B. Griffenhagen, curator.

Division of Graphic Arts: Jacob Kainen, curator.

Section of Photography: A. J. Wedderburn, Jr., associate curator.

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Division of Naval History: M. L. Peterson, curator.

Division of Civil History: Mrs. Margaret W. Brown Klapthor, associate curator; C. G. Dorman, Mrs. Anne W. Murray, assistant curators.

Division of Numismatics: Vladimir Clain-Stefanelli, curator.

Division of Philately: F. R. Bruns, Jr., curator; F. J. McCall, assistant curator.

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Biochemist.—J. B. WOLFF.

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Director.—T. M. BEGGS.

Curator of ceramics.—P. V. GARDNER.

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Associate in Near Eastern art.—RICHARD ETTINGHAUSEN.
Associate in technical research.—R. J. GETTENS.
Assistant in research.—H. P. STERN.

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Acting Director.—T. H. REED.
Assistant Director.—J. L. GRIMMER.

CANAL ZONE BIOLOGICAL AREA

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Chief.—D. G. WILLIAMS.

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N. M. Judd
T. W. McKern
Betty J. Meggers
W. W. Taylor, Jr.
W. J. Tobin

Zoology

Paul Bartsch, Mollusks
J. Bruce Bredin
L. L. Buchanan, Coleoptera
M. A. Carriker, Insects
C. J. Drake, Insects
D. C. Graham, Biology
Horton H. Hobbs, Jr., Marine Invertebrates
A. B. Howell, Mammals
W. L. Jellison, Insects
W. M. Mann, Hymenoptera
Allen McIntosh, Mollusks
J. P. Moore, Marine Invertebrates
C. F. W. Muesebeck, Insects
Benjamin Schwartz, Helminthology
Mrs. Harriet Richardson Searle, Marine Invertebrates
C. R. Shoemaker
R. E. Snodgrass, Insects
Alexander Wetmore, Birds
Mrs. Mildred S. Wilson, Copepod Crustacea

Botany

Mrs. Agnes Chase, Grasses
E. P. Killip, Phanerogams
F. A. McClure, Grasses
J. A. Stevenson, Fungi

Geology

R. S. Bassler, Paleontology
R. W. Brown, Paleobotany
Preston Cloud, Invertebrate Paleontology
C. Wythe Cooke, Invertebrate Paleontology
J. B. Knight, Invertebrate Paleontology
Mrs. Helen N. Loeblich, Invertebrate Paleontology
J. B. Reeside, Jr., Invertebrate Paleontology
W. T. Schaller, Mineralogy

Engineering and Industries

F. L. Lewton, Crafts and Industries

History

Elmer C. Herber
F. W. MacKay, Numismatics
Carroll Quigley
P. A. Straub, Numismatics

National Zoological Park

W. M. Mann
E. P. Walker

Bureau of American Ethnology

J. P. Harrington
R. F. Heizer
Sister M. Inez Hilger
R. S. Solecki
R. J. Squier
J. R. Swanton
A. J. Waring, Jr.

Astrophysical Observatory

C. G. Abbot

Freer Gallery of Art

Grace Dunham Guest
Max Loehr
Katherine N. Rhoades

Canal Zone Biological Area

C. C. Soper
James Zetek

Report of the Secretary of the Smithsonian Institution

LEONARD CARMICHAEL

For the Year Ended June 30, 1957

To the Board of Regents of the Smithsonian Institution:

GENTLEMEN: I have the honor to submit a report showing the activities and condition of the Smithsonian Institution and its branches for the fiscal year ended June 30, 1957.

GENERAL STATEMENT

The one-hundred-and-eleventh year of the Smithsonian Institution has been marked by progress in many areas. James Smithson in his will that established the Institution provided that it should be concerned with both the *increase* and the *diffusion* of knowledge among men. During the year covered by this report, as in previous years, the institution has been active and successful in research, that is, in the increase of knowledge. It has also continued to carry on the diffusion of knowledge by publications, lectures, correspondence, and above all by museum displays.

Details of the research activities, publications, and other work of the institution are given in later pages. In introducing the report, it seems particularly fitting this year to make special reference to the museum functions of the Smithsonian. Public exhibitions are not part of the assigned functions of all Smithsonian bureaus. The following units, however, do maintain such exhibits: The United States National Museum, the National Collection of Fine Arts, the Freer Gallery of Art, the National Air Museum, the National Zoological Park, and the National Gallery of Art. As a group these Smithsonian units care for the great national collections of the United States. Collectively, in number and quality of objects, these units as part of the "Smithsonian Museum Complex" constitute one of the largest and most distinguished groups of cultural and scientific collections in the world. All these parts of the Smithsonian are alike in that they are concerned with the preservation, maintenance and restoration, study, and appropriate public display of their collections. The National Gallery of Art and the Freer Gallery of Art were built and given to the Nation by Andrew W. Mellon and Charles Lang

Freer, respectively. Both of these galleries admirably provide for the specialized work of preservation, restoration, study, and public display of their great art treasures.

The United States National Museum, the National Collection of Fine Arts, the National Air Museum, and the National Zoological Park all in different ways need added facilities in order to perform the functions assigned to them in a manner that is fitting for the collections of the United States of America.

Much progress has been made during the year in the work of the United States National Museum. Detailed, and in some respects definitive, planning has been carried on for the new and additional building for this museum for which a Federal appropriation was made last year. This building, to be known as the Museum of History and Technology, will be located on the Mall on a plot of land bounded on the north, east, and west, respectively, by Constitution Avenue, Twelfth Street, and Fourteenth Street. When completed, this new structure, housing the Nation's collections in the fields of history and technology, will be one of the world's finest museum buildings. It will do much to regain for the United States its proper place in the museum world which this country has been gradually losing during the past half century. The years since the end of the Second World War have seen a sharp increase in national museum construction and reconstruction throughout the world.

The Natural History Building of the United States National Museum is also almost desperately overcrowded. A quarter of a century ago this condition was recognized by the Congress, and new wings for this building were authorized. The detailed planning of these wings and their construction thus constitute one of the great current needs of the Smithsonian, and funds for such planning are included in the 1958 Smithsonian appropriation.

Besides planning for new buildings and additions to existing buildings, the Smithsonian was active during this year in the reconditioning and renovation of its buildings. Some of the old buildings of the Institution had fallen into real disrepair. This year wooden sash of the Smithsonian Building was renewed, external painting carried on, and much needed repairs to the plumbing, electrical and heating service were made in this and other buildings.

The program of modernizing the public displays of the Institution explained in previous reports was continued this year. Notable new halls showing life in early America, power machinery, mammals of North America, and the history of the telephone were opened. The interest created by these new and truly educational halls is reflected in a large increase in attendance.

The staff of the National Collection of Fine Arts improved details of the exhibits of this important unit in our Nation's provision for the preservation, study, and display of works of art. It becomes more certain each year, however, that the really great collection of American paintings and the decorative arts which is served by this bureau can never be adequately dealt with until it has a satisfactory building of its own. Its present borrowed space in the Natural History Building is both inadequate and inappropriate. The greatest paintings of American artists and examples of outstanding Renaissance jewelry should not be displayed next door to dinosaur bones and totem poles.

The National Air Museum has also added many significant items to its great collections this year. A new building for this world-famous and peculiarly American collection is now most urgently needed.

Progress in the collections and in the physical facilities of the National Zoological Park was also made during the year. It is still true, however, that this great collection of animals is far from adequately housed. It is certainly important that as soon as possible the outmoded wooden buildings at the Zoological Park be replaced by modern and appropriate structures. The National Zoological Park each year is visited by Americans from every State and by many foreign guests. In attendance and scope of its collections it is one of the foremost zoos of the world, but in spite of some recent improvements in its facilities, it is still far behind many modern zoological parks in the adequacy of its display techniques.

Dr. Mann Retires

Dr. William M. Mann, who served for 31 years as Director of the National Zoological Park, retired on October 31, 1956, having reached the statutory retirement age of 70. Dr. Mann was the fifth director of the National Zoological Park since it was established by Secretary Langley in 1889. Under his direction the Washington Zoo became one of the best and most representative collections of living animals in the world. The physical equipment of the Zoo also steadily improved, and during Dr. Mann's administration four modern exhibition buildings were added. Today the National Zoological Park is not only a scientific and educational center but also one of the Capital's prime tourist attractions.

For the Zoo, Dr. Mann made trips to many foreign lands to obtain live animals for the collection. For example, in 1926 he headed the Smithsonian-Chrysler Expedition to East Africa, in 1937 a National Geographic Society Expedition to the East Indies, and in 1940 the

Smithsonian-Firestone Expedition to Liberia. He was particularly successful in obtaining rare species never before exhibited, and through his many associations with zoologists, animal collectors, dealers, circuses, and other zoos the world over he maintained the National Zoological Park at a high level.

Dr. Mann continues his association with the Smithsonian in the capacity of Honorary Research Associate. Dr. Theodore H. Reed, of Portland, Oreg., chief veterinarian of the Zoo since July 1955, was named Acting Director of the National Zoological Park on November 1, 1956.

THE ESTABLISHMENT

The Smithsonian Institution was created by act of Congress in 1846, in accordance with the terms of the will of James Smithson, of England, who in 1826 bequeathed his property to the United States of America "to found at Washington, under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men." In receiving the property and accepting the trust, Congress determined that the Federal Government was without authority to administer the trust directly, and, therefore, constituted an "establishment," whose statutory members are "the President, the Vice President, the Chief Justice, and the heads of the executive departments."

THE BOARD OF REGENTS

On December 14, 1956, the Institution suffered a deep loss in the death of one of its newest Regents, Dr. Everette Lee DeGolyer. This vacancy in the class of citizen Regents has been filled by the election of Dr. John Nicholas Brown, of Providence, R. I. The membership of the Board is now up to full complement, that is, 14 members: 6 congressional members, 6 citizen members, the Vice President, and the Chief Justice of the United States.

The roll of Regents at the close of the fiscal year was as follows: Chief Justice of the United States Earl Warren, Chancellor; Vice President Richard M. Nixon; members from the Senate: Clinton P. Anderson, Leverett Saltonstall, H. Alexander Smith; members from the House of Representatives: Overton Brooks, Clarence Cannon, John M. Vorys; citizen members: John Nicholas Brown, Arthur H. Compton, Robert V. Fleming, Crawford H. Greenewalt, Caryl P. Haskins, and Jerome C. Hunsaker.

On the evening of January 17, 1957, preceding the annual meeting, an informal dinner meeting of the Board was held in the main hall of the Smithsonian Building amid various exhibits showing phases of the work being carried on at present. Dr. Waldo L. Schmitt, head curator of zoology of the U. S. National Museum, gave an ac-

count of the Smithsonian-Bredin Belgian Congo Expedition, and George B. Griffenhagen, curator of the division of medicine and public health, spoke about the Old World Apothecary Shop. The Secretary gave a brief résumé of his trip to Europe in the fall of 1956 to visit museums in connection with planning for the new Museum of History and Technology.

The regular annual meeting of the Board was held on January 18, 1957. The Secretary presented his published annual report on the activities of the Institution together with the 1956 Annual Report of the United States National Museum. Dr. Robert V. Fleming, Chairman of the Executive and Permanent Committees of the Board, gave the financial report for the fiscal year ended June 30, 1956. The usual resolution was passed authorizing expenditures of the income of the Institution for the fiscal year ending June 30, 1958.

FINANCES

A statement on finances, dealing particularly with Smithsonian private funds, will be found in the report of the executive committee of the Board of Regents, page 196.

APPROPRIATIONS

Funds appropriated to the Institution for its regular operations for the fiscal year ended June 30, 1957, total $4,425,000 obligated as follows:

Management	$81,010
United States National Museum	1,782,690
Bureau of American Ethnology	61,891
Astrophysical Observatory	302,510
National Collection of Fine Arts	48,185
National Air Museum	120,156
International Exchange Service	87,513
Canal Zone Biological Area	30,274
Maintenance and operation of buildings	1,442,364
Other general services	467,562
Unobligated balance	845

In addition to the sum of $2,288,000 appropriated last year for the preparation of plans and specifications for the new Museum of History and Technology, the Institution received this year an appropriation of $33,712,000 for the construction of this building.

Besides these direct appropriations, the Institution received funds by transfer from other Government agencies as follows:

From the District of Columbia for the National Zoological Park	$720,000
From the National Park Service, Department of the Interior, for the River Basin Surveys	108,500

VISITORS

Visitors to the Smithsonian group of buildings during the year reached an all-time high of 4,841,818, nearly 700,000 more than the previous year. April 1957 was the month of largest attendance, with 726,290; May 1957 second, with 661,857; August 1956 third, with 660,567. Largest attendance for a single day was 73,141 on May 4, 1957, the largest number ever so recorded. On the same day 33,964 visitors came to the Arts and Industries Building alone. Table 1 gives a summary of the attendance records for the five buildings. These figures, when added to the 942,196 visitors recorded at the National Gallery of Art and the 3,998,546 estimated at the National Zoological Park, make a total number of visitors at the Institution of 9,782,560.

TABLE 1.—*Visitors to certain Smithsonian buildings during the year ended June 30, 1957*

Year and month	Smithsonian Building	Arts and Industries Building	Natural History Building	Aircraft Building	Freer Building	Total
1956						
July	114,497	262,770	125,623	84,245	13,899	601,034
August	112,025	310,283	129,086	94,873	14,300	660,567
September	49,928	129,610	76,206	38,118	8,045	301,907
October	38,593	108,986	68,549	41,251	7,769	265,148
November	34,687	96,789	61,743	29,697	7,354	230,270
December	20,763	56,647	47,983	19,504	4,754	149,651
1957						
January	21,964	54,766	50,565	19,744	4,124	151,163
February	30,422	89,111	69,457	34,033	5,849	228,872
March	46,485	126,117	91,452	42,306	7,776	314,136
April	121,295	345,873	156,334	88,336	14,452	726,290
May	110,512	303,595	156,318	80,141	11,291	661,857
June	90,492	240,651	126,725	80,225	12,830	550,923
Total	791,663	2,125,198	1,160,041	652,473	112,443	4,841,818

LECTURES

In 1931 the Institution received a bequest from James Arthur, of New York City, a part of the income from which was to be used for an annual lecture on some aspect of the study of the sun. The twenty-fourth Arthur lecture was delivered in the auditorium of the Natural History Building on the evening of April 10, 1957, by Dr. Thomas Gold, professor of astronomy at Harvard University. This illustrated lecture, on the subject "Cosmic Rays from the Sun," will be published in full in the general appendix of the Annual Report of the Board of Regents of the Smithsonian Institution for 1957.

Prof. George E. Mylonas, chairman of the Department of Art and Archaeology at Washington University, St. Louis, and professor of

archaeology at the University of Athens, Greece, delivered a lecture on "The Grave Circles of Mycenae" in the auditorium of the Natural History Building on the evening of February 6, 1957. This lecture was sponsored jointly by the Smithsonian Institution and the Archaeological Institute of America.

Several lectures were also sponsored by the Freer Gallery of Art and the National Gallery of Art. These are listed in the reports of these bureaus.

BIO-SCIENCES INFORMATION EXCHANGE

The calendar year 1956 marked a high peak in the activities of the Bio-Sciences Information Exchange. Increased governmental support of research in the bio-sciences was reflected in the volume of research registered; the greater use of the services of the Exchange is indicative of the growing recognition of its value.

This agency, operating within the Smithsonian under funds made available to the Institution by other governmental agencies, acts as a clearinghouse for current research in the life sciences. Abstracts of on-going research are registered by investigators engaged in biological, medical, and psychological research and in limited aspects of research in the social sciences. Through an extensive system of subject indexing, these abstracts are provided upon request and without charge to researchers in research institutions. Through this simple mechanism, the Exchange maintains a communication system which precedes publication and prevents unknowing duplication. For granting agencies and properly constituted committees it prepares extensive surveys of research in broad areas.

The Exchange is growing in scope and in content. Its body of information now consists of 14,000 active research projects and its use by individual scientists and by committees is increasing in proportion.

SUMMARY OF THE YEAR'S ACTIVITIES

National Museum.—The year's accessions to the national collections aggregated 647,750 specimens, somewhat less than last year, bringing the total catalog entries in all departments to 44,377,488. Some of the outstanding items received during the year included: In anthropology, an Egyptian ibis statuette of about 1800 B. C., a fine collection of English and American furniture and glass, the first cigar-store wooden Indian the Museum has ever had, and invaluable additions to the Greenwood collection of Americana; in zoology, several collections of mammals of medical importance, a fine lot of Belgian Congo birds, fishes from many parts of the world, including one collection of nearly 17,000 specimens from the southern United States, more than 168,000 specimens of ectoparasites and 60,000 beetles in

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one collection, 27,600 specimens of marine invertebrates from the Smithsonian-Bredin Caribbean expedition, and 2,900 Australian mollusks; in botany, an important collection of type specimens from Central America, as well as desirable lots of plants from Iran, the West Indies, Cuba, Ecuador, Brazil, East Africa, and the Marshall Islands; in geology, several fine gems and mineral specimens, seven meteorites new to the collections, several thousand invertebrate fossils, and about 100 fossil mammalian specimens collected from the Eocene of Wyoming; in engineering and industries, about 20 original instruments relating to the history of the telephone, a Robertson milling machine of 1852, a full-sized pirogue, an X-ray tube of Roentgen, a complete set of hospital-ward fixtures of about 1900, and examples of the graphic art of Whistler, Gauguin, Bonnard, Rouault, Picasso, and Matisse; and in history, a Pennsylvania reception room of the period 1785–90, a summer service uniform once worn by President Eisenhower, and many desiderata in the fields of philately and numismatics.

Members of the staff conducted fieldwork in Canada, Ecuador, Peru, Brazil, Panama, Philippine Islands, Society Islands, Mexico, Europe, Bermuda, and many parts of the United States.

The exhibits-modernization program was successfully continued, and three new halls were opened to the public—the Hall of Power Machinery, the Hall of Everyday Life in Early America, and the Hall of North American Mammals. A new telephone exhibit also received much attention. Seven new exhibit units were installed in the North American Indian Hall.

Bureau of American Ethnology.—The staff members continued their research and publication in archeology and ethnology: Dr. Stirling conducted archeological work in Ecuador, Dr. Roberts continued as Director of the River Basin Surveys, Dr. Collins studied anthropological materials in European museums, and Dr. Sturtevant did fieldwork on the Seneca and the Florida Seminole.

Astrophysical Observatory.—The APO continued its researches in solar astrophysics as well as its meteoritic studies, adding several members to its staff and notably increasing its publication activities. Of great current interest is the Observatory's so-called Moonwatch program—the optical tracking of the earth satellite to be launched as a part of the International Geophysical Year. The division of radiation and organisms continued its research on the role of light in regulating growth in plants.

National Collection of Fine Arts.—The Smithsonian Art Commission accepted for the Gallery 62 oil paintings, 2 watercolors, 3 etchings, 1 miniature, and 1 vase, and a collection of 59 French and English fans. The Gallery held 15 special exhibits during the year, while

the Smithsonian Traveling Exhibition Service circulated 86 exhibitions, 81 in the United States and 5 abroad.

Freer Gallery of Art.—Purchases for the collections of the Freer Gallery included Chinese bronzes, jade, paintings, and pottery; Japanese lacquer work, paintings, and pottery; Persian gold work and Persian, Armenian, and Iraq manuscripts; and an Indian (Mughal) painting. The Gallery continued its program of illustrated lectures in the auditorium by distinguished scholars in Eastern art. Air-conditioning of the building was completed during the year.

National Air Museum.—During the year 1,050 specimens in 33 separate accessions were added to the aeronautical collections, including a Bell VTOL aircraft with 2 jet engines, valuable material pertaining to planes of the Wright brothers, several fine scale models, and a large and historically valuable collection of instruments.

National Zoological Park.—The Zoo accessioned 1,851 individual animals during the year, and 2,965 were removed by death, exchange, or return to depositors. The net count at the close of the year was 3,157. Noteworthy among the additions were a pair of white rhinoceroses, an African elephant, a young Asiatic elephant, a pair of okapis, a pair of snow leopards, a very rare Colombian red-eyed cowbird, and prized Pacific sea snakes. Visitors totaled almost 4 million.

Canal Zone Biological Area.—The year's visitors to Barro Colorado Island totaled about 750, of whom about 60 were scientists using the station's facilities for special researches, particularly in wildlife observation, forest ecology, photography, and certain insect studies.

International Exchange Service.—As the official United States agency for the exchange of governmental, scientific, and literary publications between this country and other nations, the International Exchange Service handled during the year 1,205,039 packages of such publications, weighing 827,897 pounds, an appreciable increase over last year.

National Gallery of Art.—During the year the Gallery received 650 accessions, by gift, loan, or deposit. Six special exhibits were held, and 15 traveling exhibitions of prints from the Rosenwald Collection were circulated to other museums and galleries. Exhibitions from the "Index of American Design" were given 50 bookings in 18 States, the District of Columbia, and Germany. Nearly 44,000 persons attended the various tours conducted by Gallery personnel, and about 11,500 attended the 51 auditorium lectures of Sunday afternoons. The Sunday evening concerts in the east garden court were continued.

Library.—In all, 54,316 publications were received by the Smithsonian library during the year, and 87 new exchanges were arranged. Among the gifts were several private collections of valuable material,

both of books and periodicals, entomology and geology this year being particularly well represented. At the close of the year the holdings of the library and all its branches aggregated 966,401 volumes, including 586,700 in the Smithsonian Deposit in the Library of Congress but excluding unbound periodicals and reprints and separates from serial publications.

Publications.—Eighty new publications appeared under Smithsonian imprint during the year (see Report on Publications, p. 189, for full list). Outstanding among these were: "Small Arms and Ammunition in the United States Service, 1776–1865," by Berkeley R. Lewis; "Annotated, Subject-heading Bibliography of Termites," by Thomas E. Snyder; "Crustacean Metamorphoses," by R. E. Snodgrass; "The National Aeronautical Collections," by Paul E. Garber; "American Moths of the Subfamily Phycitinae," by Carl Heinrich; "The First Quarter-century of Steam Locomotives in North America" and "Automobiles and Motorcycles in the U. S. National Museum," both by Smith Hempstone Oliver; "Seminole Music," by Frances Densmore; "Guaymí Grammar," by Ephraim S. Alphonse; "New Horizons in Astronomy," edited by Fred L. Whipple; "The World of the Dinosaurs," by David H. Dunkle; and "Meissen and Other German Porcelain in the Alfred Duane Pell Collection," by Paul V. Gardner. In all, 405,266 copies of printed matter were distributed.

Report on the United States National Museum

SIR: I have the honor to submit the following report on the condition and operations of the United States National Museum for the fiscal year ended June 30, 1957:

COLLECTIONS

During the year 647,750 specimens were added to the national collections and distributed among the six departments as follows: Anthropology, 14,004; zoology, 480,328; botany, 45,069; geology, 33,322; engineering and industries, 1,706; history, 73,321. Although fewer specimens were received than during the previous year, the total represents a normal annual accretion. Most of the specimens were received as gifts from individuals or as transfers from Government departments and agencies. The Annual Report of the Museum, published as a separate document, contains a detailed list of the year's accessions, of which the more important are summarized below. Catalog entries in all departments now total 44,377,488.

Anthropology.—An outstanding donation to the anthropological collections received in the division of archeology is a wood and bronze statuette of an ibis from the necropolis of Tuna-el-Gebel, Upper Egypt, dated about 1800 B. C. This was given by General Mohammed Naguib to President Dwight D. Eisenhower, who in turn presented it to the Institution. A large miscellaneous collection assembled by the late Monsignor John M. Cooper was donated by the Catholic University of America. This material consists of North American Indian, Eskimo, African, Philippine, and Negrito cultural objects; Coptic textiles; and an embossed gold disk from Ecuador, and other Latin American artifacts.

Ethnological gifts include two large Fijian kava bowls donated by the Government of New Zealand. Kava bowls are essential for the Fijian ceremony of *Yanggona*, or formalized drinking of kava. An antique type of Malay kris, or "Keris," was given by Ibrahim Izzudin bin Yousoff, Kelantan, Federation of Malaya. The laminated blade of this heirloom, a traditional Malay weapon, is made from meteoric iron and copper. The hilt and sheath are decorated with gold overlay in filigree with stone brilliants inset in bezels.

In anticipation of period-room installations for the new Museum of History and Technology, the following paneling and finish were

accepted: A late 18th-century drawing room from the Thomas Hancock house, Worcester, Mass., a gift of Mrs. Adelaide K. Bullen; paneled wall and woodwork from the Richard Dole house, Newbury, Mass. (about 1740), a gift of Mrs. Florence Evans Bushee; carved and decorated architectural woodwork by Samuel Field McIntire, from the interior of "Oak Hill," Peabody, Mass. (1813–14), a gift of the Jordan Marsh Co.; an original decorative finial, salvaged from the steeple of the Old North Church, Boston, after the damage by a hurricane in 1954, gift of the Lantern League of the Old North Church.

Miss Elsie Howland Quinby generously converted her loan of 118 specimens of English and American furniture and glass to a gift. Col. and Mrs. Robert P. Hare gave two 17th-century English back stools and a set of six American Sheraton "fancy" chairs. Mrs. George Maurice Morris presented, among several other gifts, a carved walnut tray and brass candlestick of about 1760. Mr. and Mrs. George H. Watson donated an early 19th-century Windsor settee, with original paint and stenciling, and an extraordinary hollow-tree-trunk grain barrel. Through the Virgil M. Hillyer fund a North Devonshire pottery oven from Bideford, England, was purchased.

Mrs. Marjorie Merriweather Post was the donor of the only cigar-store wooden Indian ever acquired by the Museum. Several important examples of 18th- and 19th-century American blown glass were presented by W. Daniel Quattlebaum. These include New York, New Jersey, and New England types, as well as a rare cut-glass tumbler with an embedded ceramic cameo bust of Lafayette, made at the Bakewell works in Pittsburgh on the occasion of Lafayette's visit to America in 1824. An entire collection of 173 glass paperweights, mostly of European and American origin, was the gift of Aaron Straus.

In order to augment the exhibits in the hall "Everyday Life in Early America," several large collections were accepted as loans. In addition to her previous gift of more than 1,600 objects, Mrs. Arthur M. Greenwood lent 326 specimens of Americana, including 22 examples of primarily American 17th- and 18th-century silver, rare children's books and hornbooks, Indian captivity accounts and broadsides, numerous dolls, and many articles of domestic use. Two specimens of North Devonshire pottery excavated at Jamestown, Va., were lent by the National Park Service.

In exchange with the Institute and Museum of Anthropology, Moscow State University, the division of physical anthropology received a cast of a child's skull and lower jaw from the Mousterian cultural period of the Crimea. The Moscow State University received a cast of the Tepexpán skull in return. This exchange resulted from a visit by the Russian delegation following the Fifth International Congress of Anthropology and Ethnology in Philadelphia.

Zoology.—As reservoir hosts, transmitters, and carriers of disease, mammals are intensively studied and collected the world over by special agencies and commissions whose efforts have resulted in some of the more important accessions received by the division of mammals in recent years. This year in cooperation with the Armed Forces Epidemiological Board and the University of Pittsburgh, Dr. David H. Johnson, curator of mammals, collected 656 specimens of bats and other small mammals in central Luzón, Philippine Islands. More than 500 other mammals from Panama and the Canal Zone accrued to the collection, largely from the field collecting of the personnel of the 25th and 7451st Preventive Medicine Survey Detachments of the U. S. Army, and in part by Dr. Karl B. Koford, Dr. Alexander Wetmore, and by Dr. Robert K. Enders of Swarthmore College. Donated by Dr. Enders also were 376 mammals from Alaska, Colorado, Massachusetts, Wyoming, and Saudi Arabia. The Pan American Sanitary Bureau of the World Health Organization contributed 38 rodents from Peru. Type specimens were received from Kenneth Walker, Tacoma, Wash., from the Office of Naval Research through the University of Kansas, and from Kenneth S. Norris and William N. McFarland.

This year's more important ornithological accessions included 118 Belgian Congo bird skins, representing 59 forms new to the Museum, received as an exchange from the Institut Royal de Sciences Naturelles, Brussels; 23 birds from the Caroline Islands, a transfer from the Pacific Science Board, National Research Council; 10 Venezuelan birds, including the type specimens of 8 new forms, deposited by Dr. William H. Phelps, Caracas; by deposit from the Smithsonian Institution 817 skins, 16 skeletons, 3 nests, and 5 sets of eggs of birds, collected in Panama by Dr. A. Wetmore.

Noteworthy collections of New World amphibians and reptiles were received as gifts from the following donors: Jerry D. Hardy, Catonsville, Md., 702 specimens from Cuba; William L. Witt, Arlington, Va., 208 reptiles and amphibians; the Naturhistoriches Museum, Vienna, Austria, 98 frogs from Brazil; Dr. John W. Crenshaw, Jr., Columbia, Mo., 52 turtles; Dr. W. G. Lynn, Washington, D. C., 23 frogs from Jamaica and Antigua, B. W. I. For type material in this field the Museum is also indebted to the University of Colorado, to the Natural History Museum of the University of Illinois, and to Dr. Gordon Thurow, Braddock Heights, Md.

The largest accession to the fish collection was the gift of Dr. William R. Taylor, associate curator, representing his comprehensive collection of 16,821 specimens gathered from the southern United States over several years. Other sizable fish collections were received as follows: 4,329 specimens from Paraguay donated by Dr. C. J. D.

Brown, Montana State College; 1,653 specimens of West Indian fishes obtained on the Smithsonian-Bredin Caribbean Expedition and deposited by the Institution; 190 fresh-water fishes from Colombia, the gift of Dr. George Dahl. Included in 8 accessions numbering nearly 700 specimens were 6 holotypes and 598 paratypes of fishes described by one or another of the donors from various parts of the world: Dr. J. J. Hoedeman, Zoölogisch Museum, Amsterdam; Daniel M. Cohen, Stanford University; Drs. Reeve M. Bailey, University of Michigan, and William R. Taylor, U. S. National Museum; Wayne J. Baldwin, University of California at Los Angeles; Dr. Andreas B. Rechnitzer, U. S. Navy Electronics Laboratory, San Diego, Calif.; Dr. John C. Briggs, University of Florida; William C. Schroeder, Museum of Comparative Zoology, Harvard University; Dr. Boyd W. Walker, University of California at Los Angeles; and Victor G. Springer, University of Texas.

The largest accession accruing this year to the division of insects consisted of 168,531 specimens of ectoparasites and transferred from the Walter Reed Army Medical Center, Department of the Army. Ernest Shoemaker of Brooklyn donated his personal collection of 60,338 specimens, chiefly Coleoptera, all exquisitely prepared and including 101 *Morpho* butterflies, many of which are rare. Dr. Colvin L. Gibson of Memphis presented 4,327 butterflies and moths, and some representatives of other groups collected in Mexico, the British Solomon Islands, and the United States. Associate Curator O. L. Cartwright presented 11,400 specimens of insects which he collected in Arizona, New Mexico, and Texas. A gift of 6,546 named lepidopterous larvae, mostly from western United States, which were associated with reared examples in the economically important family of cutworm moths, was received from S. E. Crumb, Puyallup, Wash. Dr. J. F. Gates Clarke, curator, contributed 4,801 miscellaneous insects, mostly from the State of Washington. Other noteworthy accessions included 5,347 insects from Africa and South, Central, and North America, received from N. L. H. Krauss of Honolulu; 3,753 North Dakota spiders, donated by J. M. Davis, Silver Spring, Md.; and 10,000 miscellaneous insects from Thailand, received from the International Cooperation Administration.

Aside from gifts bringing additional type material to the Museum's marine invertebrate collections, the following are deemed particularly worthy of note: 27,600 specimens from the Smithsonian-Bredin Caribbean Expedition deposited by the Institution; 1,757 crustaceans and other invertebrates from survey vessel collections in the Gulf of Mexico and off the southeastern United States, transferred from the U. S. Fish and Wildlife Service; 176 identified specimens of 40 species of pelagic copepods from Sweden and South

Africa donated by Dr. Karl Lang, Naturhistoriska Riksmuseet, Stockholm, Sweden; 1,828 shrimps, crayfishes, and other invertebrates given by Dr. Horton H. Hobbs, Jr., University of Virginia; 160 identified specimens of 13 species of mysidacean crustaceans from the vicinity of Plymouth, England, presented by Dr. Olive S. Tattersall, through Dr. Isabella Gordon; and 2 specimens of Cephalocarida, the recently discovered crustacean subclass, received from Howard L. Sanders, Woods Hole Oceanographic Institution. Donors of type material included the late Dr. Raymond C. Osburn, Ohio State University; Dr. E. Ruffin Jones, University of Florida; Maureen Downey, Beaufort, N. C.; Dr. Trevor Kincaid, Seattle, Wash.; Mrs. Mildred S. Wilson, Anchorage, Alaska; Dr. J. T. Penney, University of South Carolina; Gordon Clark, University of Maryland; Dr. Alejandro Villalobos F., Instituto de Biología, Mexico; Dr. N. T. Mattox, University of Southern California; and the Scripps Institution of Oceanography, University of California.

Among the outstanding mollusk accessions for the year may be enumerated the following: 2,900 Australian specimens donated by Samuel W. Rosso, Hattiesburg, Miss.; the deposit of 1,380 mollusks received from the Smithsonian-Bredin Caribbean Expedition; 673 specimens of land and fresh-water snails from Libya, collected by Dr. Rolf Brandt, and purchased through the Frances Lea Chamberlain Fund; 900 specimens of land and fresh-water mollusks from the Solomon Islands, New Britain, and New Caledonia, from James R. Hood; and 84 marine mollusks from South Africa, received from the University of Cape Town, through Prof. J. H. Day. Types of helminths were donated by Dr. Elon E. Byrd, Athens, Ga.; Dr. Thomas C. Cheng, Charlottesville, Va.; Dr. Paul R. Burton, Coral Gables, Fla.; and Dr. Leland S. Olsen, Lincoln, Nebr.

Botany.—An important collection of 196 type specimens of Central American plants was contributed by the Escuela Agrícola Panamericana. Other gifts included 210 specimens of plants of Iran collected and presented by Justice William O. Douglas; and 697 Cuban plants from Manuel López Figueiras, Santiago de Cuba. Dr. A. C. Smith obtained 4,047 specimens of West Indian plants on the Smithsonian-Bredin Caribbean Expedition, and C. V. Morton collected 4,927 specimens of plants in Cuba. E. P. Killip obtained 1,505 specimens for the Institution on the Isle of Pines, Cuba, and in southern Florida and Texas.

Among the interesting collections received in exchange were 800 Brazilian plants, mostly from the Amazon region, from the Instituto Agronómico do Norte, Belém, Pará, Brazil; 1,640 plants of Ecuador obtained by Dr. Eric Asplund; 1,058 specimens collected in Hispaniola by E. L. Ekman from the Naturhistoriska Riksmuseet, Stock-

holm, Sweden; 232 specimens obtained in Asia Minor by E. K. Balls from the Royal Botanic Garden, Edinburgh, Scotland; 621 plants collected in East Africa by H. J. Schlieben from the Missouri Botanical Garden, and 1,353 specimens of plants of Hong Kong, California, and Mexico from the University of Michigan.

Extensive collections of plants of Santa Catarina, comprising 2,479 specimens, were received from the Herbário "Barbosa Rodrigues," Itajaí, Santa Catarina, Brazil, with a request for identifications. The Los Angeles County Museum sent, for study and report by herbarium specialists, 239 specimens from the collections made by E. Yale Dawson on the Machris Brazilian Expedition.

There were transferred from the U. S. Geological Survey, Department of the Interior, 2,142 specimens collected by Dr. F. R. Fosberg in the Marshall Islands, and from the Agricultural Research Service, Department of Agriculture, 870 specimens collected by F. J. Hermann in Canada and northwestern United States.

Geology.—Outstanding among the gifts of minerals is an unusual scapolite from Itrongahy, Madagascar, from John B. Jago, and an exceptional barite from Sterling, Colo., given by Arch Oboler. Some of the newly described minerals presented are: cardosonite, Spain, by Dr. I. Asensio Amor; kingite, Australia, from the Commonwealth Scientific and Industrial Research Organization; ferroselite, Montrose County, Colo., from Howard Bowers; heidornite, Germany, from Prof. Dr. W. V. Engelhardt; hibonite, Madagascar, from John B. Jago; tertschite, Turkey, from Dr. Heinz Meixner; vayrynenite, Finland, from Mary Mrose; and bøggildite, Greenland, from Hans Pauly.

Several outstanding additions were made to the gem collection by exchange, including an exceptionally fine 18.3-carat canary-yellow diamond from South Africa, a 51.9-carat yellow sapphire from Burma, and a 68.85-carat brilliant-cut sphalerite from Utah. A 13.50-carat andalusite from Brazil and an 11.80-carat star spinel from Ceylon showing four separate 6-rayed stars were purchased through the Chamberlain Fund for the Isaac Lea collection.

Of the 131 specimens added to the Roebling collection by purchase, the outstanding items are: schoepite and soddyite from Shinkolobwe in the Belgian Congo, and hambergite from San Diego County, Calif. Newly described species added to the Roebling collection are: coffinite from Utah; kettnerite from Czechoslovakia; hawleyite from the Yukon in Canada; and isokite from Northern Rhodesia.

Significant additions to the Canfield collection include two 6-inch crystals of enargite from Peru; a 6½-ounce gold nugget from the Yukon, Alaska, mined in 1896; several fine groups of showy wulfenite crystals from Arizona; and two exceptionally fine crystals of blue and yellow sapphire from Burma.

Three meteorites new to the collection acquired as gifts were Bonita Springs, Lee County, Fla., from E. P. Henderson; Kaufman, Kaufman County, Tex., from Mrs. Carl C. Hinrichs; and Mayday, Riley County, Kans., from Prof. Walter S. Houston. Four meteorites, also new to the collection, were received as exchanges: St. Peters, Graham County, Kans.; Kunashak, Elenovka, and Sikhote-Alinskii, from the Union of Soviet Socialist Republics.

Important gifts received in the division of invertebrate paleontology and paleobotany are: 750 Tertiary mollusks from Virginia, North Carolina, and Florida given by Shelton P. Applegate; 500 specimens of Permian brachiopods from Tasmania, from Dr. Kenneth E. Caster; 93 pleosponges from South Australia, the gift of B. Flounders; 66 type and figured specimens from the Pennsylvania rocks of western Maryland from Joseph Lintz, Jr.; 4,665 specimens of crinoids and other fossils representing the private collection of the late Dr. Edwin Kirk, received from Mrs. Kirk; 400 specimens of Cretaceous Foraminifera from Egypt donated by Rushdi Said; and 311 Miocene mollusks from Peru, given by the Johns Hopkins University.

An important collection of 500 Tertiary brachiopods from Okinawa was transferred from the U. S. Geological Survey. Among the accessions obtained by exchange were 2,695 specimens of Foraminifera from Poland; 158 Tertiary brachiopods from New Zealand; and 894 invertebrate fossils, mostly Mesozoic and Tertiary from Japan.

Through the income of the Walcott bequest 5,322 specimens of Devonian, Mississippian, and Permian fossils were collected by Dr. G. A. Cooper, A. L. Bowsher, and J. T. Dutro, Jr., in the Glass Mountains of Texas and the San Andreas and Sacramento Mountains of New Mexico.

The division of vertebrate paleontology received outstanding specimens through purchase, fieldwork, and exchanges. Specimens of fossil fishes acquired by purchase come from the Devonian Escuminac formation on Chaleurs Bay, Canada; and a series of late Paleozoic and early Mesozoic fishes from various European localities.

Important specimens collected by Drs. C. L. Gazin and D. H. Dunkle include 100 mammalian specimens from the Eocene of Wyoming, and several good specimens of ancient dogs and horses which were obtained near Harrison, Nebr. Dr. Dunkle, with Professor Westoll, secured over 200 fossil fish specimens from Lower and Middle Devonian localities in Scotland.

Exchanges were effected that produced excellent fossil fishes and other fossil vertebrates. Several types of Triassic fishes from Greenland and casts of Devonian amphibians were obtained from the Danish Mineralogical Museum. A large skeleton of a Cretaceous fish was obtained from the Bureau of Economic Geology of the University of

Texas, and Dartmouth College exchanged six primitive jawless ostracoderms from Oesel Island in the Baltic. An exchange of value, consisting of nine jaws and maxillae of primitive perissodactyls and artiodactyls, was obtained from the Muséum de Sciences Naturelles, Lyon, France.

Engineering and Industries.—In connection with the development of the new exhibit of telephony, about 20 original instruments showing the evolution of the telephone from 1880 to the present day were added to the collections of the division of engineering. These specimens were donated by Bell Telephone Laboratories, Stromberg-Carlson Co., the Bell Telephone Co. of Canada, North Electric Co., Western Electric Co., and the Ohio Bell Telephone Co.

All sections in the division received important new accessions in preparation for exhibition in the Museum of History and Technology. A specimen of particular historical interest added as a loan to the collection of machine tools is a Robertson milling machine of 1852, from Yale University. The section of light machinery acquired a fine French astronomical clock, of about 1800, featuring a planetarium enclosed in a glass sphere etched with the constellations, thus exhibiting particularly well the astronomical associations of timekeeping. A full-sized pirogue, made in the manner of the Acadians, was presented to the transportation section by Esso Standard Oil Co., together with a film recording the process of its fabrication. An elegant Queensbody basket phaeton was given by Mrs. William A. Frailey. The collection relating to instructional mathematics was augmented considerably with the receipt, from Prof. Frances E. Baker, of a set of 131 mathematical models.

The division of medicine and public health added to its collection the third X-ray tube of the discoverer of X-rays, Wilhelm Konrad Roentgen, a gift of the General Electric Co. For the hospital exhibit in the Museum of History and Technology, a complete set of hospital ward fixtures of about 1900 was received from the Massachusetts General Hospital. The materia medica collection obtained a number of additional examples of patent medicines, such as Bateman's Pectoral Drops, presented by Ronald R. McCandless, Owen H. Waller, and A. P. Whealton; Godfrey's Cordial, presented by Robert Russell and A. P. Whealton; and Porter's Curative Sugar Pills, from Samuel A. Aker, David E. Kass, and George C. Kass.

Among the more important specimens acquired by the division of crafts and industries is an 18th-century Don Quixote tapestry presented by Mrs. Kermit Roosevelt, a rustic copperplate printed fabric dated 1761, from Mrs. Betty H. Harriman; and a copperplate print stitched into a quilt top, from Mrs. Nicholas Satterlee. In the section of agriculture, a model of the Hussey reaper of 1833 was constructed by

Donald Holst of the office of exhibits; a Pennsylvania bar share plow was donated by Daniel G. H. Lesher; and an early threshing machine by James W. Brown.

Preparation of exhibits for the new museum made it possible for the division of graphic arts to acquire a number of important prints. Among these are "St. Catherine with the Wheel," a hand-colored anonymous woodcut dated 1465–70, and examples of the graphic work of J. M. Whistler, Paul Gauguin, Pierre Bonnard, Muirhead Bone, Georges Rouault, Pablo Picasso, Henri Matisse, and others. An outstanding collection of materials representing the history of motion-picture photography, comprising 864 items, was received as a bequest from Gatewood W. Dunston.

History.—The division of civil history acquired a notable reception room that was originally installed in a house near Kutztown, Berks County, Pa., during the period 1785–90. This room corresponds in size, plan, locale, period, and original usage to the second-floor front drawing room of the Philadelphia Presidential Mansion as it appeared during Washington's second administration.

The Ladies' Hermitage Association, Nashville, Tenn., presented a buff-and-gold china bowl from one of the dinner services used at the White House during the administration of President Andrew Jackson. A plate and a cup and saucer representative of the State services made by Wedgwood for the White House for use during the Theodore Roosevelt administration were presented by Josiah Wedgwood & Sons, Inc.

A most interesting addition to the costumes collection is a gold brocade shoe for a woman of the early 18th century with a matching gold brocade clog, a gift of Mrs. Brookings T. Andrews.

The military history collections were enhanced by the gift from President Dwight D. Eisenhower of a summer service uniform of a General of the Army worn by him during his term as Commanding General, Supreme Headquarters, Allied Powers Europe. Twelve military paintings by the celebrated military artist Charles Hoffbauer were presented by Mrs. John Nicholas Brown.

Outstanding among the specimens received in the division of naval history was a series of six oil paintings of naval actions in the Pacific Ocean during World War II which came as a gift of the artist Clarence J. Tibado.

An important accession received in the division of numismatics is an original pantograph invented and built by Christian Gobrecht, a foremost United States Mint engraver, together with various engravings and plate proofs of state bank notes made by him, the gift of Mrs. C. F. Wolters. Outstanding among the specimens presented by Paul A. Straub are a broad gold 8-ducat piece struck in 1617 in Qued-

linburg by Dorothea, Duchess of Saxony, and a ducat, dated 1688, struck by August Friedrich of Holstein-Gottorp.

A newcomer to the list of donors of philatelic material is Harry L. Lindquist, publisher of *Stamps* magazine, who presented his collections of Danish and Swedish booklet panes, including many of great rarity. Former Postmaster General James A. Farley converted one section of his valuable philatelic holdings from loan to gift during the year.

Philip H. Ward, Jr., of Philadelphia, donated a considerable number of United States and foreign stamps—to continue his ranking as the "oldest" continuing donor, having first evidenced his support of the national postage stamp collection as long ago as 1915. B. H. Homan, Jr., of New York donated 18 original drawings for Ecuadorean stamps, and 114 French pre-stamp covers.

EXPLORATION, FIELDWORK, AND RELATED TRAVEL

Near the close of the past fiscal year Dr. T. Dale Stewart, curator of physical anthropology, investigated the burial site of an adult male Indian on the bank of York River opposite West Point, Va. Portions of the skeleton were unearthed. Trephined skulls from Bolivia in the American Museum of Natural History, New York City, and from the central highlands of Peru in the Peabody Museum, Cambridge, were examined by Dr. Stewart April 2–7, 1957, to advance completion of a research project.

Frank M. Setzler, head curator of anthropology, and Dr. Clifford Evans, associate curator of archeology, attended during September 1956 the Fifth International Congress of Ethnological and Anthropological Sciences at Philadelphia. During April 1957 Mr. Setzler visited New Martinsville, W. Va., to survey and discuss a cooperative arrangement for the excavation of a prehistoric Indian mound on the property of the Columbia-Southern Chemical Corp. Plans are now being formulated to proceed with this project during the next fiscal year.

Under a cooperative arrangement with Sr. Emilio Estrada, Director del Museo Arqueológico "Victor Emilio Estrada," Guayaquil, and with partial support from a grant made by the American Philosophical Society to the Smithsonian Institution for an archeological survey and excavations in Ecuador from Puerto Napo on the headwaters of the Río Napo to the Peruvian-Ecuadorian border, Dr. Clifford Evans, associate curator of archeology, and Dr. Betty J. Meggers, research associate, excavated 12 archeological sites between October 5 and February 10, 1957. The origin of the Marajoara phase of the lower Amazon was the chief objective of this fieldwork. The ceramics indicated that this Río Napo culture is ancestral to the early Marajoara

but not the ultimate origin. Five days at Bogotá, Colombia, were devoted to an examination of the archeological collections of the Museo Nacional, Banco de República Museo de Oro, and the Museo Histórico. The collections of the Museo del Universidad del Atlántico at Barranquilla and of Gerardo and Alicia Reichel-Dolmatoff at Cartagena proved to be extremely important for comparative purposes. On arrival at Caracas, Venezuela, these two investigators were invited by Dr. José M. Cruzent, Director, Museo de Ciencias Naturales, to accompany an expedition sponsored by that museum and the Universidad Central de Venezuela to the Río Ventuari, a headwaters tributary of the Río Orinoco. Some five weeks were devoted to stratigraphic excavations of 30 or 40 former sites of human occupation in this region. The materials obtained will permit a more adequate interpretation of the cultural level relationships of the former inhabitants of Brazil, the Guianas, Colombia, and Ecuador. Drs. Evans and Meggers returned to Washington on April 5, 1957.

Dr. Waldo R. Wedel, curator of archeology, participated, May 2–4, 1957, in a symposium held at the University of Wisconsin, Madison, which dealt with the identity and historical implications of an archeological cultural horizon known as Oneota, ancestral to certain Siouan groups of Indians.

Dr. Marshall T. Newman, associate curator of physical anthropology, under a research project financed by a grant from the National Science Foundation, conducted studies in physical anthropology, nutrition, dietary habits, blood analyses, bone density and maturation, and cultural anthropology on the Quechua-speaking Indian community of some 1,750 individuals at Hacienda Vicos in the Callejon de Huaylas, North Central Sierra, Peru. Blood samples obtained during this investigation have since been studied by the Blood Grouping Laboratory, Boston, and the U. S. Public Health Service Laboratory at Framingham, Mass. Bone-density analyses and skeletal-maturation studies are being made at Pennsylvania State University from X-ray photographs of the hands of Indian school boys. Dr. Newman returned to Washington on July 27, 1957. During April 1957 Dr. Newman consulted with specialists of the Fels Research Institute staff at Yellow Springs, Ohio, relative to age assessments from carpal X-rays, tooth eruption data, and metric growth data obtained at Hacienda Vicos.

C. Malcolm Watkins, associate curator of ethnology, in the interval between October 1 and 8, 1956, arranged for the shipping of cultural-history materials from Mrs. Arthur M. Greenwood's home in Marlboro, Mass., sorted the woodwork from the Thomas Hancock house in Worcester, and packed and shipped tiles given by E. Stanley Wires of Wellesley Hills.

Conrad V. Morton, curator of cryptogams, during August 1956, participated in a field trip organized by the American Fern Society on the Gaspé Peninsula, Canada. On the return trip Mr. Morton attended the meetings of the American Institute of Biological Sciences at Storrs, Conn.

From October 1956 to April 1957, Dr. Lyman B. Smith, curator of phanerogams, conducted field studies of the flora of southern Brazil under a grant from the National Science Foundation and in collaboration with the Herbário "Barbosa Rodrigues." Over 5,000 plants were collected on the planalto of Santa Catarina and adjacent regions for phytogeographical research on the origin of the flora of southern Brazil.

During February 1957, Dr. Herbert Friedmann, curator of birds, was selected to inaugurate the recently endowed "Lida Scott Brown Lectureship" at the University of California at Los Angeles. Previously, in August, he studied the African parasitic weaverbirds in the Chicago Museum of Natural History in furtherance of a monograph now in course of preparation.

On April 30, 1957, Dr. Charles O. Handley, Jr., associate curator of mammals, was detailed to conduct preliminary mammal surveys in eastern Panama in cooperation with the yellow-fever project of the Gorgas Memorial Laboratory. Fieldwork continued through the month of June and Dr. Handley returned to the Museum on June 28, 1957.

At the invitation of Dr. William McD. Hammon, chief of the department of epidemiology and microbiology, Graduate School of Public Health, University of Pittsburgh, Dr. David H. Johnson, curator of mammals, joined a virus-research group from July 24 to October 2, 1956, in the vicinity of Manila and Clark Airbase, Luzón, Philippine Islands. This survey of the mosquito-borne virus diseases affecting wild animals and man was supported by the Armed Forces Epidemiological Board, U. S. Department of Defense.

On July 27, 1956, Dr. Ernest A. Lachner, associate curator of fishes, returned to Washington following completion of his studies under a fellowship awarded by the John Simon Guggenheim Memorial Foundation. Dr. Lachner is preparing monographic studies of the circumtropical marine fish families Apogonidae (cardinalfishes) and Mullidae (goatfishes) and found it necessary to examine the collections preserved in the British Museum (Natural History), London; the Zoological Museum, Amsterdam; the Rijksmuseum van Natuurlijke Historie, Leiden; Naturhistorische Museum, Vienna; Senckenbergische Naturforschende Gesellschaft, Frankfurt; Zoologisches Museum, Hamburg; Zoological Museum, Copenhagen; the Museum of Belgian Congo, Tervuren; and the Muséum National

d'Histoire Naturelle, Paris. Dr. Lachner studied the sharksuckers (Echeneidae) in the collections of Tulane University, New Orleans, April 15–22, 1957, and added important data to his review of host specificity. Some 500 specimens of fresh-water barbeled minnows (*Hybopsis*) were examined for inclusion in a partially completed manuscript. X-rays were taken of 19 types and specimens of small, somewhat transparent fishes (Henicichthyidae) to determine details of the osteology for incorporation in a revisional study.

In continuation of his research on sea anemones, Dr. Charles E. Cutress, associate curator of marine invertebrates, searched the invertebrate collections of the Peabody Museum of Natural History at Yale University, the Museum of Comparative Zoology at Harvard University, and the American Museum of Natural History, New York, October 22–November 6, 1956, for type specimens and material from the central and South Pacific Ocean. Dr. Cutress was detailed during February 1957 to proceed to the Museum of Wesleyan University at Middletown, Conn., for the purpose of packing and shipping zoological materials which were transferred to the national collections.

In furtherance of his taxonomic studies on scarab beetles, O. L. Cartwright, associate curator of insects, examined types of *Onthophagus*, *Ataenius*, and *Ligyrus*, as well as other genera, in the collections of the Museum of Comparative Zoology at Cambridge and the Academy of Natural Sciences of Philadelphia, February 24–28, 1957. Later, April 21–24, 1957, he critically studied the types of Scarabaeidae in the Cincinnati Museum of Natural History and Purdue University, Lafayette, Ind.

Dr. Waldo L. Schmitt, head curator of zoology, and leader of the Smithsonian-Bredin Society Islands Expedition, left Washington on June 14, 1957, en route to Papeete, Tahiti. The generosity of Mr. and Mrs. Bruce Bredin, of Greenville, Del., enabled the Smithsonian Institution to charter the vessel *Mareva* for this marine biological survey of the Society Islands. The party included also Dr. Harald A. Rehder, curator of mollusks, and T. F. Bowman and Charles E. Cutress, Jr., associate curators of marine invertebrates. In the course of this cruise collections were obtained at or in the vicinity of Makatea, Tickahau, Bora-Bora, Raiatea, Tahaa, Huaheine, and Moorea.

Early in January Dr. Alexander Wetmore, research associate and former Secretary of the Smithsonian Institution, returned to Panamá in continuation of his field researches on the distribution and variation of the birdlife of the Isthmus. Through the friendly interest of Dr. Pedro Galindo of the staff of the Gorgas Memorial Laboratory for Tropical Medicine, and Diputado in the legislative body of the Republic, permission was given for work in the restricted area of the Comarca de San Blas, territory of the coastal group of the Cuna In-

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dians. The field party obtained transport from Paitilla Airport, Panama City, via Cessna–180 four-passenger plane to Mandinga in the San Blas where camp was established midway between the foothills of the Cerro Azul and the sea. While much of the land had been cleared for farming, original forest remained in the swampy woodlands near the coast and over the inland hills. During a period of four weeks observations were made on approximately 200 species of birds with series of specimens prepared of those desired for special study. Friendly Indian neighbors were almost daily visitors, the colorful dress of the women being especially attractive. As this is the first collection of any extent to be made on the Caribbean coast between the Canal Zone and Puerto Obaldía on the Colombian frontier, the work has afforded especially valuable information.

Following return to the Canal Zone Dr. Wetmore spent from February 25 to 28 in the launch *Sea Raider*, Richard E. Parker of Colón, skipper, in work along the western side of the Gulf of Panama. Collections were made especially at Ensenada Venado, west of Punta Mala, and on Isla Iguana, to the north of that point, localities accessible only by boat. This year sea birds had not yet arrived to nest on the rocky islets of Los Frailes off Punta Mala, though they had been abundant there on February 6, 1956. On the return trip he examined the rocky islets of Isla Villa and Farallón de Chirú.

After a day on Cerro Azul and another near the base of Cerro Bruja, the party left by jeep for the lower end of the Azuero Peninsula. Here, from quarters obtained in the friendly village of Pedasí, studies were made in the valleys of the Río Caldera and the Río Oria, the latter accessible over a rough track practicable only in the dry season and by means of the 4-wheel drive of the jeep. Following two weeks here Dr. Wetmore crossed on March 22 by Cessna–180 plane from Las Tablas to the isolated village of Tonosí for examination of the valley of the Río Tonosí. Here he and Mrs. Wetmore were the guests of Mr. and Mrs. Harry L. Peck, long resident in the valley, who afforded all needed facilities for the work. This concluded the work for this season, except for a two-day visit to the Barro Colorado Island field station on April 2 and 3. The collections made have added definitely to our knowledge as the work centered on areas that previously had not been investigated.

During July 1956 Dr. C. L. Gazin, curator of vertebrate paleontology, accompanied by preparators Franklin L. Pearce and Theodore B. Ruhoff, proceeded to Shoshoni, Wyo., to prospect for fossil remains in several upper Eocene localities on the north side of the Wind River Basin. This fieldwork was financed by the income from the Walcott bequest. The exposures on Badwater Creek yielded additional artiodactyl remains. Subsequently a search was made for skeletal material of the Oligocene horse *Mesohippus*, in the Chadron beds

north of Harrison, Nebr. An incomplete skull of this horse and two excellent skulls of the Oligocene dog *Daphoenus* were collected. Operations were then transferred to Bitter Creek, Wyo., where portions of two skeletons of *Coryphodon* as well as small mammals were secured from quarries on exposures south of the town. After August 1 fieldwork was commenced on the fossiliferous exposures of Knight Eocene and presumably Evanston Paleocene in Fossil Basin near Kemmerer, Wyo., where additional materials were obtained. Several excellent specimens including a partially articulated skeleton of *Meniscotherium* were found in the New Fork tongue of the Knight formation as exposed along Alkali Creek east of Big Piney. The museum carryall was returned to Washington on August 17, 1956.

During the last two weeks of December 1956 Dr. Gazin studied specimens of the earliest known North American primates in the collections of Princeton University, the American Museum of Natural History, and Yale University. On January 15, 1957, in accordance with a previous agreement relative to the final distribution of Pleistocene sloths and other mammals excavated near Ocú in the Republic of Panama he proceeded to Panama to unpack and assemble the fossil skeletal material returned to Dr. Alejandro Mendes, director, Museo Nacional of Panama. This assignment was completed on February 3, 1957. He examined various Eocene adapid and tarsiid primates at Princeton University and reviewed the lower Eocene anaptomorphids and other Tertiary mammals in the collections of the American Museum of Natural History, June 2–9, 1957.

During the first week of November 1956 Theodore B. Ruhoff and Shelton P. Applegate investigated a fossil whale occurrence in the vicinity of Smithfield, Va.

To obtain required specimens of fossil fishes and other early vertebrates for the exhibition series, Dr. David H. Dunkle, associate curator of vertebrate paleontology departed from Washington on August 17, 1956, for Europe. A field excursion in northern Scotland under the guidance of Prof. T. Stanley Westoll of the University of Durham resulted in the collection of Devonian fishes in such historic localities as Holburn Head Quarry, Murkle Bay, the Thurso Foreshore and Achanarras Quarry in Caithness; Edderton, Cromarty, and Ethie Burn in Rosshire; Turin Hill in Forfarshire; and the vicinity of Lesmahagow in Lanarkshire. At Copenhagen he arranged an exchange for Triassic fishes of Greenland and Madagascar with the Danish Mineralogisak Museum. Extensive collections of fossil fishes were examined at the National Museum of Sweden and the Swedish Geological Survey Museum in Stockholm. Casts of primitive tetrapods from the Devonian of Greenland were received. At Bonn, Germany, late Paleozoic and early Mesozoic fossils, including such rare forms as a lower Devonian ostracoderm and a placoderm, were selected

for the display series. Arrangements were made with Dr. B. Hauff of Holzmaden for a series of lower Jurassic fishes. At the Muséum National d'Histoire Naturelle, Paris, desirable exchanges were discussed with the staff. Dr. Dunkle returned to Washington on November 9, 1956.

Dr. Dunkle accompanied Dr. G. E. Lewis, U. S. Geological Survey, May 6–20, 1957, on a reconnaissance of the occurrence of fossil mammal-like reptiles (ictidosaurs) in the Kayenta formation on the western Navaho Indian Reservation, Ariz., with the objective of locating skeletons for exhibition.

Following approval of an exchange arrangement, Franklin L. Pearce and John E. Ott were sent on November 23, 1956, to the Museum of the University of Texas at Austin to assemble and pack for shipment a Triassic phytosaur skull and the field blocks enclosing the giant Cretaceous fish *Xiphactinus*. When preparation is completed these specimens will be incorporated in the display series.

Dr. G. A. Cooper, curator of invertebrate paleontology, was invited by the organizers of the Twenty-second International Geological Congress, Mexico City, to lead a field excursion late in August 1956 to Sonora, where the party studied the Cambrian sequence near Caborca and the Permian, Mississippian, and Devonian near Antimonio. The Walcott bequest financed the fieldwork by Dr. Cooper in the Glass Mountains of Texas and in south-central New Mexico. On August 13, 1956, while accompanied by Dr. C. O. Dunbar of Yale University, L. G. Henbest of the U. S. Geological Survey, and Dr. John Skinner of the Humble Oil Co., Dr. Cooper reviewed the Permian stratigraphy in the vicinity of Marathon, Tex., and subsequently collected additional blocks of invertebrate materials. The field truck was driven to Nogales, N. Mex., prior to the Mexican excursion. When the Geological Congress terminated, Dr. Cooper returned to Nogales where A. L. Bowsher and J. T. Dutro of the U. S. Geological Survey joined the party for the Devonian stratigraphic fieldwork in the vicinity of Silver City and Hillsboro, N. Mex. At Hillsboro, Mississippian fossils also were collected. During the last week of September and the first half of October, Alamogordo served as headquarters for the fieldwork in the San Andreas Mountains located in the White Sands Proving Ground area. Field studies in New Mexico were concluded at several localities in the Sacramento Mountains east of Alamogordo.

The income from the Walcott bequest and assistance from the National Science Foundation enabled Dr. David Nicol, associate curator of invertebrate paleontology, to conduct marine fieldwork at the Bermuda Biological Station during July 1956. He collected recent and fossil mollusks, gorgonians, Foraminifera, and fishes. Dr. Nicol

studied the Paleozoic pelecypods at the Museum of Paleontology, University of Michigan, June 9–14, 1957.

The Walcott bequest also provided funds for Dr. A. R. Loeblich, Jr., associate curator of invertebrate paleontology, and Dr. Hans Bolli of Pointe-à-Pierre, Trinidad, W. I., to study the Cretaceous-Tertiary boundary in Alabama and Texas and to collect foraminiferal samples during July 1956. The Planktonic Foraminiferal Project Fund financed Dr. Loeblich's trip to Houston, Tex., during November 1956 to obtain well cores from the subsurface Miocene of Texas and southern Louisiana from the Humble Oil Co., and to New Orleans for consultations regarding similar materials with geologists of other oil companies. In furtherance of the same project Dr. Loeblich participated in a symposium on biostratigraphy at St. Louis, Mo., during April 1957.

The exhibition and development programs for the Museum of History and Technology and the Museum of Natural History necessitated conferences with historians, scientists, and educators relative to the planning and designing of interiors and contents of exhibition halls. Travel to determine the worth of materials offered to the museum, to examine methods of exhibition and to consult with experts on preservation provided the opportunity for new staff members to become familiar with the practices and procedures employed in other museums.

Dr. Robert P. Multhauf, acting head curator of engineering and industries, conferred on October 2 and 3, 1956, with officials of the Bell Telephone Laboratories at Murray Hill, N. J., and New York City on the design of the exhibit of the telephone in preparation for installation in the museum. Late in December 1956, he examined exhibition practices in the Museum of the New York Historical Society, the Museum of Modern Art, Whitney Museum, Museum of Contemporary Crafts, and the commercial exhibits at Rockefeller Center, all in New York City. At the request of the chairman of the Crystals Section of the Committee for the Brussels Worlds Fair of 1958 and the Department of State, he participated in the conference held at Chicago on January 14, 1957. On the two following days he visited the Chicago Museum of Science and Industry to study the commercial displays and the Chicago Museum of Natural History to examine exhibit practices employed in the current renovation program.

During the period from March 26 to April 2, 1957, Dr. Derek J. Price, consultant to the department of engineering, in his search for suitable nineteenth-century chemical and physical laboratory apparatus to illustrate the history and principles of these sciences in the displays now being planned for new exhibit halls, conferred with the

staffs of the respective departments of the universities of Mississippi, South Carolina, and North Carolina. On April 15–17, 1957, he examined the collection of astrolabes, sundials, and other antique instruments now owned by Eugene Hoffman and Miss Margaret Hoffman, New York City, and studied the Samuel V. Hoffman collection of instruments at the Museum of the New York Historical Society.

On May 24, 1957, Dr. Price examined physical apparatus, including some 20 pieces said to have been made or used by Secretary Joseph Henry, housed in the Palmer Physical Laboratory of Princeton University. Through the kindness of L. C. Eichner, he was enabled to see the workshop machinery used by Henry Fitz, one of the earliest and most important astronomical telescope makers in this country, and now in the possession of his granddaughter, Mrs. Willard H. Howell of Southold, L. I. Sufficient material has been preserved to permit a restoration of the original shop in the proposed Hall of Physics.

Enquiries relative to the existence of early scientific instruments were made April 30–May 12, 1957, by Dr. Price at the University of Chicago, Museum of Science and Industry, Argonne Atomic Laboratories, and the Adler Planetarium in Chicago, and the University of Wisconsin, Madison, Wis. Among the items of especial interest examined were Italian and Danish facsimiles of important historic instruments made for the Century of Progress Exposition (1933–34) which are now mostly in storage. A continuous search is being made for historic instruments illustrating the important developments in experimental physics and in astronomy.

The recent renovation of the exhibition halls of the Wistar Institute Museum, Philadelphia, was examined by Frank A. Taylor, Assistant Director, on May 29, 1957. He paid particular attention to the techniques utilized for improvement of the exhibits.

To locate significant early types of tools as well as information regarding their inventors and their manufacturers, Robert S. Woodbury, curator of engineering, visited manufacturing firms, institutes, and museums in Providence, Worcester, Sturbridge, Cambridge, and New Haven, July 27 to August 1, 1956. A number of individuals interested in the history of tools were consulted, most of whom indicated a desire to assist in the program. Machine tools and machine shops in the Greenfield Village and the Ford Museum at Dearborn, Mich., were studied by Curator Woodbury during August 1956.

Inspection of the 1874 machine shop exhibited by the Cincinnati Milling Machine Co., the machine-tool exhibits of the Chicago Museum of Science and Industry, and the automated foundry of the Ford engine plant at Cleveland was undertaken from February 11 to 14, 1957. Plans for the hall of tools in the Museum of History and

Technology were discussed March 25–28 by Mr. Woodbury with Joseph W. Roe at Southport, Conn., and individuals acquainted with the Towne Foundation which sponsored the Museum of Peaceful Arts in New York City. Tentative negotiations were made by Curator Woodbury April 22–27, 1957, to obtain documentary data and examples of early grinding and milling machines from the Abrasive Machine Tool Co., Providence; the Norton Co., Worcester; the Fellows Gear Shaper, Springfield; Lamson and Goodnow, Shelburne Falls; the Hartford Machine Screw Co.; and the Cryder Plumbing Co., Newark.

Edwin A. Battison, associate curator of light machinery, was engaged from November 11 to 21, 1956, in the examination and study of historical horological and business-machine collections in West Chester, Pa., Clifton, N. J., New York City, South Kent, Waterbury, East Hartford, and New London, Conn., and Monson, Crafton, Milton, Waltham, Auburndale, and Boston, Mass. The period from February 19 to 22, 1957, was utilized by Mr. Battison to examine and study the clock, watch, lock, and calculating-machine exhibits and collections located in the offices of manufacturing firms, individuals, and institutions in New London and New Haven, Conn. Mr. Battison visited a number of dealers in New York City in search of old and unusual clocks and watches for the exhibit series on May 2, 1957, and examined many early European watches belonging to the Metropolitan Museum of Art.

Potential donations from the Massachusetts Institute of Technology and Harvard University of electrical equipment were discussed with responsible officials, November 7–10, 1956, by W. James King, associate curator of electricity. He visited the Franklin Institute, Philadelphia, December 11–12, 1956, to examine the technique employed in the display of electrical equipment and studied display techniques utilized for communication apparatus in the Museum of the Signal Corps, U. S. Army, at Fort Monmouth, N. J. He also inspected the technical relics of Edison exhibited in the Edison Laboratory National Monument, West Orange, N. J., as well as displays in the museums of New York City, December 26–31, 1956. He held discussions with individuals familiar with the early history of radio and other electrical devices, February 10–15, 1957, at Norwalk and Stamford, Conn., and at Troy and Schenectady, N. Y. At the Rensselaer Polytechnic Institute, Troy, he reviewed several pieces of laboratory equipment for possible presentation. Consideration was given by the General Electric Research Laboratory, Schenectady, to the transfer of certain outmoded pieces of equipment for the display series. Further consultations with the staffs of the departments of mechanical and electrical engineering of the Massachusetts Institute of Technology on April 17–18,

1957, did not reveal the existence of immediately available electrical power machinery.

At Schenectady, May 14–17, 1957, Mr. King was shown historically interesting vacuum tubes and also received three magnetrons from the General Electric Research Laboratory. Dr. Irving Langmuir and Dr. W. D. Coolidge gave particularly helpful advice. Consultations were held with officials of the physics and electrical engineering departments of Union College regarding possible donations of apparatus. From E. F. Hennelly, he obtained Dr. Albert W. Hull's kenopliotron, the first radio receiver using 60-cycle power only.

Kenneth M. Perry, associate curator of marine transportation, visited, August 20–29, 1956, the Marine Museum of Seaman's Church Institute, New York City; the Marine Historical Society's "Mystic Seaport," Mystic, Conn.; the Russell Hart Nautical Museum, Cambridge; the Penobscot Marine Museum, Searsport, Maine; the Old Dartmouth Historical Society and Jonathan Bourne Whaling Museum, New Bedford; the Whaling Museum of the Nantucket Historical Society; and the hall of marine transportation in the Franklin Institute, Philadelphia. During the period December 17–19 he inspected the watercraft collection of the Mariner's Museum at Newport News, Va.

Leslie J. Newville, engineering division, examined extensive documentary material relating to the development of phonographs in the possession of the Radio Corporation of America at the Camden and Cherry Hill plants, as well as at the Edison Laboratory National Monument, West Orange, N. J., from October 17 to 19, 1956.

Philip W. Bishop, curator of industrial cooperation, studied the principal exhibits in the Franklin Institute relating to the practical applications of science, November 23–24, 1956. At the invitation of the Bethlehem Steel Co., Messrs. Bishop, Woodbury, Battison, and Perry visited, on April 16, 1957, the Sparrows Point Plant in Maryland for a guided tour of the operations of the blast furnace, open hearth shops, Bessemer converters, slab mill, hot and cold continuous strip mills, and the galvanizing and tinning plants. Curator Bishop on April 29, 1957, consulted material in the libraries of the Engineers Societies of New York and the American Society of Civil Engineers to obtain documentary data required for the cataloging of the engineering drawings of Alexander Lyman Holley.

Data and ideas useful in the planning for the graphic arts displays in the projected exhibit halls of the Museum of History and Technology were obtained by Jacob Kainen, curator of graphic arts, on a European trip extending from September 7 to 30, 1956. The museums he visited featured either science and technology or graphic arts, or fine and decorative arts. The exhibits were chiefly technological in Teyler's Museum, Haarlem; Museum for the History of Physical

Sciences, Leiden; Deutsches Museum, Munich; Museo Nazionale della Scienze e della Tecnica, Milan; and Museo di Storia della Scienze, Florence. He studied exhibit techniques for the display of graphic arts in the print rooms of the Rijksmuseum and the Gemeente Museum, Amsterdam; the Print Cabinet of Boymans Museum, Rotterdam; the Plantin-Moretus Museum and Prenten Cabinet, Antwerp; the Cabinet des Estampes, Bibliothèque Royale, Brussels; the Graphische Sammlung, Munich; the Gabinetto dei Desegni e Stampi, Uffizi Gallery, Florence; and the Gabinetto Nazionale della Stampi, Rome. Most of these institutions serve as research centers for scholars. In the museums featuring decorative arts, such as Die Neue Sammlung, Munich, and the Bavarian National Museum, Munich, contemporary display techniques were employed.

Edward C. Kendall, associate curator of manufactures and agricultural industries, on March 9–10, 1957, examined the Laucks collection of farm equipment belonging to the York County Historical Society at Lancaster, Pa., and the Pennsylvania Farm Museum of Landis Valley with a view of locating duplicate equipment suitable for display purposes. An old Pennsylvania plow dating from at least 1807 was presented by Daniel G. H. Lesher of Waynesboro, Pa. Tentative arrangements for obtaining duplicate examples of farm equipment in the possession of the New York State Historical Association at the Farmer's Museum, Cooperstown, were made by Mr. Kendall, March 31–April 3, 1957.

Miss Grace L. Rogers, assistant curator of textiles, studied exhibit techniques and methods of portraying the crafts of primitive man, especially those of spinning and weaving, at the American Museum of Natural History and the exhibit on printing fabrics in the Cooper Union Museum. Effective exhibit techniques were observed in the display of summer and other fabrics at the Salamandré Museum of Textiles and at the Museum of Modern Art, New York City. Methods of cataloging and storage of textiles utilized in the Textile Study Room of the Metropolitan Museum of Art were particularly instructive. This visit extended from August 27 to 31, 1956.

At the County Court House, Savannah, Ga., Miss Rogers searched the circuit court records from 1796 to 1812 for information on the trials pertaining to Eli Whitney and the cotton gin. Valuable assistance was given by Mrs. Hawes of the Georgia Historical Society. Miss Rogers also examined the textile collections of the Telfair Academy of Arts and Science and the Charleston Museum and the facilities for storage of textiles at Colonial Williamsburg, March 11 and 16, 1957, and consulted with Arthur E. Wullschleger, New York City, on April 11–12, 1957, regarding the assembly of an old Jacquard loom that he had purchased in France as a gift to the museum.

George Griffenhagen, curator of medicine and public health, September 8–15, 1956, discussed dental history exhibits, apothecary shop restorations, and pharmaceutical antiques with officials of the Charles H. Land Museum and the Columbia University College of Pharmacy in New York City, the owners of collections in Bridgeport and Newton, Conn., the Beverly Historical Society and the Essex Institute, Salem, Mass., the Albany, N. Y., College of Pharmacy, the Cooperstown Farmer's Museum, the Rochester Museum of Arts and Sciences, and the Buffalo Historical Society. At Jamestown and Colonial Williamsburg on October 30, 1956, he examined early English delft and glass drug containers and devoted December 10–12 to a review of the Ephraim McDowell Medical Museum in Danville, Ky., and to conferences relative to the apothecary shop restoration planned for this museum. He held conferences relating to the Hall of Health with medical historians in New York City, December 26–28, 1956. As executive Secretary of the Fourth Pan American Congress of Pharmacy and Biochemistry, Mr. Griffenhagen undertook a 3-week trip through Latin America, which required stops in Venezuela, Brazil, Peru, Ecuador, Panama, Costa Rica, and Cuba, which afforded an opportunity to examine collections of pharmaceutical antiques in Rio de Janeiro and Lima. He studied ceramic drug jars at the School of Pharmacy Museum, Minneapolis, and the pediatric and medical antiques at the Canadian Academy of the History of Pharmacy, Toronto, April 1–6, 1957.

Mr. Griffenhagen displayed panels to be shown in the new Hall of Health at the meeting of the American Association of Anatomists, Baltimore, April 16–19, 1957. He held consultations relative to the donation of ceramic apothecary jars by the Bristol-Myers Co., the possible participation by Schenley Laboratories in the restoration of "Americana Pharmacy," and the content of the Hall of Dental History with representatives of the American Academy of History of Dentistry, April 30–May 2, 1957, at New York City.

Mendel L. Peterson, acting head curator of history, studied the military collections at the Chapel Museum, Fort Jay, and Castle William on Governors Island, as well as the Cooper Union Museum and the Marine collections of the Seaman's Bank of Savings, New York City. At Boston he visited the Old State House, the Frigate *Constitution*, the Bunker Hill site, Old North Church, and Old South Church. This travel extended from April 15 to 17, 1957.

Franklin R. Bruns, Jr., curator of philately and postal history, consulted donors and potential donors to the national stamp collections at New York City, October 8–9, 1956, at Princeton, N. J., April 19, Detroit, May 1, and Chicago, May 2, 1957.

To observe European museum practices, exhibition techniques, and the content of military collections for the advancement of planning

the displays in the Museum of History and Technology, Edgar M. Howell, acting curator of military history, departed from Washington on May 3, 1957. In the course of this travel he took extensive notes and photographs of military collections at Madrid, Spain; Paris, France; Vienna, Austria; Brussels, Belgium; Amsterdam, The Netherlands; Oslo, Norway; Stockholm, Sweden; Copenhagen, Denmark; London, England; and Edinburgh, Scotland. This detail was completed June 6, 1957.

Dr. V. Clain-Stefanelli, curator of numismatics, November 22–25, 1957, discussed types of display cases, cabinets for study collections of coins, medals, and paper currency, and display methods for numismatics in New York City with officials of the American Numismatic Society, the Money Museum of Chase National Bank, and the Metropolitan Museum of Art. On April 12, 1957, he conferred with Julius Lauth of the Medallic Art Co. relative to a medal exhibit illustrating the manufacturing processes, artists' drawings and models, and engravers' tools, and with Ernest Moore of the Gorham Co. regarding production of coins and medals. Potential donations and transfers were discussed with several numismatists. At Clinton, Conn., William Hasse, Comptroller of the New Haven Bank, presented a number of early New Haven checks and promised help in obtaining notes, plate proofs, and copper currency plates for the national collections. Sources of information regarding Confederate note issues were suggested by Philip Chase of Wynewood, Pa., May 11, 1957. Mr. Chase decided to present a set of Confederate chemiograph plates.

William L. Brown, chief zoological exhibits specialist, and Norman H. Deaton examined the skeletons of elephants in the collections of the American Museum of Natural History, and living animals at the New York Zoological Park to obtain required measurements and data for the preparation of an unusually large specimen from Angola for exhibition.

EXHIBITIONS

A congressional allotment of $601,000 permitted continuation in 1957 of the program for modernization of selected exhibition halls. Construction work was completed during August 1956 on the Power Hall, during January 1957 on the American Indian Hall, and during June 1957 on the Health Hall. Construction bids were received for the Gems and Minerals Hall in January 1957, the World of Mammals in May 1957, and the Textile Hall in June 1957. Actual construction was commenced in these halls approximately one month after the bids were approved by the Public Buildings Service.

More than 800 guests were present on the night of January 26, 1957, when Dr. Leonard Carmichael, Secretary of the Smithsonian Institution, and Mrs. Arthur M. Greenwood opened the Hall of Everyday

Life in Early America. Home furnishings, tools, crafts, and arts of early settlers are displayed to illustrate the many elements in the domestic and community life of the period.

Secretary Carmichael and Dr. Melville Bell Grosvenor, President of the National Geographic Society and grandson of Alexander Graham Bell, during the morning of March 11, 1957, invited the visiting public to view the recently completed exhibit produced and presented by the Bell System and the independent telephone industry to illustrate the invention and development of the equipment required for the operation of a modern telephone system.

On March 27, 1957, Dr. Carmichael and Dr. Robert P. Multhauf formally opened the Hall of Power Machinery. In this hall, moving engines and models, murals, diagrams, and schematic mechanisms are displayed to show technological development from primitive wind- and water-powered machines to the steam and gas turbines.

The recently completed Hall of North American Mammals was viewed by a number of guests on April 30, 1957, following a brief ceremony at which the contributions to mammalogical research by the staff of the Institution during the preceding 100 years were reviewed by Dr. Carmichael and Dr. Kellogg. In this hall 12 habitat groups with scenic mural backgrounds present the larger native mammals of major importance to the American pioneer.

During the year seven new exhibit units were completed for installation in the recently constructed North American Indian Hall, in which life-size ethnic groups will depict the everyday activities and the cultures of the Indians of eastern, central, and northern United States, Canada, and Alaska, and of the Eskimo tribes of the Arctic regions. Two Egyptian bull mummies installed in the Hall of Old World Archeology seem to be especially interesting to school children. Temporary revisions have been made in the North American Archeology halls.

Detailed plans for the two halls of the World of Mammals were carried forward by Dr. Henry W. Setzer, associate curator of mammals. Progress was made in the planning for the marine exhibits that will occupy the large central hall of the west wing of the Natural History Building.

A series of dioramas of fossil marine life will be shown in the Hall of Invertebrate Paleontology. Two of the completed dioramas reconstruct the life present on sea bottoms during the Middle Cambrian and Permian time. Construction work on the Gem and Mineral Hall required removal of the materials heretofore exhibited there. A part of the popular gem collection was placed temporarily on exhibition on the first floor near the rotunda. Plans for the Hall of Lower Vertebrates were revised to provide display space for newly acquired mate-

rials. Restoration of a number of fossil fishes and tetrapods has been completed for the exhibit series.

Work began on the renovation of the graphic-arts exhibits illustrating the history and methods of fine printmaking. Arrangements were made with prominent artists for exhibits illustrating the history and methods of printmaking. A number of important prints by some of the earlier artists were acquired for the exhibit series. Exhibits on camera lenses, instantaneous photography, and camera shutters were installed in the refurbished photography gallery. This gallery is also utilized as a photographic-print salon for special exhibitions of the work of present-day photographers.

The new Hall of Health is nearing completion. Plans for the modernized textile hall have been completed. Improvements have been made in the automobile hall. A rearrangement of reconditioned time-keeping instruments has greatly improved the attractiveness of this exhibit.

Work on an exhibit illustrating the history of the United States Army was advanced by the installation of weapons, models, and dioramas. Progress was made on the renovation of the exhibit comprised chiefly of the New England Copp family collections of household furnishings and personal effects. More than 100 exhibition frames of stamps were renovated. Special exhibits comprising old campaign buttons, torchlights, parade costumes, election souvenirs, banners, inaugural medals and inaugural programs were arranged for display at the time of the national elections and the presidential inauguration.

Eight exhibition halls had been completed for viewing by the visiting public at the close of the fourth year of the continuing program for the modernization of the Smithsonian exhibits. Following preparation of the original narrative scripts and selection of objects by the curators, the museum's exhibits designers and preparators, in consultation with the curators involved, design the hall layouts and construct the individual exhibits. As many as 50 topics have been presented in one exhibition hall. That the modernization program has proceeded smoothly and effectively is shown by the encouraging public response to these new exhibits.

The educational program of volunteer docent guide service conducted with the cooperative assistance of the Junior League of Washington for the benefit of the schoolchildren of Greater Washington, was continued with success. The work remains under the immediate supervision of Frank M. Setzler, head curator of the department of anthropology, together with Mrs. Robert Nelson and Mrs. Alexander Chilton, of the Junior League, who helped to organize the program and made the arrangements with the teachers for the docent service.

During the past school term 116 tours were conducted, the docents escorting in all 3,056 children through the exhibit halls of the American Indians and the First Ladies of the White House. Counting those from last year, a grand total of 7,556 children have thus far been escorted. The tours were conducted Monday through Saturday by Mrs. G. E. Brown, Mrs. Alexander Chilton, Mrs. Walter Graves, Mrs. Edward Lamont, Mrs. William McClure, Mrs. Robert McCormick, Mrs. Peter Macdonald, Mrs. John Manfuso, Mrs. Robert Nelson, Mrs. Bolling Powell, Mrs. Jay B. L. Reeves, Mrs. John Schoenfeld, Mrs. E. T. Stirling, Mrs. Richard Wallis, and Mrs. George Wyeth.

The number of schoolchildren thus far accommodated is gratifying, yet it is only a small percentage of the number who come to the Museum from all States of the Union to visit the Museum. The numerous requests for this type of service only accentuate the acute need for an expanded program. The Junior League of Washington is enthusiastic about continuing this volunteer service and intends to expand it next year to include two more exhibition halls that have recently been opened, Everyday Life in Early America and the Power Hall.

VISITORS

During the fiscal year 1957 there were 4,076,908 visitors to the Museum buildings, an increase of 556,802 over the attendance for 1956. The average daily number of visitors was 11,614. On one day, May 4, 1957, 73,141 visitors were recorded. Attendance records for the three buildings show the following numbers of visitors: Smithsonian Building, 791,663; Arts and Industries Building, 2,125,198; and Natural History Building, 1,160,044. March 1957 was the month of the largest attendance with 623,502 visitors; April 1957 was the next largest with 570,425; and August 1956 was third with 551,394. Included in this total are 370,034 schoolchildren, who arrived in 9,193 separate groups.

BUILDINGS AND EQUIPMENT

The architects of the new building for the Museum of History and Technology completed their studies for the exterior design of the building and submitted diagrammatic plans in accordance with the estimated schedule for their work. The design they favored was voted the preference of the Joint Congressional Committee on Construction of a Building for a Museum of History and Technology for the Smithsonian Institution. The Committee so advised the Regents of the Smithsonian Institution, and the Regents voted unanimously to adopt the preferred design. Upon the completion of the diagrammatic plans, the architects and the Public Buildings Service made

detailed estimates of the cost to construct the building. These estimates disclosed that the building, if built within the appropriation, would be much smaller than the size of the building that had been determined to be required for the needs of the Smithsonian and upon which the original estimates for the appropriation were made. This development was brought to the attention of the Joint Committee and the Board of Regents. The objective was to determine the size of the largest operable building that could be built with the appropriated funds. At the end of the year, the question of determining the basis on which it would be necessary to proceed was under discussion. Planning of the interior of the building by the Smithsonian staff continued during the year. This is described in part under the section on Exhibits.

Planning for the additions to the Natural History Building continued throughout the year. A committee of Smithsonian staff members appointed by the Director reviewed the previous planning, assembled the latest data on the requirements of the scientific and service divisions, and studied all the proposals for facilities and equipment in the additions. A thoroughly prepared program of the requirements will be available for the guidance of the architects. Dr. T. Dale Stewart is chairman of the committee. Funds for planning the additions, including the preparation of working drawings and specifications, were appropriated by the Congress at the turn of the fiscal year.

CHANGES IN ORGANIZATION AND STAFF

After nearly 50 years of government service, of which 42 years and 6 months were with the Smithsonian Institution, Dr. Waldo L. Schmitt, head curator of zoology, having reached the mandatory retirement age, was placed on the retired roll on June 30, 1957.

Smith H. Oliver, associate curator of land transportation and horology, resigned July 13, 1956. On July 21, 1956, Dr. Ernest R. Sohns, associate curator of grasses since 1951, transferred to the Department of Defense. Dr. A. C. Smith, curator of phanerogams since 1948, resigned on August 19, 1956, to accept a position with the National Science Foundation. Dr. A. R. Loeblich, Jr., associate curator of invertebrate paleontology, resigned June 28, 1957, to join the research staff of the California Research Corporation.

In the department of zoology, Dr. Ralph E. Crabill, Jr., accepted an appointment as associate curator of insects on September 18, 1956, and William R. Taylor as associate curator of fishes on December 3, 1956.

Dr. Saul H. Riesenberg on August 7, 1956, was appointed to the associate curator vacancy in ethnology.

The vacancy resulting from the death of Dr. William F. Foshag was filled July 16, 1956, by the promotion of Dr. G. Arthur Cooper to head curator of the department of geology.

In the department of botany, Dr. Lyman B. Smith was promoted to curator of phanerogams effective August 20, 1956, Dr. Richard S. Cowan was appointed associate curator of phanerogams on May 1, 1957, and Dr. Mason E. Hale, Jr., as associate curator of cryptogams on June 17, 1957.

Vacancies in the department of engineering and industries were filled by the appointment of Dr. Robert L. Woodbury as curator of mechanical and civil engineering July 9, 1956, of Edwin A. Battison as associate curator of light machinery July 19, 1956, of Dr. Philip W. Bishop as curator of industrial cooperation October 1, 1956, and of Dr. Derek J. Price as consultant on the history of science, particularly scientific instruments January 7, 1957.

Dr. Philip W. Bishop on May 15, 1957, was designated acting head curator of the department of arts and manufactures as a result of the reorganization of the former department of engineering and industries. Dr. Robert P. Multhauf will serve as head curator of the department of science and technology.

Vacancies in the department of history were filled by the appointment of Edgar M. Howell on September 10, 1956, as acting curator of military history and of Dr. Vladimir Clain-Stefanelli on October 1, 1956, as curator of numismatics. Mrs. Anna W. Murray was reassigned to serve as assistant curator of civil history July 17, 1956. Mendel L. Peterson, acting head curator of the former department of history, became, effective November 13, 1956, head curator of the department of armed forces history. Dr. Brooke Hindle agreed to serve as consultant on the planning for the historical exhibits on March 13, 1957.

Robert Sterling Clark, 79, art leader and sportsman, died December 29, 1956, at Williamstown, Mass. He founded the Sterling and Francine Clark Art Institute, which opened in May 1954 at Williamstown. Clark, a collaborator in zoology since 1922, engaged Arthur de Carle Sowerby in 1909 for a 3-year period to accompany him as naturalist of a scientific and geological expedition into northwestern China, and subsequently financed the latter's collecting expeditions for the next 20 years. The zoological specimens were sent to the National Museum.

Stuart Hoffman Perry, 82, associate in mineralogy since April 1, 1940, died at Tucson, Ariz., February 15, 1957. Mr. Perry, a generous donor of meteorites and fossils to the national collections, received the G. Lawrence Smith medal from the National Academy of Sciences in 1946. He was the author of United States National Museum Bulletin 184, "The Metallography of Meteoric Iron."

Dr. Adam G. Böving, 87, associate in zoology since 1939, died at his home in Washington, D. C., on March 16, 1957. Dr. Böving was one of the pioneers and world authorities on beetle larvae. Until his retirement in 1945 he had been employed since 1913 as an entomologist by the U. S. Department of Agriculture.

Robert A. Cushman, 77, assistant custodian of Hymenoptera since 1927, died at Altadena, Calif., on March 27, 1957. Cushman was appointed entomologist in 1906 in the U. S. Department of Agriculture and remained in that organization until he retired for health reasons in 1944. He published many significant articles dealing with the classification of parasitic Hymenoptera.

Respectfully submitted.

REMINGTON KELLOGG, *Director.*

Dr. LEONARD CARMICHAEL,
Secretary, Smithsonian Institution.

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Report on the Bureau of American Ethnology

SIR: I have the honor to submit the following report on the field researches, office work, and other operations of the Bureau of American Ethnology during the fiscal year ended June 30, 1957, conducted in accordance with the act of Congress of April 10, 1928, as amended August 22, 1949, which directs the Bureau "to continue independently or in cooperation anthropological researches among the American Indians and the natives of lands under the jurisdiction or protection of the United States and the excavation and preservation of archeologic remains."

SYSTEMATIC RESEARCHES

Dr. M. W. Stirling, Director of the Bureau, spent the period February 4 to May 10 conducting an archeological reconnaissance in Ecuador under the joint auspices of the National Geographic Society and the Smithsonian Institution. Assisting in the work were Mrs. Stirling and Woodbridge Williams, National Geographic Society photographer. During the course of the expedition the party saw all the major archeological collections in the country. They made test excavations at various places on the coast of Esmeraldas and Manabi and during April 3 to April 17 conducted a stratigraphic excavation at Tarqui, near Manta. The cultural deposits reached a depth of 15 feet. Although detailed study of the abundant material recovered remains to be done, the site evidently belongs to the late Formative Period. Other places of interest visited during the reconnaissance were the Island of Santa Clara, the Inca ruin of Ingapirca, and the famous archeological site of La Tolita on the northern coast. On the east side of the Andes several mound groups were discovered on the Pastaza River in the vicinity of Puyo and Shell Mera. The work was accomplished with the permission and cordial cooperation of the Ecuadorean Casa de la Cultura. The expedition is particularly indebted to Carlos Zevallos Menéndez, head of the Casa de la Cultura in Guayaquil, and to Emilio Estrada of Guayaquil for their wholehearted assistance.

Dr. Frank H. H. Roberts, Jr., Associate Director of the Bureau, devoted most of his time to duties pertaining to the management of the River Basin Surveys, of which he is Director (see his report, p. 44). Early in July he made an inspection trip to a field party

working in the Lovewell Reservoir area on White Rock Creek in Kansas, and to parties working in the vicinity of Pierre, S. Dak. He attended and participated in the sessions of the Fifth International Congress for Anthropological and Ethnological Sciences held at Philadelphia, Pa., in September. During the fall and winter months he reviewed and revised a number of manuscript reports on the results of investigations in several areas. In November he visited the field office and laboratory of the River Basin Surveys at Lincoln, Nebr., and presided over one of the sessions of the 14th Conference for Plains Archeology. At the end of April Dr. Roberts went to Lincoln to assist in preparing plans for the coming field season and to take part in a meeting of the Missouri Basin Inter-Agency Committee, which convened there on May 1. From Lincoln he went to Madison, Wis., to attend the annual meeting of the Society of American Archeology and to discuss problems concerning the Inter-Agency Salvage Program with archeologists present there. He returned to Lincoln later in May to confer with members of the field staff on the program for summer fieldwork and attended sessions of the annual meeting of the American Association of Museums being held there. Early in June he visited a field party that was excavating sites in the Toronto Reservoir area on the Verdigris River in southeastern Kansas. At the close of the fiscal year Dr. Roberts was in the office in Washington.

At the beginning of the fiscal year Dr. Henry B. Collins, anthropologist, was in Europe studying museum collections of Mesolithic materials for their possible bearing on the Eskimo problem. The study was supported by a grant from the American Philosophical Society. The need for such a study arose from the fact that recent excavations at early Eskimo and pre-Eskimo sites in Alaska, Canada, and Greenland have revealed a number of implement types similar to those of the Mesolithic and early Neolithic cultures of Eurasia, lending weight to previous indications that Eskimo culture was basically of Mesolithic origin. Prominent among the Arctic sites exhibiting Mesolithic affinities is the early Dorset culture site T 1, on Southampton Island, Hudson Bay, where Dr. Collins excavated in 1954 and 1955.

In London Dr. Collins examined the extensive collection of Mesolithic implements from Europe, Africa, India, and Ceylon in storage at the British Museum (Great Russell Street) as well as the African materials in the British Museum (Natural History), South Kensington. At Cambridge he discussed Mesolithic problems with Dr. J. G. D. Clark and examined the collections, mainly from the early Mesolithic site of Star Carr, in the University Museum. The Tardenoisian and Azilian collections in the Musée de l'Homme, Paris, were made available through the courtesy of the Director, Dr. Henri V. Vallois. At the Bernisches Historisches Museum, Bern, Dr. Hans-Georg Bandi

showed Dr. Collins the materials from a stratified cave near Basel, where Tardenoisian was found overlying the older Sauveterrien, and Dr. R. Wyss showed him materials, now in process of publication, from early Mesolithic sites in the vicinity of Schötz, Canton Luzern. Drs. E. Vogt and Joseph Speck made available the extensive Mesolithic and Neolithic study materials in the Schweizer Landesmuseum, Zürich, and Museum für Urgeschichte, Zug. Other Swiss museums in which similar collections were studied were the Musée d'Art et d'Histoire, Fribourg; Museum Schwab in Biel; Heimatmuseum, Rorschach; Musée d'Art et d'Histoire de Genève; Historisches Museum, St. Gallen; Historisches Museum, Baden; Gletschergarten Museum, Luzern; Musée Archéologique et Historique, Lausanne; and Heimatmuseum, Schötz. The extensive Mesolithic collections from Scandinavia in the National Museum, Copenhagen, were examined during the time Dr. Collins was there as a delegate to the 32d Session of the International Congress of Americanists. At the Museum of Far East Antiquities in Stockholm, through the kindness of Drs. Karlgren and Sommerstrom, he was able to study the rich collection of artifacts from Mesolithic and Neolithic sites in Inner Mongolia obtained by the late Dr. Folke Bergman, archeologist of the Sven Hedin Expedition. The firsthand knowledge of the Mesolithic materials from Eurasia gained from the museum survey will make possible a more precise evaluation of the relationship between the Old World Mesolithic and the early Eskimo and pre-Eskimo cultures of the American Arctic. The results will be incorporated in reports describing and interpreting the Arctic materials, including those excavated on Southampton Island in 1954 and 1955.

Preliminary reports on the early Dorset materials from Southampton Island have been published in the Annual Report of the National Museum of Canada and in Anthropological Papers of the University of Alaska. A popular article on the work was published in the National Geographic Magazine for November 1956, and a general article on the same subject appeared in the Smithsonian Annual Report for 1956. An article on Eskimo archeology was prepared for the next edition of the Encyclopaedia Britannica. Dr. Collins continued to serve as chairman of the directing committee of *Arctic Bibliography*, an annotated and indexed bibliography of Arctic publications in all fields of science, which is being prepared for the Department of Defense by the Arctic Institute of North America. Volume 7 of the *Bibliography* was issued by the Government Printing Office in June 1956, and the material for volume 8 will be turned over to the printer in July.

Dr. William C. Sturtevant, ethnologist, divided his time principally between continuing his studies of the Florida Seminole (begun before joining the Bureau) and initiating new studies among the Seneca.

During the year he continued analysis and organization of his Seminole field notes and conducted research on printed, manuscript, and photographic materials relating to the Seminole in library and archival repositories in Washington and in the library of the American Philosophical Society in Philadelphia. He continued the work of revising for publication a manuscript on Seminole medicine and magic, and prepared for fieldwork in Florida during the next fiscal year. He nearly completed during the year a long paper on the supposed ethnological resemblances between the southeastern United States and the West Indies. His short Seminole autobiography, collected in 1950 and 1952, appeared in the journal *Tequesta*, this being the first such document published for any tribe of the southeastern United States. At the end of January and the beginning of February, Dr. Sturtevant spent a week in south Florida, where he delivered a public lecture on "The Indians of South Florida" before the Historical Association of South Florida and read a paper on "Accomplishments and Opportunities in Florida Indian Ethnology" at the annual meetings of the Florida Anthropological Society. This trip enabled Dr. Sturtevant to revisit several Seminole settlements, securing some new ethnological data.

Another project involved library research on the history and use of some root foods of the southeastern United States and the West Indies—chiefly the cycad *Zamia* and manioc. A monograph on the subject is in preparation, and future fieldwork concentrating on the same topic is planned for Cuba and perhaps elsewhere. New evidence has been discovered here relating to supposed prehistoric contacts between the two regions and to continuity in each area between aboriginal and European practices with regard to root foods, and on changes and borrowings during the historic period.

Dr. Sturtevant's Seneca work concentrated on the use and manufacture of wooden masks, and especially on the esthetic attitudes of the modern Seneca toward these masks. Trips were made to examine museum collections and consult specialists in Philadelphia, New York, New Haven, Albany, and Rochester. Dr. Sturtevant spent May and June doing fieldwork on the Cattaraugus Seneca reservation in western New York State, with briefer trips to the nearby Allegany Seneca reservation. No intensive ethnological work has been done on the Cattaraugus reservation for some 40 years, in marked contrast to the situation with other Seneca communities. The fieldwork enabled the documentation of differences between the Cattaraugus Seneca and other Seneca already described in the literature, especially in the ceremonial cycle of the non-Christian groups. Considerable information was collected on present-day usages and beliefs connected with the masks. Texts of myths, religious speeches, prayers, and songs

related to them were recorded in Seneca and transcribed and translated. Case histories of individuals cured by use of the masks were also gathered and analyzed. The esthetic attitudes of the Seneca toward the masks are difficult to distinguish from their feelings about their religious associations and ceremonial and curative powers, but through the use of photographs of museum specimens and the examination with informants of specimens in use in the community and a collection in the Buffalo Museum of Science, some data on this topic were obtained. Another subject on which investigations were begun at both Cattaraugus and Allegany is an interesting pattern of ritual friendship, by which two or more individuals go through a ceremony for curative or other reasons, which puts them in a siblinglike relationship and results in the extension of the appropriate kinship terms and some aspects of kinship behavior to other members of their families. This is a form of fictional kinship which has interesting parallels in many other societies; godparenthood and blood-brotherhood are related phenomena, for example.

Dr. Sturtevant also attended the Fifth International Congress of Anthropological and Ethnological Sciences, in Philadelphia, September 1–9, and the Tenth Conference on Iroquois Research, Red House, N. Y., October 26–28.

On May 8, 1957, Carl Miller was temporarily transferred from the River Basin Surveys to the rolls of the Bureau of American Ethnology for the period ending September 1, in order that he might continue the excavations begun last year at Russell Cave, Alabama, where very early Indian remains were found in stratigraphic sequence. He spent May and June at Russell Cave opening a new trench and making preparations for converting the excavation into a permanent exhibit.

RIVER BASIN SURVEYS

(Prepared by Frank H. H. Roberts, Jr., Director, from data submitted by staff members)

The River Basin Surveys, a unit of the Bureau of American Ethnology, continued its program for salvage archeology throughout the fiscal year. The investigations were carried on in cooperation with the National Park Service and the Bureau of Reclamation of the Department of the Interior, the Corps of Engineers of the Department of the Army, and several State and local institutions. Because of an increase in funds more activities were possible than in the preceding year. During fiscal 1956–57 the work of the River Basin Surveys was supported by a transfer of $108,500 from the National Park Service to the Smithsonian Institution. Of that sum $90,000 was for use in the Missouri Basin and $18,500 for work in other drainage areas. This was the first time in several years that Federal money was available for studies by the River Basin Surveys at projects outside the Missouri Basin. A

grant of $12,000 from the Idaho Power Co., made late in the spring of 1956 for archeological investigations along the Snake River in Idaho-Oregon in the districts to be flooded by the Brownlee, Oxbow, and Hells Canyon dams, was available for the field season beginning July 1, and that, with the new Federal money, gave a total of $30,500 for several reservoir basins in scattered portions of the country. The Missouri Basin Project had a carryover of $24,954 on July 1 and that, with the new appropriation, provided a total of $114,954 for work in that area. The grand total of funds available for the River Basin Surveys for 1956–57 was $145,454.

Field investigations during the year consisted of both surveys and excavations, although the major efforts were directed to the excavation of sites. On July 1, 1956, six parties were in the field—five engaged in digging, the sixth doing preliminary survey and testing. Three of the excavating parties were working in the Oahe Reservoir area in South Dakota, one was in the Lovewell Reservoir area in Kansas, and one was opening sites along the Snake River near Robinette, Oreg. The survey-testing party was devoting its entire attention to the Big Bend Reservoir area in South Dakota. Shortly after the first of July another party proceeded to a large site in the Oahe Reservoir area, also in South Dakota, and began a program of mapping and testing at the remains of the largest known earth-lodge village on the upper Missouri River. All these parties remained in the field until September. Late in August a party proceeded to the Coralville Reservoir on the Iowa River in Iowa and carried on a series of excavations in five sites, working until mid-October. A survey-testing party worked in the Toronto Reservoir area in Kansas from September 22 to October 28. Late in October excavations were started at a large mound in the Hartwell Reservoir area on the Savannah River in Georgia. They were continued until March, when the study of the mound was completed. During March and April a preliminary survey was made of the Dardanelle Reservoir area on the Arkansas River in Arkansas. During April another party made a preliminary survey of the Warrior Lock and Dam on the Black Warrior River in Alabama. On May 15 an excavating party proceeded to the Toronto Reservoir on the Verdigris River in Kansas, and on June 29 it completed the investigations in that area. Early in June four excavating parties started digging at sites in the Oahe Reservoir area in South Dakota and were continuing their investigations at the end of the fiscal year. At the same time an additional four field parties moved into the Big Bend Reservoir basin in South Dakota and began excavating sites in that area. They were continuing their operations at the end of the year. Late in June a survey-testing party moved to the Big Bend area and was just beginning its work on June 29. During the fiscal year nine

parties from cooperating institutions also conducted excavations in the Missouri Basin. Six of them worked in the Oahe Reservoir area, one in the Glendo Reservoir area in Wyoming, one at the Tuttle Creek Reservoir in Kansas, and one at the Pomme de Terre Reservoir in Missouri. Three of the parties completed their projects during the field season of 1956 and the remaining six were continuing their 1957 programs at the end of the fiscal year.

By June 30, 1956, reservoir areas where archeological surveys had been made or excavations carried on since the start of actual fieldwork by the River Basin Surveys in the summer of 1946 totaled 247 in 28 States. In addition, two lock projects and four canal areas had also been examined. As a result of the surveys 4,622 sites had been located and recorded, and of that number 935 have been recommended for examination or limited testing. In using the term "excavation," the complete uncovering of a site is not indicated. Rather it implies digging only about 10 percent of the site. Though many of the locations are of sufficient significance to warrant complete excavation, the needs of the Salvage Program are such that it is not possible to make so extensive an investigation at any one location. Preliminary appraisal reports have been completed for all the reservoir areas surveyed with the exception of one that was done late in the year, and that report is well under way. During the course of the year two such reports were completed and at the end of the year were being mimeographed for distribution to the agencies cooperating in the Inter-Agency Archeological Salvage Program. Since the start of the program 183 such reports have been distributed. In several cases information obtained from a number of reservoir projects falling within a single basin or subbasin have been combined in a single report, and for that reason there is a considerable difference between the number of reservoirs surveyed and that of the reports issued.

At the end of the fiscal year 350 sites in 47 reservoir basins located in 18 different States had been either partially or extensively dug. In some of the reservoir areas only a single site was excavated, while in others a whole series was studied. At least one example of each type of site recorded by the preliminary surveys had been investigated. In the case of some of the larger and more complex types of village remains, it has been necessary to dig a number of somewhat similar sites in order to obtain full information concerning that phase of aboriginal culture. Reports on the results obtained in certain of the excavations have appeared in the Smithsonian Miscellaneous Collections, in Bulletins of the Bureau of American Ethnology, and in various scientific journals. During the year River Basin Surveys Papers 9–14, which are to be Bulletin 169 of the Bureau of American Ethnology, were sent to the printer. The six papers consist of three pertaining to investigations in the Missouri

Basin, one to a site in the Allatoona Reservoir area in Georgia, and two to the Jim Woodruff Reservoir area, Georgia-Florida. Three detailed technical reports on the results of earlier work were completed during the year and are ready to submit to the editors for publication.

The distribution of the reservoir projects that have been surveyed for archeological remains was as follows on June 30, 1957: Alabama, 2; Arkansas, 1; California, 20; Colorado, 24; Georgia, 5; Idaho, 11; Illinois, 2; Kansas, 10; Kentucky, 2; Louisiana, 2; Minnesota, 1; Mississippi, 1; Montana, 15; Nebraska, 28; New Mexico, 1; North Dakota, 13; Ohio, 2; Oklahoma, 7; Oregon, 27; Pennsylvania, 2; South Dakota, 10; Tennessee, 4; Texas, 19; Virginia, 2; Washington, 11; West Virginia, 2; and Wyoming, 22.

Excavations have been made or were under way in reservoir basins in California, 5; Colorado, 1; Georgia, 5; Kansas, 5; Montana, 1; Nebraska, 1; New Mexico, 1; North Dakota, 4; Oklahoma, 2; Oregon, 4; South Carolina, 1; South Dakota, 4; Texas, 7; Virginia, 1; Washington, 4; West Virginia, 1; and Wyoming, 2. Only the work of the River Basin Surveys or that which was in direct cooperation between the Surveys and local institutions is included in the preceding figures. Investigations carried on under agreements between the National Park Service and State and local institutions have not been included because complete information about them is not available.

As in previous years, helpful cooperation in carrying on the River Basin Surveys program was received from the National Park Service, the Bureau of Reclamation, the Corps of Engineers, and various State and local institutions. The Corps of Engineers provided transportation and guides for the work in two reservoir areas. Temporary headquarters and living accommodations were made available at several projects. The construction agency in several instances made mechanical equipment available to assist in heavy excavations. The University of Washington at Seattle provided a base of operations and laboratory space for the Snake River party, while the University of Georgia furnished similar accommodations for the party working at the Hartwell Reservoir in Georgia. The field personnel of all the agencies was particularly helpful to the party leaders from the River Basin Surveys and expedited their activities in numerous ways. The National Park Service continued to serve as the liaison between the various agencies both in Washington and in the field. It also prepared the estimates and justifications needed to procure funds to support the Salvage Program. Throughout all the Park Service regions the regional directors and members of their staffs cooperated whole-heartedly in the program.

The main office in Washington continued general supervision of the program, while the field headquarters and laboratory at Lincoln,

Nebr., was responsible for the activities in the Missouri Basin and in addition provided the base of operations for several of the parties working in adjacent areas. The materials collected by excavating parties in the Missouri Basin as well as those from the Snake River and reservoir areas in southeastern Kansas and in Arkansas were processed at the Lincoln laboratory.

Washington office.—The main headquarters of the River Basin Surveys continued throughout the year under the direction of Dr. Frank H. H. Roberts, Jr. Carl F. Miller, archeologist, was based at that office and from time to time assisted the Director in some of the general administrative problems. In October Joseph R. Caldwell was appointed as temporary archeologist to carry on the project at the Hartwell Reservoir in Georgia, with field headquarters at the University of Georgia in Athens. His work was completed and his appointment terminated on April 6, 1957. Dr. Robert E. Greengo joined the staff as an archeologist on a temporary appointment March 6 for the purpose of making the preliminary survey at the Dardanelle Reservoir project in Arkansas. Dr. Greengo proceeded from Washington to Lincoln, Nebr., where he obtained the necessary equipment for his fieldwork and went from there to Arkansas. The general administration of his field investigation was from the Lincoln office. Upon the completion of the survey, Dr. Greengo returned to Lincoln where he prepared his report. He subsequently returned to Washington, and his employment was terminated on May 4. From the beginning of the fiscal year until the latter part of August William M. Bass served as a temporary physical anthropologist studying the skeletal material collected by various parties in the Missouri Basin. He returned to duty on June 3 and resumed his work on the bones. He was occupied with that task at the end of the fiscal year. Although technically a member of the staff of the Washington office, Dr. James H. Howard, archeologist, reported to the Lincoln office on May 13 and worked under its supervision in the Toronto Reservoir area in Kansas. His work there was completed by the end of the year, and it was contemplated that he would be shifted to the Missouri Basin Project. Dr. Warren W. Caldwell, who was in charge of the Snake River field party at the beginning of the fiscal year, was shifted by the Washington office to the Missouri Basin Project in August. His place for the remainder of the field season was taken by George L. Coale, who served as a temporary archeologist until December 15. After being appointed a member of the regular Missouri Basin staff, Dr. Caldwell was detailed to the Coralville project in Iowa for the period from August 28 to October 13. He subsequently returned to the Lincoln headquarters, and all his later activities were in connection with the Missouri Basin Project.

At the beginning of the fiscal year Mr. Miller was in charge of an excavating party in the Oahe Reservoir area, and his activities there are described in the section of this report pertaining to the Missouri Basin. After he returned to Washington in September, he prepared a brief report on the results of the work in South Dakota and then resumed writing on his unfinished report concerning investigations previously made at the John H. Kerr (Buggs Island) Reservoir, Va. In January he selected material from the collections made at the Clark Hill Reservoir in Georgia and prepared an exhibit to be sent to the office of the Corps of Engineers at the Clark Hill Dam in Georgia. During the fall and winter months Mr. Miller gave talks before a number of societies and school groups in the Washington area about the work that he had done at Russell Cave in Alabama while on detail to the regular Bureau of American Ethnology staff in the closing months of the previous fiscal year. Early in April he left for the Warrior Lock and Dam Project area on the Black Warrior River in Alabama and proceeded to carry on a preliminary survey to determine if archeological materials would be involved in the construction at that locality. He completed the survey on April 26, reporting that no significant materials would be lost as a result of that project. On April 27 Mr. Miller proceeded to Little Rock, Ark., for the purpose of making a preliminary survey of the Greers Ferry Reservoir area, but because of heavy rains and exceptionally high water in the area it was necessary to postpone that investigation indefinitely. From Little Rock he went to South Pittsburg, Tenn., to resume work at Russell Cave. On May 6 he was again transferred from the River Basin Surveys staff to the Bureau of American Ethnology for the period of the Russell Cave investigation and at the end of the fiscal year was still in that status. During the month of May Mr. Miller gave talks on his work at Oak Ridge, Tenn., and at Birmingham, Ala. In June he participated in a special televised educational program and spoke before several societies in Tennessee and Alabama.

Alabama.—A survey of the Warrior Lock and Dam Project was made during April. No sites of importance were found in the area to be flooded. However, a number of significant sites which merit study under other than salvage auspices were discovered adjacent to the pool area.

Arkansas.—From March 14 to April 20 a preliminary survey was made of the Dardanelle Reservoir area on the Arkansas River. Fifty-two sites were located and recorded and limited testing was recommended for 23 of them. A preliminary appraisal report was completed in May. A proposed survey of the Greers Ferry Reservoir area had to be postponed because of high waters.

Georgia.—During the period October 25, 1956, to March 23, 1957, in the Hartwell Reservoir area on the Savannah River, a large mound

was excavated at the site of the lower Cherokee town of Tugalo near Toccoa. There are several historical references to the location dating back to about 1715. The village area at the site had previously been explored, but the mound had not been touched. The mound excavations uncovered four superimposed pottery dumps representing a clear continuity from historic Cherokee well back into prehistoric Cherokee. This represents the first known sequence within prehistoric Cherokee materials. Below the Cherokee deposits with a break in continuity was a burned mound and a sequence extending backward through four stages to the beginning of the mound construction. The remains of earth-lodge temples were found on three of the levels and the traces of another type structure were uncovered on the fourth or lowest level. The latter rested on deposits indicating another break in continuity beneath which there was evidence of occupation by a group that has been called Late Middle Creek culture which is believed to date about A. D. 500. The ceramic material obtained from the excavations provides one of the longest pottery sequences ever found in the Georgia area. The work at the Tugalo Mound was a cooperative project in that labor for the digging was provided by the Georgia Historical Commission and a vehicle for transportation and equipment needed in the investigations was supplied by the Department of Anthropology of the University of Georgia.

Iowa.—During the period August 28 to October 13 an excavating party from the River Basin Surveys working in the Coralville Reservoir area completely excavated one rock shelter and tested two others. Three open occupation sites were dug and three others tested. Two mounds were also excavated. The materials obtained demonstrate that the peoples living there had a basic Woodland Culture with some later Mississippi traits. The relationship was predominently toward the East, but some influences from the Plains were in evidence.

Kansas.—During September and October a survey-testing party operated in the Toronto Reservoir area on the Verdigris River in southeastern Kansas. As a result of its investigations, seven sites were recommended for partial excavation or testing. On May 15 an excavating party proceeded to the area and by the end of the fiscal year had dug in eight sites, one of which was found by the excavating party and had not previously been reported. Six of the sites studied were occupation areas in the open and the other two were rock shelters. The materials obtained there indicate several cultural relationships. There is evidence for Upper Republican, Keith-Focus Woodland, Archaic, and Kansas City Hopewell. The full significance of the information and specimens obtained will not be apparent until detailed studies have been made in the laboratory. No additional work will be required at the Toronto Reservoir.

Missouri Basin.—The Missouri Basin Project continued to operate throughout the year from the field headquarters and laboratory at 1517 O Street, Lincoln, Nebr. Dr. Robert L. Stephenson served as chief of the project throughout the year. Activities included work on all four phases of the Salvage Program: (1) Survey, (2) excavation, (3) analysis, and (4) reporting. The first two phases were emphasized through the summer months and the second two during fall and winter.

At the beginning of the fiscal year the staff, in addition to the chief, consisted of two permanent archeologists, two archeologists detailed to the project from the Washington office, three temporary field assistants, one field and laboratory assistant, one administrative assistant, one museum aide, one photographer, one clerk-stenographer, and one half-time records clerk. There were 28 temporary laborers in the employ of the field parties. At the end of the 1956 field season all temporary employees, with the exception of one field assistant and a survey party chief, were terminated. The men detailed to the project for the season returned to their regular duties in Washington in September, and the temporary field assistant and survey party chief were terminated in January. During the year two permanent archeologists were added to the staff and four temporary archeologists were employed for the 1957 field season. In June one archeologist and one field assistant were again detailed from Washington for work in the field. At the Lincoln office one clerk-typist, one part-time draftsman, one laboratory assistant, and one part-time laboratory assistant were appointed. At the end of the year there were 76 temporary laborers employed by the field parties.

During the year 16 River Basin Surveys field parties were active within the Missouri Basin, while 4 others working in reservoirs outside the Basin also operated from the Project office in Lincoln. Of the 16 Missouri Basin parties, 1 was at work in July, August, and September in the Big Bend Reservoir area, South Dakota, and 5 parties were at work there in June. One party was at work in the Fort Randall Reservoir for a brief time in September. Four parties worked in the Oahe Reservoir in July and August and four other parties were there in June; one field party conducted excavations in the Lovewell Reservoir in Kansas in July and August. The four parties operating outside the Missouri Basin were concerned with the Coralville Reservoir in Iowa, the Toronto Reservoir in Kansas, and the Dardanelle Reservoir in Arkansas.

Other fieldwork in the Missouri Basin during the year included nine field parties from State institutions working under agreements with the National Park Service and in cooperation with the Smithsonian Institution. Parties from the Universities of South Dakota and Wisconsin and from the North Dakota State Historical Society

were in the field in the July–October period. Parties from the Universities of South Dakota, Idaho, Kansas, Missouri, Wyoming, and the State Historical Society of North Dakota were in the field in the May–June period.

A River Basin Surveys party, directed by Robert W. Neuman, was in the field at the beginning of the fiscal year and completed 10 weeks of excavation in four sites along White Rock Creek in the Lovewell Reservoir area in Jewell County, Kans. Three of the sites were fairly extensive but did not yield much material. The artifacts found suggest that they may belong to the White Rock Aspect. The latter is so poorly known that the evidence recovered from them should, even though scanty, clarify the picture greatly. The fourth site was a moderate-sized burial mound of the "Middle Woodland" period. Unfortunately it had been partially destroyed in earlier years by pot-hunting activity. The profile and structure of the mound were, however, readily discernible, and enough material was recovered to identify readily its cultural relationship. Fragments of human and other bones were recovered along with cord-marked potsherds and other artifacts, including two small shell gorgets. No further work is anticipated for the area to be flooded by the waters of the Lovewell Reservoir.

On September 21 and 22 further investigations were made immediately adjacent to the Oldham Site in the Fort Randall Reservoir in South Dakota in an area in which burials and artifacts had been exposed by wave action and lowering of the reservoir. This site had been partially excavated in previous years, and it was hoped that the recent return there would produce additional important evidence. Furthermore there was an opportunity to determine whether a site once flooded could yield worthwhile archeological information if the water receded and left it exposed. Unfortunately, this work produced no new evidence concerning the occupations of the site, even though some artifacts were collected. The ground, though 10 feet above the water level, was too saturated and disturbed to provide any useful information about relationships to the house features, village, or other previously collected material. The work demonstrated conclusively that sites must be dug before they are flooded.

A survey-testing party, directed by Harold A. Huscher, at the beginning of the fiscal year was conducting an intensive survey of the Big Bend Reservoir area, which is situated between the upper reaches of the Fort Randall Reservoir and the Oahe Dam, on the Missouri River, in central South Dakota. The party of three was in the field for 15 weeks and located, visited, and recorded 129 new archeological sites and revisited 26 previously known. Detailed field maps were made of approximately one-quarter of these sites and about one-third of them were tested. Many of them are large and productive and

material from them should fill in some of the gaps in present knowledge of the prehistory of the area, particularly for the period from about A. D. 1000 to 1700.

Several military and trading posts pertaining to the early 19th century were also located in the area. Of particular interest is a site that may belong to the period of the Spanish-Colonial post of Regis Loisel (ca. 1802–03). Several interesting prehistoric sites appear to have had rectangular earth lodges arranged in rows, much the same as at the Huff site in North Dakota. Among other significant manifestations are a boulder effigy site, "Middle Woodland" sites, and sites that appear to be nonceramic.

At the beginning of the 1957 field season in mid-June, there were five field parties in the Big Bend Reservoir area. G. Hubert Smith and a party of nine were at work at the end of the fiscal year excavating the 19th-century historic trading post of white origin known as Fort Defiance (or alternatively Fort Bouis). This same party anticipates investigations at two other 19th-century historic sites in the area when it has completed the season's work at Fort Defiance-Bouis. Dr. Warren W. Caldwell and a party of nine at the end of the fiscal year were excavating the remains of an earth-lodge village which appears to have had three occupations, including a Middle Woodland component. Robert W. Neuman and a party of 10 were excavating a series of three linked earth-lodge village sites on the left bank of the Missouri River in the vicinity of Old Fort Thompson. William N. Irving and a party of nine were also working on the left bank of the Missouri River in the vicinity of Old Fort Thompson. They were starting test excavations in a series of 14 sites and will make a map of each village pattern. Harold A. Huscher and a party of two were preparing to start reconnaissance and mapping of sites and scouting for new sites in the entire area of the Big Bend Reservoir at the end of the fiscal year. None of the five parties had been in the field long enough by the end of the fiscal year to provide specific reports of results.

A River Basin Surveys party, directed by G. Hubert Smith, was in the field in the Oahe Reservoir area at the beginning of the fiscal year and completed nine weeks of excavation at a late historic trading-post site near the Oahe Dam on July 31. This party excavated the stockade outline and the remnants of several interior structures, and recovered a considerable amount of object material representing the period about 1860. The site is believed to be that of Fort Pierre II, which was occupied after the abandonment of Fort Pierre I in 1858. Structural remains were found but a few inches below the plow zone, and in some instances much had been destroyed by plowing over the years. A road patrol was used for clearing away the overburden and very satisfactorily exposed the stockade and other structural features. The stockade proved to be approximately 220 feet square. Other struc-

tural features included a warehouse, a cellar, and a dwelling. Among the objects recovered were two coins dated 1857, glass beads, a religious medallion, several small catlinite balls, and a great mass of hand-wrought iron. No further work is contemplated at that site.

A second River Basin Surveys party in the Oahe Reservoir area, directed by Dr. Waldo R. Wedel, was in the field at the beginning of the fiscal year and completed 12 weeks of digging on August 25. This party was continuing excavations begun in previous years at the Cheyenne River site at the mouth of the Cheyenne River. Three definite occupations of the site were identified. The earliest was a rectangular-house component. The middle one was a circular-house component, and the final occupation was protohistoric Arikara, with circular houses. An encircling stockade and defensive ditch were discovered and excavated, but the specific occupation to which it belonged was not definitely determined. It presumably belonged to one of the two early occupations. A large burial area was excavated and the remains of over 50 individuals were recovered. The burials, in small pits placed close together, were flexed and in most cases had been covered with poles or wooden slabs. The burials almost certainly were from the Arikara occupation. Some artifacts, including pottery and a fine catlinite pipe, were recovered from the graves. The 1956 season's excavations at the Cheyenne River site completed the investigations planned for that location.

A third River Basin Surveys party in the Oahe Reservoir area, directed by Carl F. Miller, was in the field at the beginning of the fiscal year and completed 9 weeks of digging on August 24. This party of nine began, and brought to satisfactory completion, the excavation of the Hosterman site on the Missouri River near Whitlocks Crossing, S. Dak. At that site evidence was found of a stockade consisting of a double row of posts. Several refuse pits, cache pits, and other similar features were excavated, including pits containing large sections of articulated bison bones. The latter appear to have been slaughtering areas. House structures presented a difficult problem as post holes were dim and difficult to identify. One structure was fairly clear in its outline, but the entrance was not located. Artifacts were moderately abundant and suggest that a single occupation, perhaps of short duration, will be established for the site when analysis of the material has been completed. No further work is contemplated at that location.

The fourth River Basin Surveys party in the Oahe Reservoir area, directed by Dr. Robert L. Stephenson, began work on July 2 and completed 6 weeks in the field on August 10. This party of 10 conducted a testing operation at the Sully site some 20 miles above Pierre on the left bank of the Missouri River. The site is that of the largest known

1. Excavating in rock shelter in the Coralville Reservoir area.

2. Tracing the locations of buildings and the stockade at the site of Fort Pierre II.

1. Two sides of catlinite plaque with engraved decorations. The plaque was found in the bottom of a cache pit at the Sully site, in the Oahe Reservoir area, near Pierre, S. Dak.

2. Portion of burial area at the Cheyenne village site.

earth-lodge village on the river, and two objectives were accomplished during the season. First, a detailed map was made of the area and the site itself was staked off in 100-foot blocks. Second, a 5-foot-square test was excavated at each 100-foot stake along the north, south, east, and west base lines. In addition, two test trenches were dug and a house quadrant was excavated. The testing procedure was to obtain both horizontal and vertical distribution patterns of specimens and features over the entire site. From the analysis of such distributions, it was possible to plan for the recovery of a maximum amount of information about the site as a whole from a minimum amount of excavation in the 1957 season. The site is nearly 4,000 feet long and 1,500 feet wide and may contain the remains of as many as 400 house structures. More than half that number are identifiable on the surface as unquestionable structures, and an almost equal number appear as possible house structures. They range from 25 feet to over 60 feet in diameter. What were probably four ceremonial lodges are each almost 90 feet in diameter. There is clear stratigraphy in the site, with structures underlying a sterile zone, which in turn underlies a refuse heap. Cache pits are abundant and range from small pocket caches to large bell-shaped pits 7 feet deep and of equal diameter. Artifact material is abundant, and pottery sherds found there suggest at least three, and probably four, occupations. An outstanding specimen, a catlinite plaque with animal designs engraved on both sides, was found in one cache pit. Two certain burial areas, possibly several others, were located but not tested. No fortification ditch or stockade was observed.

Cooperating institutions in the Oahe Reservoir area at the beginning of the fiscal year included a party from the University of South Dakota directed by Roscoe Wilmeth, a party from the University of Wisconsin directed by Dr. David A. Baerreis, and a party from the State Historical Society of North Dakota directed by Alan R. Woolworth.

At the start of the 1957 field season in mid-June, there were four River Basin Surveys parties in the Oahe Reservoir area. Dr. Waldo R. Wedel, again detailed to the project by the United States National Museum, and a party of 10 were excavating the Black Widow site and testing six others nearby in the Fort Bennett area on the right bank of the Missouri River. The Black Widow site was sampled in 1952 by a River Basin Surveys party. Since the material from it suggested affiliations with the site completed by Dr. Wedel in 1956, an extensive excavation was deemed advisable. The adjacent sites to be tested during the 1957 season seem to be a part of the same complex. Donald D. Hartle and a party of eight were making test excavations in a series of 30 sites on the right bank of the Missouri River in the Fort Bennett

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area at the end of the fiscal year. A house or two and several cache pits will be dug in each, and a map made of each village plan and site location. Dr. Robert L. Stephenson and a party of 25 were at work at the end of the fiscal year at the Sully site where preliminary studies were made the previous season. The major effort will be the excavation of that site, but seven other small nearby sites that may be related to it will be tested. Charles H. McNutt and a party of eight were making test excavations at 14 sites on the left bank of the Missouri River in the general vicinity of Old Fort Sully. They were excavating a house or two and several cache pits in each and making a map of the village plan and site location. None of these parties had been in the field long enough, at the end of the fiscal year, to report any specific results.

In May and June Dr. Theodore E. White, National Park Service geologist at Dinosaur National Monument, was detailed to the Missouri Basin Project for a period of 6 weeks. During that time Dr. White made an osteological analysis, in the Missouri Basin Project laboratory, of all of the unworked animal bones from the sites excavated over the past four field seasons by the Smithsonian Institution's River Basin Surveys field parties. Work was also done on bones collected by field parties of several of the cooperating institutions. This included over 300,000 individual bones from 63 archeological sites in eight reservoir areas. Dr. White selected numerous specimens for the Missouri Basin Project's comparative collection and set aside others that will be sent to the United States National Museum for further study or for exhibit purposes. The bulk of the identified bone materials remaining was transferred to the Nebraska State Museum. Dr. White amassed voluminous notes on this bone material for use in continuing his series of reports on "Butchering Techniques of Aboriginal Peoples." Material was gathered for at least eight additional papers in this series. Seven have already been published. One of the particularly interesting results of this osteological analysis was the identification of the remains of a number of unusually large dogs in the canid material.

During the time the archeologists were not in the field, they were engaged in analyses of their materials and in laboratory and library research. They also prepared manuscripts of technical scientific reports and wrote articles and papers of a more popular nature. The laboratory and office staff devoted its time to processing specimen materials for study, photographing specimens, preparing specimen records, and typing and filing records and manuscript materials. The accomplishments of the laboratory and office staff are listed in the following tables.

TABLE 1.—*Specimens processed July 1, 1956, through June 30, 1957*

Reservoir	Number of sites	Catalog numbers assigned	Number of specimens processed
Big Bend	114	3, 336	24, 602
Coralville	9	878	3, 088
Dardanelle	51	1, 191	1, 384
Fort Randall	5	157	2, 004
Gavins Point	3	10	11
Lovewell	8	2, 198	5, 689
Oahe	20	9, 303	140, 630
Toronto	35	536	862
Sites not in reservoirs	5	81	679
	250	17, 690	178, 949
Collections not assigned site numbers	4	23	57
		17, 713	179, 006

As of June 30, 1957, the Missouri Basin Project had cataloged 749,244 specimens from 1,725 numbered sites and 50 collections not assigned site numbers.

Additional specimen transfers were made, all to the United States National Museum, as follows: Human skeletal remains from 3 sites in the Oahe Reservoir area; bird bone from 23 sites in 5 reservoirs; fish bone from 9 sites in 3 reservoirs; and unworked shell from 2 sites in 2 reservoirs.

TABLE 2.—*Record materials processed*

Reflex copies of records	11, 879
Photographic negatives made	1, 984
Photographic prints made	7, 945
Photographic prints mounted and filed	3, 990
Plate layouts made for manuscripts	10
Transparencies mounted in glass	959
Cartographic tracings and revisions	70

During October 25–27 the annual meetings of the Mountain-Plain Historical Association were held in Lincoln and the Missouri Basin Project staff served as one of the local host organizations. As a programed part of the meetings the group was invited to tour the facilities at the Project laboratory. During the Thanksgiving weekend members of the staff participated in the 14th Plains Conference for Archeology, held in Lincoln. On April 27 members of the staff participated in the annual meeting of the Nebraska Academy of Sciences. May 2, as a programed part of the meetings of the Missouri Basin Inter-Agency Committee being held in Lincoln, the group was given a conducted tour of the Missouri Basin Project facilities.

There were over 30 members who visited the laboratory. During the annual meeting of the American Association of Museums held in Lincoln, May 21–25, the Missouri Basin Project served as one of the local host organizations. Staff members participated throughout the meetings.

Dr. Robert L. Stephenson, chief, when not in charge of field parties, devoted most of his time to managing the office and laboratory in Lincoln and preparing plans for the 1957 summer field season. He spent some time working on a summary report of the Missouri Basin Salvage Program for the calendar years 1952–55 and wrote several short papers for presentation before scientific groups. In January he attended and participated in the annual meeting of the Committee for the Recovery of Archeological Remains held in Washington, D. C. On April 9 he spoke before the Kansas City Archeological Society on the "Progress of Salvage Archeology in the Missouri Basin." On April 12 he went to Mitchell, S. Dak., where he was moderator for the afternoon session of the annual meeting of the South Dakota Social Sciences Association. The main topic under consideration was "South Dakota Prehistory" and at the end of the session Dr. Stephenson summarized the discussions and emphasized the needs of salvage archeology in the area. He served as chairman of the Anthropological Section of the Nebraska Academy of Sciences at its annual meeting held in Lincoln on April 27. At that time he also presented a paper on "Emerging Problems in Missouri Basin Archeology." On May 1, by special invitation, he presented a paper, "How Has Archeology Contributed to Our Historical Knowledge?" before one of the sessions of the Missouri Basin Inter-Agency Committee which was meeting in Lincoln. When the annual meeting of the American Association of Museums was held in Lincoln May 21–25, Dr. Stephenson served as a co-host and also was chairman for a program of Indian dances presented at an evening gathering. At one of the regular sessions, he spoke on the subject "Archeological Salvage Field Trips."

Dr. Warren W. Caldwell, archeologist, joined the staff of the Missouri Basin Project on August 22 and, as previously mentioned, was detailed for work at the Coralville Reservoir in Iowa. During the fall and winter months after his return from the field, he prepared a report on the work he had done along the Snake River just prior to joining the Missouri Basin Project, and completed a report on the results of his investigations in Iowa. He participated in several scientific meetings, presenting papers before sessions of the 14th Plains Conference for Archeology and the Nebraska Academy of Sciences. During the year two papers, of which he was a coauthor, were published: "A Burial Cache from the Spokane Region," American Antiquity, vol. 22, No. 1, and "The Problem of Northwest Coastal Interior Relationships as Seen from Seattle," American Antiquity,

vol. 22, No. 2. On June 1 Dr. Caldwell made a brief reconnaissance with G. Hubert Smith in the Big Bend Reservoir area for the purpose of determining where a camp should be established for the coming season's fieldwork and also for inspecting the sites where he expected to work. On June 11 he and his party moved into the field and were engaged in excavations at the end of the year.

Donald D. Hartle, temporary archeologist, joined the Missouri Basin Project staff on June 6 and on June 12 left the field headquarters with a party to begin excavations at several sites in the Oahe Reservoir area. Mr. Hartle was formerly a full-time member of the staff at Lincoln and is still working on reports of work which he did at that time. He was in the field at the end of the fiscal year.

Harold A. Huscher, field assistant and temporary archeologist, was working in the Big Bend area at the beginning of the fiscal year, and his activities there have been discussed in a preceding paragraph. After his return to the Lincoln headquarters in the fall, he devoted several months to the preparation of a preliminary appraisal report on his summer's work. In his report he made specific recommendations for an excavation program in the area during the 1957 field season. He left the project in January to complete work he was doing for the Department of Justice but returned in the capacity of a temporary archeologist late in June and proceeded to the Big Bend area where he was just beginning a survey program at the end of the fiscal year.

William N. Irving, temporary archeologist, joined the Project staff June 10 and on June 12 left Lincoln in charge of a party to begin the excavation of a series of sites in the Big Bend Reservoir. His activities there to the end of the fiscal year have previously been described.

Alfred E. Johnson, field archeologist and subsequently survey party chief, was in the field at the beginning of the fiscal year as a member of the Big Bend survey party under the direction of Mr. Huscher. In October he took over the task of making a survey and tests in the Toronto Reservoir area. He was in the field until mid-November when he resumed his academic work at the University of Kansas. He remained a part-time member of the staff, however, until early in January and during that period completed a report, "An Appraisal of the Archeological Resources of the Toronto Reservoir." Mr. Johnson did not rejoin the Project staff when fieldwork was resumed in the spring but went as an assistant with the party from the University of Kansas which was working in the Tuttle Creek Reservoir area at the end of the year. His Toronto report was in the process of being mimeographed on June 30.

Charles H. McNutt, archeologist, was appointed a member of the permanent staff of the Project on June 10. He devoted the following

week to learning the routine of the laboratory and Project office and on June 19 left Lincoln in charge of a party to start a series of test excavations in sites in the Oahe Reservoir area. His activities in that connection have already been discussed.

Robert W. Neuman, field assistant and archeologist, was in charge of an excavating party at the Lovewell Reservoir in Kansas at the beginning of the fiscal year and worked there until August. After returning to the Lincoln headquarters, he resigned from the Project in order to resume his academic work at the University of Nebraska. During the fall and winter months, however, he continued work on his report of the results of the excavations in the Lovewell area and returned to the Project as a part-time employee in May. On June 10 he was appointed temporary archeologist and left Lincoln with a field party on June 12 to begin excavations in a series of sites in the Big Bend area where he was occupied at the end of the fiscal year. Mr. Neuman participated in the annual meeting of the Nebraska Academy of Sciences on April 27, presenting a paper summarizing the results of his studies at the Lovewell Reservoir.

G. Hubert Smith, archeologist, during the periods he was at the field headquarters in Lincoln, devoted his time to analyzing the materials obtained from his field investigations and preparing reports on the results of his work. A 75-page manuscript on the findings made at the site of Fort Pierre II during the 1956 field season was completed. Mr. Smith also prepared an illustrated article on "Archeological Salvage at Historic Sites in the Missouri Basin," which was published in the Missouri Basin Field Committee Progress Report for March. During a 6-week period in February and March, Mr. Smith was detailed to the National Capital Parks, National Park Service, Washington, D. C., in order to make archeological investigations at the oldest known surviving building in the District of Columbia. The structure was built in 1766 and is known as the Old Stone House. Inasmuch as it was being restored, it was deemed advisable to make an archeological study of it before too much work was done on it. Mr. Smith found a number of interesting facts about the physical history of the structure and prepared a report on them for the National Capital Parks. At the request of the Minnesota Historical Society, Mr. Smith spent a week in Saint Paul where he assisted in planning future investigations of historic sites in that State and in checking over results of previous undertakings of that nature. Mr. Smith participated in the various scientific meetings held at Lincoln during the year, presenting papers pertaining to his work at Fort Pierre II and discussing "The Present Status of Research on Early Historic Sites of the Missouri Basin." In April he gave an illustrated talk on "Dakotans before the White Man" at the 18th annual meeting of the South Dakota Social Sciences Association. During May he took part in a meeting of

the Committee on Historic Sites of the Mississippi Valley Historical Association held at Lincoln. On June 10 Mr. Smith left with a field party for the Big Bend Reservoir area and at the end of the fiscal year was engaged in excavations previously described.

Richard P. Wheeler, archeologist, was at the Lincoln headquarters during the entire year. Most of his time was spent completing a lengthy detailed manuscript pertaining to archeological remains in the Angostura Reservoir area, South Dakota, and the Keyhole and Boysen Reservoir areas in northeastern and west-central Wyoming. The manuscript is based on data gathered by reconnaissance parties of the Missouri Basin Project during the period 1946–51 and information obtained by excavating parties in 1950–52. Mr. Wheeler served as general chairman of the 14th Conference for Plains Archeology in November and presented a paper, "Archeological Field Data and Their Interpretation," at the annual meeting of the Nebraska Academy of Sciences in April. In May he gave an illustrated talk before the Interprofessional Club of Lincoln on the subject "Some Recent Archeological Discoveries in the Missouri Basin." Mr. Wheeler was in the Lincoln office at the end of the fiscal year.

The activities of Dr. Robert E. Greengo and Dr. James H. Howard, archeologists, who were temporarily based at the headquarters of the Missouri Basin Project, have been discussed elsewhere and need no further comment.

Snake River Basin.—At the beginning of the fiscal year a field party was excavating in sites along the Snake River in the area where the Idaho Power Co. is building its Brownlee and Oxbow dams. Test digging was done in a number of sites, and extensive excavations were carried on in four habitational areas. Two of the latter were on the Oregon side of the Snake River at Robinette and two on the Idaho side at Big Bar. Most of the material found there indicates that the sites date from the late prehistoric period to the early period of European contact but at two of the locations there were items representing much earlier horizons. The general picture obtained by the investigations is that of an early expansion of Great Basin cultural features into the Northwest and their replacement by a more dynamic cultural pattern working upstream from mid-Columbia centers. The artifacts collected show that the people had a basically hunting-gathering type of economy. Implements associated with fishing were for the most part lacking but an abundance of fresh-water mussel shells in the middens indicates that aquatic food was actually consumed. Such evidence as was found pertaining to habitations suggests that rather flimsy brush superstructures were erected over saucer-shaped floor areas. At the time of the arrival of the first Europeans, that area was inhabited by a band of the Shoshoni known as the "Mountain Sheep Eaters." They were a seasonal nomadic group subsisting mainly by

hunting and gathering activities. They have not been known to visit the region regularly since the 1880's and their survivors are now mainly on reservations in Idaho and Oregon.

Cooperating institutions.—Several State and local institutions continued to cooperate in the Inter-Agency Salvage Program throughout the year. In addition to those previously mentioned for the Upper Missouri Basin Area, the University of Missouri began a survey of the Pomme de Terre Reservoir on the river of the same name in Missouri and continued its investigations in the Table Rock Reservoir area on the White River. The University of Kansas started a series of investigations in the Tuttle Creek Reservoir basin in Kansas, and the University of Wyoming excavated in the Glendo Reservoir area in Wyoming. In New Mexico the School of American Research began a survey of the Navajo Project, and in Arizona the Museum of Northern Arizona started a salvage program in the Glen Canyon Reservoir basin. The University of Utah also participated in the Glen Canyon investigations. The University of Texas had an excavation program in the Ferrells Bridge area. The University of Oklahoma worked in the Keystone and Oolagah Reservoirs in that State. In California investigations were made in the Monticello Reservoir area by Sacramento State College and at the Trinity River Project by the University of California at Berkeley. At the Dalles Reservoir on the Columbia River, the University of Oregon excavated on the Oregon side of the river and the University of Washington on the north side. Washington State College started an excavation project in the Ice Harbor Reservoir basin.

ARCHIVES

The manuscript collections of the Bureau continued to be utilized by anthropologists and other students. About 222 manuscripts were consulted by searchers, either in person or through the purchase of reproductions. In addition, 95 mail inquiries concerning manuscripts were received and numerous manuscripts were consulted by the archivist in preparing replies. As in previous years, as individual manuscript files were called into use, their contents were reviewed and more fully recorded in the catalog; numerous annotations were made and about 55 new entries drafted. A number of new descriptive lists of manuscripts having to do with specific tribes or subjects were also prepared for distribution.

Utilization of the Bureau's photographic collections by scholars, publishers, and the general public as a source of documentary information and illustrative material continued to increase. There were 444 inquiries and purchase orders for photographs (as against 294 in 1956); and 1,019 prints were distributed (978 in 1956). The archivist continued to prepare lists describing photographs available for specific subjects or tribes; 65 such lists are now available.

A number of photographic collections relating to specific areas were studied by specialists, who not only derived useful historical information from them for their own studies, but in turn were able to supply for the Bureau records numerous additional details concerning the identification of subject, locality, etc., thus increasing the value of the collections to future users.

Over 400 photographic views of Mesa Verde, Colo., and vicinity, made and collected by J. W. Fewkes in the period 1908–22, were studied by members of the National Park Service staff at Mesa Verde National Park; fuller identifications and descriptions were provided for many of these by the Park staff. About 40 of the pictures were considered of especial historical interest and were copied by them for the Mesa Verde files.

A series of 124 photographs of ruins in Chaco Canyon, N. Mex., made by Victor Mindeleff in 1887 was studied by National Park Service archeologists at Chaco Canyon National Monument, N. Mex., and Southwestern National Monuments, Globe, Ariz. They identified a number of previously unidentified views and provided details of locality and additional notes on others.

These series are of considerable historical interest in that they show ruins in states of preservation and repair differing from their present state; a few show ruins that are no longer standing.

Additional caption information was provided by Dr. Harold C. Conklin of Columbia University for a group of 121 photographs of native peoples of the Philippine Islands made and collected by Col. Dache M. Reeves prior to 1938.

Several members of the Cheyenne and Arapaho tribes, who were in Washington on business, visited the Archives and provided additional identifications and other information about photographs of Cheyennes and Arapahoes taken in the early 1900's.

During the year a number of new photographs were added to the collections through gift or loan for copying.

Twenty-two photographs of Chippewa, Ottawa, and Potawatomi Indians living in the State of Michigan during the period 1853–ca. 1920 were lent for copying by the Michigan Historical Commission, through Dr. Philip P. Mason, archivist.

Dr. Paul H. Ezell, of the Department of Anthropology, University of San Diego, San Diego, Calif., lent for copying 11 photographs relating to the Pima Indians; they range in date from 1896 to 1954.

Twenty-five original photographic prints relating to a number of Plains and Southwestern tribes were received as a gift from the Pennsylvania State Museum, Harrisburg, Pa., through John Witthoft, director. Most of the photographs were made in the early 1880's by the photographic firm of Baker and Johnston.

A gift of 26 glass negatives of outdoor and studio portraits of Indians of the Southwest, principally Apaches, was made by Dr. E. M. Wurster of Williamsport, Pa., through John Witthoft, of the Pennsylvania State Museum. The photographs are believed to have been taken by a photographer named Eames.

Two groups of photographic prints were obtained for reference purposes from other institutions (which retain the negatives and the right to grant publication permission). Both groups are photographs of drawings made by Robert Ormsby Sweeny in Minnesota in 1852, the year in which he first settled in St. Paul. One set of prints was received from the British Museum and was made from that institution's collection of 20 original drawings by Sweeny. Another set of 20 photographs represents a selection from a group of more than 60 Sweeny drawings pertaining to Indian subjects in the collections of the Minnesota Historical Society.

ILLUSTRATIONS

The illustrator on the staff of the Bureau devoted his time to the preparation of a variety of maps, graphs, and diagrams, the designing of charts, the restoration and retouching of photographs, and the preparation of various other illustrative work. An appreciable amount of time was allocated to making drawings for other departments of the Institution.

EDITORIAL WORK AND PUBLICATIONS

There were issued one Annual Report, two Bulletins, and one miscellaneous publication, as follows:

Seventy-third Annual Report of the Bureau of American Ethnology, 1955–1956. ii+23 pp., 2 pls. 1957.

Bulletin 161. Seminole music, by Frances Densmore. xxviii+223 pp., 18 pls., 1 fig. 1956.

Bulletin 162. Guaymí grammar, by Ephraim S. Alphonse. ix+128 pp. 1956.

Miscellaneous publication. List of publications of the Bureau of American Ethnology, with index to authors and titles. Revised to June 30, 1956. 112 pp. 1956.

The following publications were in press at the close of the fiscal year:

Bulletin 164. Anthropological Papers Nos. 49–56:

No. 49. The Ormond Beach Mound, east central Florida, by Jesse D. Jennings, Gordon R. Willey, and Marshall T. Newman.

No. 50. Hair pipes in Plains Indian adornment, a study in Indian and White ingenuity, by John C. Ewers.

No. 51. Observations on some nineteenth-century pottery vessels from the Upper Missouri, by Waldo R. Wedel.

No. 52. Revaluation of the Eastern Siouan problem, with particular emphasis on the Virginia branches—the Occaneechi, the Saponi, and the Tutelo, by Carl F. Miller.

Bulletin 164. Anthropological Papers Nos. 49–56—Continued

No. 53. An archeological reconnaissance in southeastern Mexico, by Matthew W. Stirling.

No. 54. Valladolid Maya enumeration, by John P. Harrington.

No. 55. Letters to Jack Wilson, the Paiute Prophet, written between 1908 and 1911, edited by Grace M. Dangberg.

No. 56. Factionalism at Taos Pueblo, New Mexico, by William N. Fenton.

Bulletin 165. Music of Acoma, Isleta, Cochiti, and Zuñi Pueblos, by Frances Densmore.

Bulletin 166. River Basin Surveys Papers, No. 8. Excavations in the McNary Reservoir Basin near Umatilla, Oregon, by Douglas Osborne. With appendixes by Marshall T. Newman, Arthur Woodward, W. J. Kroll, and B. H. McCleod.

Bulletin 167. Archeological investigations at the mouth of the Amazon, by Betty J. Meggers and Clifford Evans.

Bulletin 168. The Native Brotherhoods: Modern intertribal organizations on the northwest coast, by Philip Drucker.

Bulletin 169. River Basin Surveys Papers, Nos. 9–14:

No. 9. Archeological investigations in the Heart Butte Reservoir area, North Dakota, by Paul L. Cooper.

No. 10. Archeological investigations at the Tuttle Creek Dam, Kansas, by Robert B. Cumming, Jr.

No. 11. The Spain site (39LM301), a winter village in Fort Randall Reservoir, South Dakota, by Carlyle S. Smith and Roger T. Grange, Jr.

No. 12. The Wilbanks site (9CK–5), Georgia, by William H. Sears.

No. 13. Historic sites in and around the Jim Woodruff Reservoir area, Florida-Georgia, by Mark F. Boyd.

No. 14. Six sites near the Chattahoochee River in the Jim Woodruff Reservoir area, Florida, by Ripley P. Bullen.

Bulletin 170. Excavations at La Venta, Tabasco, 1955, by Philip Drucker, Robert F. Heizer, and Robert J. Squier. With appendixes by Jonas E. Gullberg, Garniss H. Curtis, and A. Starker Leopold.

Publications distributed totaled 28,558 as compared with 17,018 for the fiscal year 1956.

COLLECTIONS

Acc. No.

214119. 3 cedar-bark mats from Nootka Indians, British Columbia, Canada.

214961. 27 miscellaneous archeological specimens from Tennessee and Illinois collected by J. W. Emmert and G. Fowke before 1894.

205014. 15 land snails from Ecuador and 33 ethnological specimens from Ecuador and Florida (through Dr. M. W. Stirling).

205360. John W. Powell catalog of Indian collections deposited in the Smithsonian Institution, and supplement to catalog.

207445. 13 specimens associated with Zuni Indian religious cult practices.

FROM RIVER BASIN SURVEYS

212741. 2 fresh-water mussels from Iowa (through Robert L. Stephenson).

211157. Archeological material from 4 Nebraska counties, 1955.

211158. Archeological material from 2 sites in Oahe Reservoir, Stanley County, S. Dak., and human skeletal material, 1955.

213526. Archeological material from Rock Village, Mercer County, N. Dak., 1950–52.

Acc. No.
213765. 9 specimens of archeological material from Pembina River Reservoir, N. Dak., 1948.
214031. 1,332 specimens of archeological material from Fort Randall area, Gregory and Lyman Counties, S. Dak., 1950–52.
214234. Archeological material from Garrison Reservoir, McLean County, N. Dak., 1952.
214612. Archeological material from Fort Randall Reservoir, Lyman County, S. Dak., 1950.

MISCELLANEOUS

Dr. John R. Swanton, Dr. John P. Harrington, Dr. A. J. Waring, Jr., and Ralph S. Solecki continued as research associates of the Bureau of American Ethnology.

Dr. Frances Densmore, who had been a collaborator of the Bureau for a period of 50 years, died June 5, 1957, at her home in Red Wing, Minn., at the age of 90. Shortly before her death she corrected the proof of her last bulletin for the Bureau entitled "Music of Acoma, Isleta, Cochiti, and Zuñi Pueblos," which will be distributed in August 1957. Thirteen of her papers on Indian music were published by the Bureau as complete bulletins, five as anthropological papers, and one was published in the Annual Report series.

Information was furnished during the past year by staff members in reply to numerous inquiries concerning the American Indians, past and present, of both continents. Twelve bibliographies or information leaflets were prepared and duplicated for distribution to the public, as follows:

SIL–16, rev. Indian Crafts and Indian Lore. Bibliography.
SIL–50. Selected List of Portraits of Prominent Indians.
SIL–65, rev. Bibliography on the American Indians.
SIL–76. Statement regarding the Book of Mormon.
SIL–79. Indian Songs and Dances. Bibliography.
SIL–81. Selected Bibliography on Stone-chipping Methods.
SIL–89. Selected References on the Plains Indians.
SIL–92. Origin of the American Indian.
SIL–93. Trails and Trade Routes.
SIL–96. Photographic Collections pertaining to the American Indians.
SIL–98. Selected References on the Seminole Indians.
SIL–99. American Indian Medicine. Bibliography.

Many new descriptive lists and information leaflets were prepared in answer to requests for information on the Bureau's photographic and manuscript collections. There continued to be a popular demand for information, published material, and photographs from teachers—particularly of primary and secondary grades—from Scout and other civic organizations, and from the general public. Information and reference material for term papers were constantly requested by hundreds of high school and college students. Staff mem-

bers and the archivist were frequently consulted by publishers regarding the progress made in the various fields of anthropology and on specific projects for background material to be used in scientific and popular magazines and books, appropriate pictures and illustrations. Many specimens were identified for owners and data supplied to them.

Respectfully submitted.

M. W. Stirling,
Director, Bureau of American Ethnology.

Dr. Leonard Carmichael,
Secretary, Smithsonian Institution.

Report on the Astrophysical Observatory

SIR: I have the honor to submit the following report on the operations of the Astrophysical Observatory for the fiscal year ended June 30, 1957:

The Astrophysical Observatory includes two research divisions: the Division of Astrophysical Research, for the study of solar and other sources of energy impinging on the earth, and the Division of Radiation and Organisms, for investigations dealing with radiation as it bears directly or indirectly upon biological problems. Three shops—for metalwork, woodwork, and optical electronic work—are maintained in Washington to prepare special equipment for both divisions, and a field station for solar observation is located at Table Mountain, Calif.

DIVISION OF ASTROPHYSICAL RESEARCH

The transfer of the office of the Director of the Observatory and the Division of Astrophysical Research from Washington to Cambridge, Mass., has made possible a close liaison with the Harvard College Observatory—a working association that proved highly effective during the year. There is every indication that this relationship between two of the great astrophysical centers in the United States will continue over the years to stimulate the efforts and increase the effectiveness of both institutions.

Important progress was made in the past year in the reorientation of the Astrophysical Observatory's research program toward broader scientific investigation of various solar-system phenomena—a program that should bear heavily upon the scientific progress of our nation during the coming decades. Concentration, as in the past, concerns the impact of radiations, atoms, and meteoritic particles on the earth, both in its atmosphere and upon its surface. All these phenomena represent energy sources that affect our atmosphere and, to varying degrees, the conditions in which we live, particularly the technological instrumentation which has become such a vital part of our great modern civilization. Vigorous and effective research programs in the special fields of activity of the Observatory are now firmly established, and a considerable portion of the work is closely integrated with the massive effort of the International Geophysical Year. This is particularly true of the satellite program, studies of the upper atmosphere, and various aspects of the meteoritical research programs.

One of the long-term goals of the Astrophysical Observatory is to conduct astronomical observations and experiments above the atmosphere and to develop relevant techniques of value to the research program. When this goal has been attained, we shall not only improve vastly the precision and significance of our observations by eliminating the deleterious effects of a hazy, cloudy, turbulent, and mostly opaque atmosphere but also greatly increase our understanding of the interactions, because the external energy sources affect profoundly this ocean of atmosphere in which we live.

Solar astrophysics.—Early in the fiscal year, Dr. Theodore E. Sterne joined the Astrophysical Observatory as Associate Director, with the principal duty of supervising solar astrophysical research. The following are among the studies that have been pursued in this field:

The Table Mountain station continued to operate despite atmospheric disadvantages outlined in the 1956 report. Of the observing staff, F. A. Greeley retired during the year, and Stanley Aldrich went on leave of absence at the end of the year.

Careful statistical studies of the variation of solar radiation intensity were made by Dr. Sterne and by Mrs. Nannielou Dieter, who joined the Observatory for the summer of 1956. By comparing simultaneous Montezuma and Table Mountain values between 1926 and 1955, they found that the root-mean-square value of real changes in the solar constant during this interval was no greater than 0.0032 calorie per square centimeter per minute, or about 0.17 percent of the solar constant itself. This result demonstrates the high precision of the fundamental observations made over the years. They also calculated correlations from the observations at each station separately and found no periodicities that were common to the two stations.

A thorough study is being made for the improvement of the radiation-measuring program by changes in the site, the observing equipment, and the frequency of observations.

Dr. Max Krook has been investigating the theory of nonsteady phenomena in the solar atmosphere and corona. His studies include the effects of convective instabilities and magnetic fields on the state of motion of the solar atmosphere, and have shed light on the production of such events as sunspots, flares, prominences, and the production of cosmic rays.

Theoretical studies of the propagation of nonadiabatic acoustic waves in the solar atmosphere have been made by Dr. Charles Whitney, who joined the staff in July 1956. He has succeeded in constructing a theoretical model for solar granulation (small-scale brightness fluctuations observed on the solar disc) which is in accord with observations. Although such studies have been made with particular emphasis on solar activity, they will have a much wider application.

Dr. John H. Waddell has been investigating, theoretically and observationally, the velocity fluctuations in the solar photosphere and their effect on the line spectrum of the solar disc.

Dr. Alan S. Meltzer, who joined the staff in October 1956, has been conducting two studies of solar line profiles: I, variation of Doppler half-width with atomic weight; II, parity effect. During the months of March and April 1957, he made observations relevant to these two studies at the Sacramento Peak Observatory, Sunspot, N. Mex.

Dr. William M. Sinton, who joined the staff in July 1956, left in May 1957 for the Lowell Observatory at Flagstaff, Ariz. While with the Smithsonian he used photoconductive equipment and the Wyeth 61-inch reflecting telescope of the Harvard College Observatory to observe the intensity of radiation from the planet Mars in the vicinity of 3.46 microns, during the planet's 1956 opposition. The reflection spectra of most planets show absorption in this spectral region arising from the carbon-hydrogen bond. The absorption bands are so distinctive that if present in Mars light they would be evidence for organic molecules and, therefore, of life on Mars. The electrical measurements with the 61-inch telescope indicated the probable presence of the distinctive bands and thus of life, probably vegetable, on Mars. The effect of solar radiation on Mars is obviously important in understanding its effects on the earth.

Meteoritical studies.—Meteoritical studies have been a part of the Smithsonian Institution's scientific research program for over 80 years, during which time its meteorite collection has been developed into one of the most outstanding in the world. The only tangible extraterrestrial material, meteorites are of great astrophysical interest. Under Dr. John S. Rinehart's direction, the Astrophysical Observatory undertook, during 1956, a freshly oriented program of meteoritical research, with the principal objective of resolving astrophysical problems. This program is now well under way with the pursuit of the following specific activities: A study of the processes that cause the ablation of meteorites during their flight through the atmosphere; the design and construction of an electron fluorescent X-ray micronanalyzer to be used especially for studying the distribution of nickel, iron, and cobalt within meteorites; the collection and identification of airborne extraterrestrial material; the sending of an expedition to the Arizona Meteorite Crater for determining the distribution of meteoritic debris about the crater; and the determination of the ages of meteorites by radiochemical techniques. All these efforts have been directed toward solving the riddles of the ages—the origins and natures of extraterrestrial material.

The study of ablation of meteorites has been concerned with the distinct shapes and surface features of a large number of meteorites,

and the examination of the internal structure of meteorites from a metallurgical point of view. The plan is to prepare detailed descriptions of the topology and morphology of individual meteorites, especial interest being paid to those that show ablation. While very little can yet be said about the total amount of meteoritic material lost, meteorite size and material are both very critical factors. It has been found that small (up to 3 inches in diameter) meteorites are smoothly sculptured; large stones exhibit shallow elongated pits or depressions (2 cm. by 1 cm. by 5 mm. deep); and large irons, very deep pits (5 cm. in diameter and 3 cm. deep). The number, distribution, and size of the depressions depend upon the relation of a particular surface or portion of surface to the direction of flight. Pronounced irregularities of shape increase ablation. Finally, heat from the surface seems to penetrate into the meteorite at most only a few millimeters beyond where ablation leaves off. Dr. E. P. Henderson, of the United States National Museum, is actively engaged in this project, which is being supported by the United States Air Force Office of Scientific Research. One of the most difficult and challenging problems facing the present-day aerodynamical engineer is the rational design of preflight devices that will withstand the rigors of the passage through the atmosphere. The investigations of the Astrophysical Observatory will yield basic data which may aid in a solution of these problems.

Dr. F. Behn Riggs, Jr., and Prof. Andrew Lang have nearly completed the design and construction of an electron fluorescent microanalyzer. The fundamental principle of the instrument is the direct excitation of X-radiation characteristic of the elements of the sample by a fine beam (approximately 5 microns in diameter) of electrons focused on the selected site. The method will be applied first to the determination of nickel-iron-cobalt percentages in meteorites that have Widmanstaetten figures. The method is applicable to microscopic areas or particles.

An expedition consisting of Dr. John S. Rinehart, Nicholas Matalas, R. O'Neil, and R. Olsen was in residence at the Barringer Meteorite Crater in Arizona during the summer of 1956, to determine the distribution of minuscule bits and pieces of meteoritic material in the soil around the crater. The expedition collected and processed some 700 soil samples from over an 80-square-mile area. Especially designed magnetic separators were used to recover the meteoritic material. The results have indicated that the debris lies in a definite pattern; it is symmetrically distributed about a line that runs roughly about 15° north of east; while symmetrical, the distribution is not smooth but contains several local areas in which the abundance of meteoritic material is high; the crater does not lie at the center of the pattern; and there is a concentration of material to the east of the crater. These

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findings strongly suggest that the meteorite approached the crater from a direction slightly to the south of west rather than a north-northwesterly direction, as has been previously assumed. The total amount of finely divided meteoritic material was found to be about 12,000 ordinary tons, which fixes a lower limit to the mass of the meteorite that formed the crater. The expedition was supported in part by the Geophysics Research Directorate of the Air Force Cambridge Research Center.

A concentrated effort is now being made to estimate the rate of accretion of meteoric material by the earth and to establish the physical nature of this material. Most of the mass is probably accreted in the form of dust and small particles. From a practical point of view, astronautical ventures and possibly rainfall could be influenced by such material. Thus far a few collections of dust (presumably meteoric) have been made on the ground. A method will be devised and a device constructed for collecting micrometeorites from aircraft and balloons at and above stratospheric altitudes. The designs of collectors are well underway, and an Air Force-furnished aircraft is in sight for use in making collections. Paul Hodge is working actively on this project.

Dr. E. L. Fireman is continuing his ground-breaking studies of the stable and radioactive isotopes produced by cosmic rays in meteorites and by high-energy particles in targets. Previously he conducted this research at the Brookhaven National Laboratory. Part of the equipment used for these studies has beeen transferred from Brookhaven under a research contract with the Atomic Energy Commission and put into operation at the Astrophysical Observatory, where a radiochemistry laboratory has been set up. Dr. Fireman also collaborated with Dr. J. Zähringer to measure the depth variation of tritium and argon–37 produced by high-energy protons in iron.

Dr. Luigi G. Jacchia has supervised the reduction by accurate techniques of meteors photographed with the Super-Schmidt cameras under the Harvard Meteor Program and has conducted research on the physical nature of meteors through a study of their deceleration and fragmentation inside the earth's atmosphere. Among the significant results of this research in the course of the elapsed year can be listed the finding that there is no clear-cut evidence for the presence of hard-bodied meteors of asteroidal origin among 361 Super-Schmidt meteors which were analyzed, and the result of the comparison of visual and photographic magnitudes of meteors, which showed that the "color index" of meteors is rather independent of velocity, but shows a strong dependence on meteor brightness.

Upper atmosphere and satellite-tracking programs.—The responsibility for the optical tracking of the IGY earth satellites was as-

signed to the Smithsonian Institution by the National Academy of Sciences and the National Science Foundation at the recommendation of the United States National Committee of the International Geophysical Year. Dr. J. Allen Hynek, who became an Associate Director of the Observatory on July 1, 1956, has been in charge of the Optical Tracking Program. Major extension of staff in the tracking project began in September 1956, and has grown steadily during the course of the year as various specialists were invited to join the staff under contract through funds furnished by the National Science Foundation. As of June 30, 1957, the satellite-tracking staff consisted of 32 persons.

The optical tracking program for the satellite has three main divisions: The photographic tracking program under the supervision of Dr. Karl G. Henize; the computational, analysis, and communications division under the supervision of Dr. Don Lautman; and the visual search program, popularly termed Moonwatch, under the direction of Leon Campbell, Jr.

The precision photographic program will employ 12 Baker-Nunn Schmidt cameras at strategic locations in a worldwide belt. The sites will be located in Florida, New Mexico, Hawaii, Japan, Australia, India, Iran, Spain, South Africa, Argentina, Peru, and the Netherlands Antilles.

The designs of the mechanical and optical parts of the telescopes have been completed, and the instruments are under active construction. The mechanical portions of the telescope-cameras are being constructed by the Boller and Chivens Co. in South Pasadena, using the designs of Joseph Nunn, while the optical components are being constructed at the shops of the Perkin-Elmer Corp., according to designs made by Dr. James G. Baker. Glass for the 30-inch mirrors is being furnished by the Corning Glass Co.

It is expected that the tracking stations will be in operation during the latter part of 1958. Each station is to be equipped with precision timing devices and all auxiliary apparatus necessary to the maintenance of an essentially complete observatory. The stations are being operated, wherever possible, as joint cooperative ventures with the country concerned, and it is a pleasure to report that the highest degree of cooperation has been found in all cases. This network of observing stations, it might be pointed out, continues the long-established Smithsonian tradition of operating various strategically located observatories around the world.

The telescopic cameras designed for satellite tracking have been made as versatile as possible to allow for a wide variety of sizes and shapes of satellites expected to be launched by this and other countries during the course of the IGY. Indeed, it should even be possible

for these instruments to photograph a highly reflecting sphere the size of a tennis ball at a distance of more than 200 miles.

The popular interest and cooperation generated by the Moonwatch program have far exceeded the expectations of the Astrophysical Observatory. In the United States alone there are 90 registered Moonwatch teams comprising more than 1,500 voluntary observers, many of whom are amateur astronomers of considerable experience in the observation of the sky. A regular series of Moonwatch bulletins has been initiated by the Smithsonian Astrophysical Observatory, published in *Sky and Telescope*, with reprints furnished to all registered observers. The bulletins are regularly translated into Spanish for distribution in South America and Spain, while the English edition is mailed to many parts of the world. Moonwatch stations have been established also in Japan, Iran, Korea, Argentina, Peru, Chile, Australia, Union of South Africa, Pakistan, and India. One aspect of the Moonwatch program which should not be underestimated is its contribution to the creation of interest among the public in scientific matters. Moonwatch teams provide opportunity for serious people without specific scientific training to participate in the IGY program and to render a definite scientific service.

The computation and analysis division of the program is now prepared, through the use of electronic calculators, to handle orbital computations from the raw data furnished by the precision stations as well as the Moonwatch stations. International Business Machines Corp. has made possible the use of their 704-computer installation at Massachusetts Institute of Technology. The Observatory will receive up to 1 hour a day of machine time until June 30, 1959, for satellite computations. IBM will also supply one or two programers for technical assistance.

Such computations will furnish the immediate ephemerides for satellite positions, so that the precision tracking stations can be properly alerted, and the Moonwatch teams and public in general informed of the satellite's immediate whereabouts. The long-range purposes of the computation and analysis division, however—and its most important aspect—are the detailed analyses of the changes in the various elements of the satellite orbit. These orbital calculations are essential to the proper use of the satellite as a scientific vehicle for geodetic and geophysical purposes.

In support of upper-atmospheric studies by satellite methods Dr. Sterne has completed a theoretical research on the gravitational motion of a particle of small mass near a planet flattened by rotation. He discovered a novel Hamiltonian function that led to an exact analytical solution for the motion of a particle in very nearly the correct field of force. Dr. Sterne also developed special mathematical procedures for

inferring the density of the earth's atmosphere from a satellite at such low altitude. In the course of this work he extended a U. S. Air Force atmospheric model to much greater heights than the 540 kilometers at which the Air Force abandoned it.

PUBLICATIONS

Volume 1 and numbers 1–4 of volume 2 of the Smithsonian Contributions to Astrophysics were published. Volume 1, issued under the partial support of the National Science Foundation, included New Horizons in Astronomy, a series of 39 papers by eminent American astronomers outlining future research of importance in astronomy. Research contributions on meteors and solar work comprised the remainder of the publications.

During the current year the following publications by staff members of the Astrophysical Observatory appeared in various scientific journals:

Fireman, E. L., and Schwarzer, D. Measurement of Li^6, He^3 and H^3 in meteorites and its relation to cosmic radiation. Geochim, and Cosmochim. Acta, vol. 11, No. 4, April 1957.

Henize, Karl G. The Baker-Nunn satellite-tracking camera. Sky and Telescope, vol. 16, pp. 108–111, January 1957.

Jacchia, L. G. A preliminary analysis of atmospheric densities from meteor decelerations for solar, lunar and yearly oscillations. Journ. Meteorol., vol. 14, pp. 34–37, 1957.

Krook, Max. Electrodynamics of fluids and plasmas. Smithsonian Contr. Astrophys., vol. 1, pp. 53–58, 1956.

Meltzer, Alan S. Spectroscopic investigation of Algol. Astrophys. Journ., vol. 125, p. 359, 1957.

Meltzer, Alan S., Scharzschild, M. and B., and Searle, L. A spectroscopic comparison between high- and low-velocity K giants. Astrophys. Journ., vol. 125, p. 123, 1957.

Rinehart, John S. Applications of high speed photographic techniques to hypervelocity free-flight investigations. Proc. 3d Int. Symp. High Speed Photogr. Butterworth Scientific Publications, 1956.

———. Meteorites. Smithsonian Contr. Astrophys., vol. 1, p. 81, 1956.

———. Ablation of meteorites [abstract]. Bull. Amer. Phys. Soc., vol. 2, p. 45, 1957.

———. A soil survey around the Barringer Crater. Sky and Telescope, vol. 16, No. 8, June 1957.

———. Arizona's meteorite crater, by H. H. Nininger [review]. Science, vol. 125, p. 829, 1957.

Whipple, Fred L. Meteors. Smithsonian Contr. Astrophys., vol. 1, pp. 83–86, 1956.

———. The scientific value of artificial satellites. Journ. Franklin Inst., vol. 262, pp. 95–109, 1956.

———. Moontracking. Saturday Rev., vol. 39, No. 35, pp. 37–39, Sept. 1, 1956.

———. Wanted: Spotters for the satellites. Science Digest, December 1956, pp. 33–37.

———. Moon. World Book Encyclopaedia, pp. 5227–5231, 1957.

———. The sunward tail of comet Arend-Roland [letter]. Nature, vol. 179, p. 1240, 1957.

WHIPPLE, FRED L., DAVIS, R. J., and ZIRKER, J. B. The orbit of a small earth satellite. *In* "Scientific Uses of Earth Satellites," pp. 1–22. University of Michigan Press, 1956.

————. Time available for the optical observation of an earth satellite. Ibid., pp. 23–28.

WHIPPLE, FRED L., and JACCHIA, L. G. The Harvard photographic meteor programme. *In* "Vistas in Astronomy," vol. 2. Pergamon Press, 1956.

————. The orbits of 308 meteors photographed with super-Schmidt cameras [abstract]. Astron. Journ., vol. 62, pp. 37–38, 1957.

————. Reduction methods for photographic meteor trails. Smithsonian Contr. Astrophys., vol. 1, pp. 183–206, 1957.

WHIPPLE, FRED L., and WRIGHT, F. W. Methods for the study of shower radiants from photographic meteor trails. Smithsonian Contr. Astrophys., vol. 1, pp. 239–243, 1957.

OTHER ACTIVITIES

A conference on Constants for Orbital Calculations was held at the Astrophysical Observatory on January 25, 1957. On February 15, 1957, a conference on Solar Measurements was held at the Smithsonian Institution, Washington, D. C. The Smithsonian Astrophysical Observatory and the Harvard College Observatory acted as cohosts at the meetings of the American Astronomical Society, May 8–11, 1957. The Astrophysical Observatory was host to the international Third Cosmical Gas Dynamics Symposium, June 24–29, 1957.

Various staff members attended meetings of the American Astronomical Society, the American Physical Society, and the Third Cosmical Gas Dynamics Symposium.

Dr. E. L. Fireman attended the National Academy of Sciences conference on Nuclear Geology and the Gordon Conference on Nuclear Chemistry.

Dr. John S. Rinehart participated in the Third International Symposium on High Speed Photography in London, September 1956; the Institution of Mechanical Engineers Conference on the Properties of Materials at High Rates of Strain in London, May 1957; the Air Force Office of Scientific Research and Naval Research Laboratory Symposium on Hyper-velocity and Impact Effects, May 1957; and the National Academy of Sciences Symposium on Tektites, Washington, June 1957.

In the interest of obtaining optical tracking sites for the Satellite Tracking Program, Dr. J. Allen Hynek traveled to South America, visiting Montevideo, Uruguay; Santiago, Chile; Lima, Peru; Antofagasta, Peru; Arequipa, Peru; and Curaçao, N. W. I., during January 1957. He also traveled to Teheran, Iran; Delhi, India; Tokyo, Japan; and Hawaii during the latter part of May and early June of 1957 to inspect optical tracking sites. Dr. Karl G. Henize traveled to Spain and South Africa between March 20 and April 7, 1957, to inspect optical tracking sites.

The Director attended and contributed to the International Geophysical Year conference at Barcelona, Spain, September 1956, and the International Federation of Astronautics Congress at Rome in September 1956. He was panel leader of and contributor to an Astronautics Symposium, San Diego, January 1957, sponsored by U. S. Air Force, Office of Scientific Research, and by the Convair Corp.

In national science and defense, the Director contributed by serving in the following capacities: Chairman of Technical Panel on Rocketry of the International Geophysical Year; member Technical Panel on the Earth Satellite Program of the International Geophysical Year; member of the working group on Tracking Earth Satellites on above panel; member Panel of the Atmosphere of the Scientific Advisory Board to the Air Force; member Committee on Cosmic and Terrestrial Relationships of the American Geophysical Union; Editor, Harvard Announcement Cards; and general editor, Smithsonian Contributions to Astrophysics.

DIVISION OF RADIATION AND ORGANISMS

(Prepared by R. B. Withrow, Chief of the Division)

The major activities of this division have been concerned with fundamental physiological and biochemical research on the role of light in regulating growth in higher plants. Seed germination, seedling growth, flowering, and the development of what is commonly referred to as a "normal plant" are controlled by light. Pigments within the organism absorb the light and convert it into chemical bond energy and thus initiate a chain of events that produces the observed growth effects. In most instances, relatively little light is necessary. This is in contrast to the photosynthesis of sugars where very high intensities are required for optimal results. There is a similar group of light-controlled reactions in animals which regulate many phases of reproductive behavior. Plans are now being implemented to investigate this phase of animal physiology.

The two general groups of photochemical reactions that regulate plant growth are (1) those controlling photomorphogenesis, which are activated chiefly by red and far-red light, and (2) those concerned with phototropism, controlled principally by blue light. The respective pigment systems channel the energy into different biochemical pathways and therefore induce entirely different physiological responses.

Photomorphogenesis.—Seed germination, seedling development, flowering, bud development of woody plants, and changes in stem length are examples of formative processes controlled by light from the red end of the spectrum. Collectively, these may be grouped under the term "photomorphogenesis."

Reports from other laboratories have indicated that chemicals such as gibberellin and kinetin will, to some extent, replace red irradiation in promoting some photomorphogenetic processes such as seed germination and flowering. These materials have been tested on seedling growth during the past year by Dr. W. H. Klein and Victor Elstad. It was found that gibberellin and kinetin could not substitute for red irradiation in this case. Both inhibited the growth induced by a red exposure and produced results similar to those of the growth-regulating hormone, indoleacetic acid. Gibberellin and red radiant energy initiate separate and distinct growth responses and, when added together, produce a resultant of the two reactions.

The induction of growth by red radiant energy (660 mμ) can be blocked by far-red energy (710–730 mμ). Dr. Klein, Dr. R. B. Withrow, and Victor Elstad have found that the efficiency of the far-red is markedly increased by interposing a dark period of 60 to 90 minutes between the red and far-red treatments. This suggests that a thermochemical step intervenes between the absorption of red radiant energy and maximum capacity for inactivation by far-red. Reducing the temperature from 25° C. to 2° C. during the light treatments has no measurable effect on the induction process, but the lowered temperature reduces the maximum photoinactivation by 50 percent when compared to photoinactivation at 25° C. This substantiates the thesis of an intervening thermal step.

Phototropism.—There is a wide range of growth reactions activated by blue radiant energy, including cytoplasmic streaming, changes in cell-membrane permeabilities, the regulation of respiratory enzymes, changes in bioelectric potentials and phototropism or bending of plants toward a light source. The late Dr. E. S. Johnston of this laboratory became interested in phototropism in 1934 and made the first precise quantitative measurements of the spectral characteristics of the phototropic response in oats. From these data it was postulated that the pigment system activating the response absorbed chiefly in the blue and was likely to be a carotenoid or a flavin.

At the present time Walter Shropshire is conducting experiments to resolve the question of the identity of the photoreceptor by determining if the response occurs in the near-ultraviolet where the absorption of flavin is markedly greater than that of carotenoids. The results of *Avena*-tip-curvature experiments indicate that both pigment systems may be involved. The action spectrum in the visible has the peaks characteristic of carotenoid absorption, while in the near-ultraviolet the response is characteristic of a flavin system.

Experiments are in progress to ascertain the function of each of these pigment systems, using straight growth measurements of intact *Avena* seedlings and the curvature of carotenoid-deficient *Phycomyces*. An attempt is being made to correlate all the blue photoreg-

ulatory reactions to see if they are mediated by the same basic mechanisms.

A National Science Foundation grant for 3 years is supporting the major portion of the work at present.

Chloroplast development.—It has been found by Dr. J. B. Wolff and L. Price that radiant energy is necessary for the maturation of the chloroplast, the photosynthetic organ of the leaf of higher plants. The progress of this photomorphogenetic development has been followed by measuring the gradually increasing rate at which the leaf is able to synthesize chlorophyll when placed in high red or blue irradiances. In the leaf of a dark-grown seedling the rate of chlorophyll formation is at first very slow, but after two or three hours of high-intensity irradiation, the rate begins to increase. Therefore, the time lag before the leaf begins to form chlorophyll rapidly is taken as the time required for certain developmental changes in the proplastid as it is transformed into a functioning chloroplast.

Irradiation of dark-grown bean or corn leaves with a small amount of red energy (prior to incubation in the dark) has been found to be more effective than blue energy for stimulation of the ability to form protochlorophyll. Oxygen is required for the developmental processes, since it was noted that little or no chlorophyll is formed in an atmosphere of nitrogen. When the temperature at which the leaves are kept was lowered from 25° C. to 15° C., the metabolic processes necessary for synthesis of the chloroplast components are almost completely stopped; too high a temperature has a similar effect. These metabolic processes are being studied in greater detail.

Photoperiodic chlorosis.—Chlorophyll content of a number of plants is markedly influenced by the relative lengths of the light and dark periods. The leaves of young plants often show a marked chlorosis, with a definite pattern of interveinal yellowing when given long light periods in a 24-hour cycle. Often associated with the mottling are nastic responses, very similar to those occurring with certain types of virus infection. Temperature is closely correlated with light in influencing this process. At some temperatures, the plants are yellow and at others green, regardless of the photoperiod. Particularly does a cyclic alternation in temperature promote or inhibit the chlorosis under light conditions where the converse is true at constant temperatures. This type of chlorophyll deficiency has not been observed in plants growing under outdoor or greenhouse conditions with daylight, but seems to be a response unique to irradiation with artificial sources, particularly the incandescent lamp. Dr. Alice Withrow and Walter Shropshire this year have found that the far-red is the region of the spectrum which most effectively promotes the chlorosis. Far-red also promotes a very marked lengthening of the stem.

Modification of X-ray damage by visible radiant energy.—The damaging effects of X-rays and other forms of ionizing radiation to living cells are due chiefly to the breaking of the chromosomes and interference with normal cell division. Young, rapidly dividing cells are most susceptible to X-ray damage and evidence three types of aberrations—chromatid break, isochromatid break, and chromatid exchange.

It has previously been reported that far-red radiant energy, when used as a treatment supplementary to X-rays, increases the frequency of chromatid aberrations. This year, Dr. C. C. Moh and Dr. R. B. Withrow have extended the study on the interaction between red and far-red radiant energy at the level of the cell nucleus.

Root tips of broad bean (*Vicia faba*) were pretreated with a 3-hour exposure of red (620–680 mμ) and/or far-red and near infrared (710–960 mμ) radiant energy, and then irradiated with 120 roentgens of X-rays. As compared with the control (X-rays only), root tips receiving far-red treatment yielded 30 to 40 percent more chromatid breaks and chromatid exchanges. Those receiving far-red followed by red energy showed no appreciable increase in aberrations. These results indicate that red radiant energy inactivates the action of the far-red exposure. In a second series of experiments, root tips were irradiated with red energy for 3 hours, followed by a 3-hour exposure to far-red energy. As compared to the control, the red plus far-red treatment resulted in an increase of chromatid breaks and chromatid exchanges amounting to about 20 percent. It would appear that application of far-red energy after the red treatment could not completely overcome the inactivating effect of the red. In a third series, root tips were exposed for 3 hours to red and far-red energy simultaneously by using a broad waveband from 620 to 960 mμ. No increase in any type of chromatid aberration was found.

PUBLICATIONS

KLEIN, W. H., WITHROW, R. B., and ELSTAD, V. The response of the hypocotyl hook of bean seedlings to radiant energy and other factors. Plant Physiol., vol. 31, pp. 289–294, 1956.

KLEIN, W. H., WITHROW, R. B., ELSTAD, V., and PRICE, L. Photocontrol of growth and pigment synthesis in the bean seedling as related to irradiance and wavelength. Amer. Journ. Bot., vol. 44, pp. 15–19, 1957.

KLEIN, W. H., WITHROW, R. B., WITHROW, ALICE P., and ELSTAD, V. Time course of far-red inactivation of photomorphogenesis. Science, vol. 125, pp. 1146–1147, 1957.

WITHROW, ALICE P., and WOLFF, J. B. Succinate oxidation by mitochondrial preparations from bean seedlings. Physiologia Plantarum, vol. 9, pp. 339–343, 1956.

WITHROW, R. B. An interference-filter monochromator system for the irradiation of biological material. Plant Physiol., vol. 32, pp. 355–360, 1957.

WITHROW, R. B., and MOH, C. C. Nonionizing radiant energy as an agent in altering the incidence of X-ray-induced chromatid aberrations. I, Effects of far-red and infrared radiant energy on *Tradescantia* and *Vicia*. Radiation Res., vol. 6, pp. 491–500, 1957.

WITHROW, R. B., and PRICE, L. A darkroom safelight for research in plant physiology. Plant Physiol., vol. 32, pp. 244–248, 1957.

WITHROW, R. B., and WITHROW, ALICE P. Generation, control and measurement of visible and near-visible radiant energy. *In* "Radiation Biology," vol. 3, pp. 125–259. McGraw-Hill Book Co., 1956.

OTHER ACTIVITIES

Papers on the research in progress were presented during the past year at several international and national science meetings. At the annual meeting of the American Society of Plant Physiologists at Storrs, Conn., the following papers were given:

Elimination of the lag phase of chlorophyll synthesis in dark-grown bean leaves by a pretreatment with low irradiances of monochromatic energy, by R. B. Withrow, J. B. Wolff, and L. Price.

The action spectrum and kinetics of far-red blocking of the red-induced opening of the hypocotyl hook of bean, by W. H. Klein, R. B. Withrow, and V. Elstad.

The role of chlorophyllase in the synthesis of chlorophyll *a* in higher plants, by J. B. Wolff and L. Price.

At a meeting of the Southern Section of the American Society of Plant Physiologists at Birmingham, Ala., R. B. Withrow gave a paper entitled "Action Spectrum and Photomorphogenesis in Higher Plants," and at the Midwest Section at Ann Arbor, Mich., W. H. Klein participated in a round-table discussion on "Effects of Light Quality on Plant Development." At the International Photobiology Conference at Turin, Italy, and the International Photoperiodism Congress at Parma, Italy, R. B. Withrow discussed the current research of the laboratory. R. B. Withrow and Walter Shropshire attended the national organizational meeting of the Biophysical Society held at Columbus, Ohio.

During the year, R. B. Withrow served as consultant to the Office of the Commanding General, U. S. Air Forces in Europe, and also as consultant to the Argonne National Laboratory. He was appointed chairman of the International Symposium on Photoperiodism in Plants and Animals, sponsored by the National Research Council, which is to be held at Gatlinburg, Tenn., in the fall of 1957.

Respectfully submitted.

F. L. WHIPPLE, *Director.*

Dr. LEONARD CARMICHAEL,
Secretary, Smithsonian Institution.

Report on the National Collection of Fine Arts

SIR: I have the honor to submit the following report on the activities of the National Collection of Fine Arts for the fiscal year ended June 30, 1957:

SMITHSONIAN ART COMMISSION

The 34th annual meeting of the Smithsonian Art Commission was held in the Regents Room of the Smithsonian Building on Tuesday, December 4, 1956. Members present were: Paul Manship, chairman; Robert Woods Bliss, vice chairman; Leonard Carmichael, secretary; John Nicholas Brown, Gilmore D. Clarke, David E. Finley, Lloyd Goodrich, Bartlett H. Hayes, Stow Wengenroth, Archibald G. Wenley, Andrew Wyeth, and Mahonri Young. Thomas M. Beggs, Director, and Paul Vickers Gardner, curator of ceramics, National Collection of Fine Arts, were also present.

Mr. Bliss, Mr. Goodrich, and Mr. Hayes commented favorably upon the progress of the Smithsonian Traveling Exhibition Service and its satisfactory relationship to other organizations in respect to the circulation of exhibitions. Mr. Beggs stated that when funds are available it will be desirable for the National Collection of Fine Arts to organize for circulation exhibitions combining artistic and scientific material from Smithsonian collections. It was reported that, although Department of State contracts had been vital to the Service initially, these have diminished in size and the Service is now self-supporting.

A resolution on the death of Lawrence Grant White, a member of the Commission from 1950 to the time of his resignation March 2, 1956, was read and unanimously adopted.

The chairman stated that the field of architecture was unrepresented on the Commission for a term expiring in 1959, owing to the resignation of Mr. White. The Commission then recommended to the Board of Regents the name of Douglas Orr to fill the vacancy.

The Commission also recommended the reappointment of David E. Finley, Paul Manship, Charles H. Sawyer, and Archibald Wenley, for the usual 4-year period.

The following officers were elected for the ensuing year: Paul Manship, chairman; Robert Woods Bliss, vice chairman; and Leonard Carmichael, secretary.

Dr. Finley, chairman of the executive committee, reported that this committee had not met during the year.

The following were reelected members of the executive committee for the ensuing year: David E. Finley, chairman; Robert Woods Bliss, Gilmore D. Clarke, and George Hewitt Myers. Paul Manship, as chairman of the Commission, and Leonard Carmichael, as secretary, are ex officio members.

The Commission recommended acceptance of the following objects:

Oil, The Dog Trader, by Richard N. Brooke (1847–1920). Gift of Col. Thomas G. Young, Jr.

Two watercolors, Emergence and Tulips, by Andrey Avinoff (1884–1949), were accepted on condition that they be held until eligible for consideration of the accession committee of the National Gallery of Art. Gift of Mrs. Elizabeth Shoumatoff.

Oil, Furbelows, by Albert Sterner, N. A. (1863–1946). Henry Ward Ranger Bequest.

Oil, Days of Sunshine, by William Wendt, A. N. A. (1865–1946). Henry Ward Ranger Bequest.

Three etchings, by Carl Oscar Borg (1879–1947): On the Rim, Grand Canyon, Arizona; The Chief's House, Moenkopi, Arizona; and Under Western Skies. Anonymous gift.

Miniature, Young Gentleman, by John Alexander MacDougall (1810–1894). Gift of Henry L. Milmore.

A collection of 59 fans, 18th and 19th centuries, mostly French and English. Gift of Henry L. Milmore.

A 19th-century copy of the Portland Vase, by Wedgwood, England. Gift of Paul A. Straub.

The following 59 paintings, as bequeathed by Mabel Johnson Langhorne (oils on canvas unless otherwise indicated):

Madonna, by Biagio di Bindo Albertinelli (1474–1515). (Tempera on wood.)
Large Landscape, by Thomas Barker (1769–1847).
Small Landscape, by Thomas Barker (1769–1847). (Oil on wood.)
Duke of Sussex, by Sir William Beechey (1753–1839).
Dutch Gentleman, by Ferdinand Bol (1616–1680).
Christ Addressing the People, by Bonifazio Veronese (1490/1–1540).
Small Landscape, by Richard Parkes Bonington (1801–1828).
Landscape, by John Constable (1776–1837).
Small Landscape, by John Constable (1776–1837).
Windmill, by John Constable (1776–1837).
Small Landscape, by John Crome (Old Crome) (1768–1821).
Edmund Waller (1606–1687), by William Dobson (1610–1646).
Young Girl, by Willem Drost (16??–16??).
Landscape, by Thomas Gainsborough (1727–1788).
Small Landscape, by Thomas Gainsborough (1727–1788).
Head of Christ, by follower of Giorgione (1477/8–1510/1). (Tempera on wood.)
Scene in Venice, by Francesco de Guardi (1712–1793).
Venetian Scene, by Francesco de Guardi (1712–1793).
Small Landscape, by Francesco de Guardi (1712–1793). (Oil on wood.)
Irish Gentleman, by John Hoppner (1758–1810).
Gentleman, by John Jackson (1778–1831).
Prince Henry of Wales, by Cornelius Janssens van Ceulen (1593/4–1662/4).
Portrait of Rubens' Wife, by Jakob (Jacques) Jordaens (1593–1678).

Gentleman, by Sir Godfrey Kneller (1646–1723).
Barnyard Scene, by Robert Ladbrooke (1768/70–1842).
Self-portrait, by Sir Thomas Lawrence (1769–1830).
Viscountess Hatton, by Sir Peter Lely (1618–1680).
Festive Scene, by Jan Miense Molenaer (1605/10–1668). (Oil on wood.)
Ralph Cross Johnson (1843–1923), by Ernest Moore.
Fishing Boats Beating up to Windward, by Edward Moran (1829–1901).
Judith van Volbergen, by Paulus Moreelse (1571–1638).
Small Landscape, by John Francis Murphy (1853–1921).
Landscape, by John Francis Murphy (1853–1921).
Portrait of a Boy, by Sir Henry Raeburn (1756–1823).
Portrait of a Gentleman, by Sir Henry Raeburn (1756–1823).
Lady in White, by Sir Joshua Reynolds (1723–1792).
Lord Lifford, by Sir Joshua Reynolds (1723–1792).
Lord Roth, by Sir Joshua Reynolds (1723–1792).
Richard Brinsley Cheridan, by Sir Joshua Reynolds (1723–1792).
Old Man, by Jusepe (Giuseppe) Ribera (1588/90–1652/6).
Intereior of New College, Oxford, by David Roberts (1796–1864).
Rouen Cathedral, by David Roberts (1796–1864). (Oil on wood.)
The Doctor's Visit, by Jan Havicksz Steen (1626?–1679).
Landscape with Figures, by Jacobus van Strij (1756–1815).
Mrs. Price, by Sir James Thornhill (1675–1734).
Baptism of Christ, School of Giovanni Battista Tiepolo (1693/6–1770). (Oil on wood.)
Woman Taken in Adultery, School of Giovanni Battista Tiepolo (1693/6–1770).
Head of an Old Man, attributed to Benvenuto di Piero Tisi (called Garofalo) (1481–1559), formerly attributed to Leonardo da Vinci (1452–1519). (Tempera on wood.)
Sir William Boothby, by undetermined artist (formerly attributed to Sir Joshua Reynolds).
Mrs. Lloyd, by undetermined artist, after Reynolds.
Marine, by undetermined artist.
Virgin and Child with Apple, by undetermined artist. (Tempera on wood.)
Adoration of the Kings, by Bernard Van Orley (1485/93–1542). (Tempera on wood.)
Landscape by John Varley, Sr. (1778–1842). (Watercolor on paper.)
Small Landscape, by John Varley, Sr. (1778–1842). (Watercolor on paper.)
Entombment, by Rogier van der Weyden (1399/1400–1464). (Tempera on wood.)
Italian Landscape, by Richard Wilson (1714–1782).
Italian Landscape, by Richard Wilson (1714–1782).
Landscape, by Richard Wilson (1714–1782).

A bronze bust of Gen. Winfield Scott Hancock, by James Wilson Alexander MacDonald (1824–1908), declined for the National Collection of Fine Arts, was recommended for acceptance by the United States National Museum, to be assigned to the Division of Military History for possible use in the new Museum of History and Technology. Offered by Mrs. Griffin de Mauduit through Mrs. James L. Collins, Jr.

THE CATHERINE WALDEN MYER FUND

Six miniatures, watercolor on ivory, were acquired from the fund established through the bequest of the late Catherine Walden Myer as follows:

106. David McClellan (1773–1820), attributed to Benjamin Trott (ca.1770–ca.1841).

107. Christopher Burdick (1789–1833), by undetermined artist.

108. Mrs. Christopher Burdick, née Lydia Easton (1796–1881), by undetermined artist.

Nos. 106 through 108 were acquired from Mrs. Janet W. Yates, Washington, D. C.

109. Unknown Gentleman, by George W. Newcombe (1799–1845).

110. TS in Blue Coat, by undetermined artist.

Nos. 109 and 110 were acquired from Mr. A. C. Mayer, Washington, D. C.

111. Col. Josiah Parker (1751–1810), by Charles Willson Peale (1741–1799); from Mrs. Sue C. Bunch, Washington, D. C.

WITHDRAWAL BY OWNERS

Oil, Maid of the Mist, by Thomas Cole, lent October 6, 1942, by Mrs. L. T. Gager, Washington, D. C., was withdrawn by the owner.

Oil, George Washington, by Charles Willson Peale, returned as a loan December 4, 1956, by the estate of Mrs. John S. Beck, was withdrawn by order of Oscar J. See, the executor, on March 28, 1957.

ART WORKS LENT

The following art works, oil paintings on canvas unless otherwise noted, were lent for varying periods:

To the Bureau of the Budget, Washington, D. C.:

August 7, 1956	Huichol Indian, by Anton Sario.
	In the Studio, by Arnoldo Tamburini.
September 21, 1956	The Wanderluster's Rest, by William H. Holmes.
	The South Strand, by Emil Carlsen.
January 23, 1957	The Wain Team, by George Elmer Browne.
	President John Tyler, by G. P. A. Healy.
	Fisher Girl of Picardy, by Elizabeth Nourse.
	Linlithgan Bridge, by Richard M. Stevenson.
March 19, 1957	George Catlin, by William Fisk.
	Daniel Chester French, by Evelyn Beatrice Longman. (Bronze bas relief.)

To the U. S. Court of Military Appeals, Washington, D. C.

August 10, 1956	Summer, by Charles Harold Davis.
	Abraham Lincoln, by Henry Kirke Bush-Brown. (Bronzed plaster bust and pedestal.)
February 6, 1957	Evening Tide, California, by William Ritschel.
	Gen. Winfield Scott Hancock, by James W. A. MacDonald. (Bronze bust and pedestal.)
April 18, 1957	The First Gun at Fort Sumter, by Alban Jasper Conant.

To The White House, Washington, D. C.:

August 15, 1956—— Roseate Spoonbills, by Abbott H. Thayer.
Male Wood Duck, by Richard S. Meryman.

January 14, 1957—— Early Summer, by Charlotte B. Coman. (Returned January 30, 1957.)
Evening Tide, California, by William Ritschel. (Returned January 30, 1957.)

To the Department of State, Washington, D. C.:

August 15, 1956—— Tomb of "Mahomet the Gentleman" at Broussa, by Osman Edhem Hamdy Bey.

November 19, 1956—— View of Constantinople from Pera, by an undetermined artist.

January 22, 1957—— Spring, Navesink Highlands, by Childe Hassam.
End of Winter, by John Henry Twachtman.

March 14, 1957—— The Torrent, by John Henry Twachtman.
Niagara, by George Inness.
Autumn at Arkville, by Alexander H. Wyant.

March 21, 1957—— The Blockmaker, by Edgar Melville Ward.

To the Dallas Museum of Fine Arts, Dallas, Tex., for an "Exhibition of Presidents":

September 5, 1956—— U. S. Grant, by Thomas LeClear.
William Howard Taft, by Alyn Williams. (Miniature, watercolor on ivory.)
John Tyler, by George P. A. Healy.
George Washington, by Henry Bounetheau, after Stuart. (Miniature, watercolor on ivory.)
George Washington, by Henry Bounetheau, after Trumbull. (Miniature, watercolor on ivory.)
Woodrow Wilson, by Edmund Tarbell.
(All were returned December 13, 1956.)

To the National Air Museum, Washington, D. C., portraits (sanguine chalk on paper unless otherwise noted) of members of the Lafayette Escadrille, by John Elliott (1858–1925):

October 16, 1956—— Victor Emmanuel Chapman.
Richard Stevens Conover, 2d.
Hamilton Coolidge.
Elliott Christopher Cowden.
Edmond Charles Clinton Genet.
Bert Hall.
Gervais Raoul Lufbery.
James R. McConnell.
Richard Norton.
Paul Pavelka.
Norman Prince.
Philip Rhinelander.
Quentin Roosevelt.
Alan Seeger.
William Thaw.
Georges Thenault.
Raynal Cawthorne Bolling.*
William Halsall Cheney.*
Richard McCall Elliott, Jr.*
Kiffin Yates Rockwell.*

*Sepia prints.

To the Department of Justice, Washington, D. C.:

October 18, 1956—— William C. Preston, by George P. A. Healy.
New Year's Shooter, by George Luks.
Henry Ward Ranger, by Albert Neuhuys.
Thomas McKean, by Charles Willson Peale.
La Vachère, by Theodore Robinson.
The Inn, Germany, by Walter Shirlaw.
Infant Christ with Cross and Torch, by undetermined artist.

February 14, 1957—— Early Summer, by Charlotte Buell Coman.
Un Brave—French Soldier, by Lucie Louise Fery.
The Watering Place, by Louis Paul Dessar.
Rev. George Heaton, M. A., by Edward Heaton.
Self Portrait, by Will H. Low.
Musa Regina, by Henry Oliver Walker.
Manifest Destiny—Buffalo, by Edward Kemeys. (Bronzed plaster.)
Grizzly Bear, Seated, by Edward Kemeys. (Bronzed plaster.)

May 23, 1957—— Life Saving Patrol, by Edward Moran.

To the National Gallery of Art, Washington, D. C., for photographing:

October 29, 1956—— Thomas Hopkinson, by Robert Feke. (Returned October 31, 1956.)

To the Interstate Commerce Commission, Washington, D. C.:

November 6, 1956—— Early Spring, by Alexander T. Van Laer.
Idle Hours, by Harry S. Mowbray.
Study Head, Madam Capri, by Walter Shirlaw.
Among the Old Poets, by Walter Shirlaw.
Walter Shirlaw, by Frank Duveneck.

January 7, 1957—— November, by Jervis McEntee.
Adieu, by Salvatti Aly.

To the Department of the Interior, Washington, D. C.:

November 7, 1956—— A Pool in the Forest, by Benjamin Rutherford Fitz. (Returned June 13, 1957.)
Housatonic Valley, by Alexander Wyant. (Returned June 13, 1957.)

To the Corcoran Gallery of Art, Washington, D. C., for the 25th Biennial Exhibition of Contemporary American Oil Paintings, January 13 through March 10, 1957:

January 3, 1957—— Caresse Enfantine, by Mary Cassatt. (Returned May 23, 1957.)
The Island, by Edward W. Redfield. (Included with exhibition shown at the Toledo Museum of Art, April 1–30, 1957, and to be circulated by the American Federation of Arts through September 30, 1958.)

To the Corcoran Gallery of Art, Washington, D. C., for an exhibition of Presidential Portraits, March 19 to September 1, 1957:

March 13, 1957—— Self Portrait, by George P. A. Healy.

To the Virginia Museum of Fine Arts, Richmond, Va., for an exhibition, "The Tastemakers," January 18 through February 24, 1957:

January 4, 1957—— Fired On, by Frederic Remington. (Returned March 5, 1957.)

To the Pan American Union, Washington, D. C.:

January 15, 1957—— African Elephant Scenting Danger, by Eli Harvey. (Bronze.) (Returned January 23, 1957.)

To the Federal Communications Commission, Washington, D. C.:

April 26, 1957—— Beach of Bass Rocks, Gloucester, Massachusetts, by Frank K. M. Rehn.
The White Parasol, by Robert Reid.
Furbelows, by Albert Sterner.

To the United States District Court for the District of Columbia, Washington, D. C.:

May 16, 1957—— Henry B. Fuller, by George Fuller.
The Villa Malta, by Sanford R. Gifford.
The Gathering Storm, by Louis Gabriel Eugène Isabey.
Captain John Ericsson, by Arvid Nyholm.

May 31, 1957—— Gathering Mists, by Charles Warren Eaton.
An Abbess, by Govaert Camphuysen.
Eucalyptus Tree, by A. Ames.
Pepper Tree, by A. Ames.
A Bodhisattva, Cave 4, Bagh, by Sarkis Katchadourian. (Watercolor.)
Bear Standing on a High Rock, by Edward Kemeys. (Bronzed plaster.)

To Conrad V. Morton, Department of Botany, U. S. National Museum, for display at the Arts Club:

June 19, 1957—— Unknown Man, by Henry Dexter. (Plaster.) (Returned June 26, 1957.)

To the Civil Service Commission, Washington, D. C.:

June 21, 1957—— A Pool in the Forest, by Benjamin Rutherford Fitz.
Housatonic Valley, by Alexander H. Wyant.

LOANS RETURNED

Table, French, 18th century (P. 220), lent August 21, 1953, to the American Institute of Architects, was returned December 6, 1956.

Oil, Capt. John Ericsson, by Arvid Nyholm, lent March 3, 1950, to the House Judiciary Committee, was returned December 28, 1956.

Two oils, Cliffs of the Upper Colorado River, Wyoming Territory, by Thomas Moran, and Mary Abigail Willing Coale, by Thomas Sully, lent December 6, 1955, to the Smithsonian Traveling Exhibition Service to be included in an exhibition "Pennsylvania Painters," were returned January 30, 1957.

Oil, The Continentals, by Frank B. Mayer, lent October 28, 1953, to the Department of State, was returned May 8, 1957.

SMITHSONIAN LENDING COLLECTION

Six oils, Building the United Nations, by Harold Weston (1894–), gift of the Committee of the Weston United Nations Paintings, Mrs. William S. Ladd, Chairman, were accepted December 6, 1955, with a fund of $2,500. The paintings were lent to the Corcoran Gallery of Art on April 9, 1956, and were returned October 8, 1956.

Oil, Episode of the Siege of Lille, 1792, by Gaston Melingue (1840–1914), gift of Thomas G. Young, Jr., was added December 4, 1956.

Oil, Shapes of Fear, by Maynard Dixon (1875–1946), No. 98 in the Henry Ward Ranger Bequest, was added December 4, 1956, with the consent of the National Academy of Design.

Miniature, watercolor on ivory, copy of the Head of the Virgin from Raphael's "The Virgin with the Goldfinch," gift of Henry L. Milmore, was added December 4, 1956.

Tapestry, 17th century, Flemish verdure, gift of John B. Turner, was added December 4, 1956.

Two paintings, by Edwin Scott, Porte St. Martin et Enterrement, and Ship at Anchor, Cherbourg, No. 2, lent February 18, 1953, to the United States District Court for the District of Columbia, were returned May 31, 1957.

The following paintings, oil on canvas unless otherwise noted, were lent for varying periods:

To The White House, Washington, D. C.:

July 27, 1956	Grand Canyon, by Carl Oscar Borg. (Returned August 15, 1956.)
	Guard, by J. Echenal. (Watercolor.)
	Moonlight on the Sea, by Frank W. Stokes.
	Lady of Light, by undetermined artist.

To the Bureau of the Budget, Washington, D. C.:

August 7, 1956	Street in the Pueblo of Zuñi, New Mexico, by De Lancey Gill. (Watercolor.)
October 24, 1956	Grand Canyon, by Carl Oscar Borg.

To the Department of Justice, Washington, D. C.:

February 14, 1957	Musketeer, by G. Camfri. (Watercolor.)

To the Federal Communications Commission, Washington, D. C.:

April 26, 1957	Pueblo Bonita Ruin, by De Lancey Gill. (Watercolor.)
	Italian Woman at the Foot of the Stairs, by Edwin Scott.
	Smoke from the City, by Robert Burns Wilson. (Watercolor.)

To the United States District Court for the District of Columbia, Washington, D. C.:

May 16, 1957	Tiger Lily, by Florence Koehler. (Gouache.)
May 31, 1957	Piazza San Marco, by Henry Bacon. (Watercolor.)
	George Bernard Shaw, by Alice Pike Barney. (Pastel.)
	Alice (Alice Pike Barney), by L. A. Malempre. (Marble bust.)

ALICE PIKE BARNEY MEMORIAL FUND

Additions to the principal during the year amounting to $662.30 have increased the total invested sums in this fund to $37,090.52.

A gift of $1,500 was received from Mrs. Laura Dreyfus-Barney in partial defrayment of the cost of printing a booklet, "Alice Pike

Barney: Paintings in Oil and Pastel," consisting of reproductions from the Lending Collection, given in memory of Alice Pike Barney.

THE HENRY WARD RANGER FUND

No. 36, Midsummer, by William S. Robinson, N. A. (1861–1945), purchased by the Council of the National Academy of Design April 7, 1924, was reassigned by the Academy to George Washington University, Washington, D. C., on March 1, 1956.

According to a provision in the Ranger bequest that paintings purchased by the Council of the National Academy of Design from the fund provided by the Henry Ward Ranger Bequest, and assigned to American art institutions, may be claimed during the 5-year period beginning 10 years after the death of the artist represented, the following four paintings were recalled for action of the Smithsonian Art Commission at its meeting December 4, 1956:

No. 59, Days of Sunshine, by William Wendt, A. N. A. (1865–1946), assigned to the Malden Public Library, Malden, Mass., in 1926, was accepted to become a permanent accession.

No. 72, The Golden Hour, by George Elmer Browne, N. A. (1871–1946), was returned to the Michigan State College of Agriculture and Applied Science, East Lansing, Mich., where it was originally assigned in 1929.

No. 98, Shapes of Fear, by Maynard Dixon (1875–1946), assigned to the Brooklyn Institute of Arts and Sciences, The Brooklyn Museum, Brooklyn, N. Y., in 1932, was reassigned, with permission of the National Academy of Design, to the Smithsonian Lending Collection.

No. 119, Furbelows, by Albert Sterner, N. A. (1863–1946), assigned to St. Gregory College, Shawnee, Okla., in 1942, was accepted to become a permanent accession.

The following paintings, purchased by the Council of the National Academy of Design since the last report, have been assigned as follows:

Title and Artist	*Assignment*
180. Mansion in Dutchess County, by Hobson Pittman, N. A. (1900–).	Museum of Cranbrook Academy of Art, Bloomfield Hills, Mich.
181. Attic Windows, by Charles Taylor (1911–).	Montclair Art Museum, Montclair, N. J.
182. Demolition, by Harry Leith Ross, N. A. (1886–).	Pennsylvania Academy of Fine Arts, Philadelphia, Pa.
183. Picnic Along the Brook, by John E. Costigan, N. A. (1888–).	Agnes Scott College, Decatur, Ga.
184. Ruined Cathedral (watercolor), by Ralph Hulett (1915–).	The Andrew Dickson White Museum of Art, Cornell University, Ithaca, N. Y.
185. At Home (watercolor), by Walter Biggs, N. A. (1886–).	Oklahoma Art Center, Oklahoma City, Okla.
186. Quince Street (watercolor), by W. Emerton Heitland, N. A. (1893–).	(Not yet assigned.)
187. Toward Evening, by Junius Allen, N. A. (1898–).	Columbia Museum of Art, Columbia, S. C.

SMITHSONIAN TRAVELING EXHIBITION SERVICE

Eighty-six exhibitions were circulated and shown in 198 museums and galleries during the past season, 81 in the United States and 5 abroad, as follows:

UNITED STATES

Paintings and Drawings

Title	*Source*
American Indian Painting	Philbrook Art Center, Tulsa, Okla.
A Century and a Half of Painting in Argentina.	Government of Argentina; Argentine Embassy; private collectors.
Argentine Children as Illustrators	Editorial Guillermo Kraft Ltd., Buenos Aires; Argentine Embassy.
As I See Myself	*Arts & Activities* Magazine; Galerie St. Étienne.
Art in Opera	Metropolitan Opera Guild.
California Painting	Long Beach Museum of Art, Long Beach, Calif.
Canadian Abstract Paintings	National Gallery of Canada, Embassy of Canada.
Children's Paintings from Forty-five Countries IV.	Embassy of Denmark; Friendship Among Children and Youth Organization.
Children's Paintings from Forty-five Countries V.	
Children's Paintings from Forty-five Countries VI.	
Children's Paintings from Japan	United Nations Educational, Scientific, and Cultural Organization.
Dutch Art 1945–55 (and sculpture)	Dr. W. Sandberg, Stedelijk Museum; Mr. E. L. de Wilde, Van Abbe Museum; Mr. A. M. Hammacher, Kröller-Müller State Museum; Embassy of the Netherlands.
Ethiopian Paintings	George Washington University; Mr. Bruce Howe, Embassy of Ethiopia.
A Frenchman in America, Charles Alexandre Lesueur.	Museum of Le Havre; American Embassy in Paris.
Six Japanese Painters	National Museum of Modern Art, Tokyo; artists.
Kokoschka's Magic Flute	Minneapolis Institute of Arts; artist; Embassy of Austria.
Pennsylvania Painters	Pennsylvania State University, State College; museums; private collectors.
Plant Portraits	University of Colorado Museum, Boulder.
Work by Rudy Pozzatti (and prints).	Print Club of Cleveland; Cleveland Museum of Art; dealers; private collectors.
Sargent Watercolors	Museum of Fine Arts, Boston.
Seal Islands	Cleveland Museum of Natural History.
Watercolor Today	Toledo Museum of Art; dealers; artists.
Contemporary Swedish Paintings	National Museum, Stockholm; Swedish Embassy.

Paintings and Drawings—Continued

Title	*Source*
Swedish Children's Paintings	National Museum, Stockholm; Swedish Embassy.
Paintings by Tessai	Kokusai Bunka Shinkokai; National Museum of Modern Art, Tokyo; Kiyoshi Kojin Temple in Takarazuka; Rev. Bishop Kojo Sakamoto.

Graphic Arts

American Printmakers	University of Illinois, Urbana; artists.
George Bellows Prints and Drawings.	National Gallery of Art; Boston Public Library; Library of Congress; Fogg Art Museum of Harvard University.
Recent British Lithographs	British Arts Council; British Embassy.
Contemporary German Prints	National Gallery of Art.
Japanese Fish Prints	Dr. Yoshio Hiyama; Kokusai Bunka Shinkokai; Japanese Embassy; American Museum of Natural History.
Japanese Woodcuts I Japanese Woodcuts II	United Nations Educational, Scientific, and Cultural Organization; Japanese National Commission.

Architecture

A Half-Century of Architectural Education.	School of Architecture, Georgia Institute of Technology.
Architectural Photography I Architectural Photography II	American Institute of Architects; Architectural Photographers Association; George Eastman House.
Contemporary Danish Architecture	Prof. Kay Fisker, Royal Academy of Copenhagen; Embassy of Denmark.
Contemporary Finnish Architecture	Finnish American Society; Association of Finnish Architects; Embassy of Finland.
German Architecture Today	Bund Deutscher Architekten; German Embassy.
Landscape Architecture Today	California Redwood Association.
New Libraries	American Institute of Architects.
San Francisco Bay Region Architecture.	California Redwood Association; Northern California Chapter, American Institute of Architects.
Venetian Villas I Venetian Villas II	Soprintendenza ai Monumenti Medievali e Moderni, Venice; Embassy of Italy.

Design

American Craftsmen, 1957	Mr. Robert von Neumann, University of Illinois, Urbana; artists.
American Craftsmen II	University of Illinois, Urbana; artists.
Contemporary American Glass	Corning Museum of Glass.
American Jewelry and Related Objects I.	Huntington Galleries, Huntington, W. Va.; artists; Hickok Co.

Design—Continued

Title	*Source*
American Jewelry and Related Objects II.	Rochester Memorial Art Gallery, Rochester, N. Y.; artists; Hickok Co.
Recent Work by Harry Bertoia	Knoll Associates; artist.
Contemporary European Tapestry	Contemporary Arts Association, Houston, Tex.; artists; private collectors; museums.
Dutch Arts and Crafts	Ministry of Education, Arts and Sciences in The Hague; Netherlands Embassy.
European Glass Design	Georg Jensen, Inc.; designers.
Fifty Years of Danish Silver	Georg Jensen, Inc.; Danish Embassy.
Finnish Crafts	Waertsila-Arabia and other Finnish Manufacturers; Finnish-American Society, Helsinki; Finnish Embassy; artists, Tapio Wirkkala and Rut Bryk.
Italian Arts and Crafts	Compagnia Nazionale Artigiana, Rome; Italian Embassy.
Midwest Designer-Craftsmen	Art Institute of Chicago; artists.
New England Crafts	Worcester Art Museum; Junior League of Worcester, Inc.; The Craft Center, Worcester, Mass.
Good Design in Switzerland	Schweizer Werkbund; Embassy of Switzerland.

Books

German Art Books	Association of German Booksellers; German Embassy.
International Children's Books	Washington Post Times-Herald Book Fair; embassies.
Sixty Swedish Books	Dr. Uno Willers, Royal Library of Stockholm; Embassy of Sweden.
A World of Children's Books	Washington Post Times-Herald Book Fair; embassies.

Oriental Art

Chinese Ivories from the Collection of Sir Victor Sassoon.	Sir Victor Sassoon, London.

Folk Art

Americana	Index of American Design, National Gallery of Art.
Early American Woodcarving	Index of American Design, National Gallery of Art.
Eskimo Art III	Eskimo Art, Inc.; Canadian Handicrafts Guild.
Popular Art in the United States	Index of American Design, National Gallery of Art.
Punch and Judy	Index of American Design, National Gallery of Art.
Scrimshaw Exhibition	Colonel Leslie Buswell.

Folk Art—Continued

Title	*Source*
Swiss Peasant Art	R. Hanhart, Director, Museum, St. Gall; Pro Helvetia Foundation; Embassy of Switzerland.
Ansel Adams Photographs 1933–1953.	Artist; George Eastman House, Rochester.
Birds in Color, by Eliot Porter	Artist; American Museum of Natural History.
Japan I, by Werner Bischof	Magnum Photos, Inc.
Japan II, by Werner Bischof	Magnum Photos, Inc.
Perceptions	Mrs. Dody Warren Weston and Donald Ross; San Francisco Museum of Art; photographers.
This is the American Earth	Ansel Adams; Nancy Newhall; National Park Service; California Academy of Sciences; Sierra Club.
The World of Edward Weston	Beaumont and Nancy Newhall; artist; George Eastman House.
Young Germans Behind the Camera	Dr. L. Fritz Gruber, Photokina, Cologne; German Embassy.

Anthropology

Carl Bodmer Paints the Indian Frontier.	Karl Viktor, Prinz zu Wied; German Embassy.
A. J. Miller Watercolors	Walters Art Gallery, Baltimore, Md.
Swedish Rock Carvings	Dr. Per Nyström, Governor of the Province of Göteborg and Bohus, Embassy of Sweden.

EXHIBITIONS CIRCULATED ABROAD

John Marin.
This is the American Earth (4 copies).

INFORMATION SERVICE AND STAFF ACTIVITIES

In addition to the many requests for information received by mail and telephone, inquiries made in person at the office numbered 2,293. Examination was made of 836 works of art submitted for identification.

An illustrated and descriptive catalog, by Paul Vickers Gardner, entitled "Meissen and Other German Porcelain in the Alfred Duane Pell Collection," was published in July 1956.

An illustrated booklet, "Alice Pike Barney: Paintings in Oil and Pastel," with foreword by Thomas M. Beggs, was published in May 1957.

Special catalogs were published for the following 11 exhibitions: A Half-Century of Architectural Education; Contemporary Danish Architecture; Dutch Art 1945–1955; George Bellows Prints and Drawings; German Architecture Today; Sixty Swedish Books;

Swedish Rock Carvings; Canadian Abstract Paintings; German Art Books; Good Design in Switzerland, and Paintings by Tessai. The last four contained acknowledgments written by Mrs. Annemarie H. Pope, chief, Smithsonian Traveling Exhibition Service. Special acknowledgment for the Bellows catalog was written by Miss Jo Ann Sukel, research assistant.

Mr. Beggs gave a talk on 18th-Century Paintings before the Alexandria Woman's Club, and served on the juries of three local shows and one in Virginia. He was elected to the Board of Trustees of the Barney Neighborhood House.

Mr. Gardner gave illustrated lectures and conducted discussion groups on 18th-Century European and China-Trade Porcelains; European Porcelain for Colonial Tables; and Porcelain, Mirror of Fashion, at the Sulgrave and Senior Congressional Clubs in Washington, D. C., and at the Richmond Antiquarian Society and the Alexandria Association in Virginia. His review of "Ceramics for the Archeologist," by Anna O. Shephard, appeared in the May 1957 issue of the Scientific Monthly.

Between August 17, 1956, and March 29, 1957, Mrs. Pope represented the Traveling Exhibition Service on a visit to museums and galleries in Seattle, Wash.; Honolulu, T. H.; Tokyo, Kyoto, Nara, Japan; Taipei, Taichung, Taiwan; Hong Kong; Saigon, Viet-Nam; Phnom Penh, Siem-Réap (Angkor), Cambodia; Singapore; Djakarta, Djokjakarta, Surabaya, Indonesia; Bangkok, Chiengmai, Thailand; Rangoon, Burma; Calcutta, India; Frankfurt, Germany; Amsterdam, Holland; and London, England.

Mr. Lyon represented the National Collection of Fine Arts at a seminar on "Resinous Surface Coatings," held at Oberlin College, Oberlin, Ohio, under the auspices of the Intermuseum Conservation Association. He discussed the organization of art clubs, the planning of stimulating art meetings, and group art trips, for the Petworth Women's Club and the Port Tobacco Art Guild of Southern Maryland. He also judged two local exhibitions and one held at the Fairfax County Court House. On June 28, he left on a 2-month trip through western Europe, expecting to visit British, French, Italian, and Spanish Museums.

Fifty-five paintings in oil on canvas from the permanent collection were cleaned and revarnished, and 66 picture frames were repaired and refinished. Three plaster casts, one sculpture in wood, and one Italian chair were repaired.

The canvases of 9 paintings from the Smithsonian Lending Collection were cleaned, restored, and revarnished, and 12 frames were repaired and refinished.

Six paintings by George Catlin were cleaned, repaired, and revarnished, and two picture frames were refinished for the United States National Museum.

Under special contract, Glenn J. Martin began the cleaning and restoring of 12 paintings in the permanent collection.

SPECIAL EXHIBITIONS

Fifteen special exhibitions were held during the year:

August 23 through September 21, 1956.—The Second Biennial Exhibition of Creative Crafts, sponsored by the Ceramic Guild of Bethesda; Clay Pigeons of Kensington; Cherry Tree Designers; Designer-Weavers, and The Kiln Club of Washington, consisting of 113 pieces. Craft demonstrations were given twice daily. A catalog was privately printed.

October 7 through 28, 1956.—The Sixty-fourth Annual Exhibition of The Society of Washington Artists, consisting of 32 paintings and 18 pieces of sculpture. A catalog was privately printed.

November 3 through 25, 1956.—The Nineteenth Metropolitan State Art Contest, held under the auspices of the D. C. Chapter, American Artists Professional League, assisted by the Entre Nous Club, consisting of 203 paintings, sculpture, prints, ceramics, and metalcrafts. A catalog was privately printed.

December 2 through 24, 1956.—Paintings of Life in Greece, Spain, and the United States, by Demetrios J. Kokotsis, sponsored by His Excellency, The Ambassador of Greece, George V. Melas, consisting of 71 oil paintings and 65 sketches. A catalog was mimeographed.

December 9 through 24, 1956.—Contemporary Persian Miniature Paintings of Selected Quatrains of the Rubaiyat of Omar Khayyam, by Hossein Behzad, sponsored by His Excellency, the Ambassador of Iran and Madame Amini, consisting of 50 paintings.

January 6 through 27, 1957.—Twenty-first Exhibition of the Society of Washington Printmakers, consisting of 208 works in the graphic media. A catalog was privately printed.

February 5 through 28, 1957.—In cooperation with the Department of History, an exhibition, "Portraits in Plaster," consisting of 38 life and death masks and 9 busts of famous European and American statesmen, artists, musicians, and poets, mostly of the 18th and 19th centuries, from a collection assembled in 1929 by Henry C. McComas and presented to the United States National Museum. A mimeographed list was supplied.

March 10 through 29, 1957.—The Thirteenth Annual Exhibition of the Artists Guild of Washington, consisting of 50 paintings and 3 pieces of sculpture. A catalog was privately printed.

March 10 through 29, 1957.—The Tenth Annual Exhibition of the Washington Sculptors Group, consisting of 58 pieces of sculpture. A catalog was privately printed.

April 7 through 28, 1957.—Exhibition of Contemporary Paintings of Life in Pakistan, by Zainul Abedin under the sponsorship of His Excellency, the Ambassador of Pakistan and Begum Ali, consisting of 52 paintings. A catalog was privately printed.

April 14 through 28, 1957.—Exhibition of 115 color renderings, "500 Years of Turkish Tiles," by Captain Izzet Çetin; 14 photographs showing interiors and exteriors of buildings in Turkey which contained the tile of which the renderings

were made; three books of descriptive materials on Persian and Turkish tiles, and 15 tiles and 1 plate by a modern ceramist, Fureya, was held under the sponsorshipship of the Turkish Embassy. A leaflet was privately published.

May 5 through June 2, 1957.—The Sixtieth Annual Exhibition of the Washington Water Color Club, consisting of 157 watercolors, pastels, prints, and drawings. A catalog was privately printed.

May 5 through June 2, 1957.—The Twenty-fourth Annual Exhibition of the Miniature Painters, Sculptors, and Gravers Society of Washington, D. C., consisting of 183 examples. A catalog was privately printed.

June 8 through July 7, 1957.—Exhibition of 69 photographs of the Appalachian Trail and its activities, by members of the Potomac Appalachian Trail Club.

June 30 through July 7, 1957.—Exhibition of 33 Contemporary Paintings of Indonesia, by Derachman, sponsored by His Excellency, Moekarto Notowidigdo, Ambassador of the Republic of Indonesia. A catalog was privately printed.

Respectfully submitted.

THOMAS M. BEGGS, *Director.*

Dr. LEONARD CARMICHAEL,
Secretary, Smithsonian Institution.

Report on the Freer Gallery of Art

SIR: I have the honor to submit the thirty-seventh annual report on the Freer Gallery of Art, for the year ended June 30, 1957.

THE COLLECTIONS

Thirty-nine objects were added to the collections by purchase as follows:

BRONZE

56.15 Chinese, Han dynasty (207 B. C.–A. D. 220). Square ceremonial vessel of the type *hu*; decorated with human figures in hunting and legendary scenes cast in relief. 0.369 x 0.225.

56.19. Chinese, Shang dynasty (ca. 12th century B. C.). Ceremonial tripod of the type *chüeh* decorated with casting in relief; inscription of one character. 0.197 x 0.167.

56.26. Chinese, Shang dynasty. Ceremonial vessel of the type *p'an* decorated with casting in relief; inscription of one character. 0.121 x 0.325. (Illustrated.)

56.29. Chinese (Ordos), Han dynasty. Openwork plaque showing two fighting animals cast in relief and with incised decoration. 0.115 x 0.069.

56.31. Chinese, Shang dynasty. Battleax with decorations cast in low relief. 0.182 x 0.060.

57.12. Chinese, Sung dynasty (A. D. 960–1279). Eight-lobed mirror with silvery surface; decorated with phoenixes and cosmic symbols cast in relief; inscription of 40 characters. Diameter: 0.224.

GOLD

57.3. Persian, 11th–12th century. Ring decorated with turquoises, pearls, and designs in niello. 0.037 x 0.020.

JADE

56.16. Chinese, Early Chou dynasty (ca. 11th century B. C.). Large ceremonial perforated disk of the type *pi*; mottled green and brown nephrite. Diameter: 0.458.

LACQUER

57.8. Japanese, Kamakura period (A. D. 1192–1333). Seated image of Dai Nichi Niorai carved in wood and covered with gold lacquer, with gilt bronze crown, crystal eyes and *urna*, lotus throne. Overall: 0.735 x 0.505.

MANUSCRIPT

56.11. Armenian, 13th century. Gospel of 294 parchment leaves by the priest, Thoros, Monastery of Grner, Cilicia, A. D. 1263; black and gold text and 13 full-page pantings; modern binding. Average page: 0.204 x 0.150.

57.13. Iraq (Baghdad ?), second half 14th century. Leaf of a copy of Qazwini's 'Ajā'ib al Makẖlūqāt ("Wonders of Creation"); miniature showing wild cattle. 0.327 x 0.230.

56.14. Persian, 16th century. Hātifī's *Haft Manzar* written by Mīr 'Ali on 104 paper leaves of various colors; red leather binding with gold decoration. Overall: 0.262 x 0.168.

PAINTING

56.22. Chinese, Yüan dynasty (1260–1368). Bamboo in the snow, in ink on paper; by T'an Chih-jui; one inscription and one seal on painting. 0.314 x 0.206.

56.27. Chinese, Ch'ing dynasty (1644–1912). Landscape in ink and full color on paper; by Wang Chien; dated in correspondence with A. D. 1688; 1 inscription and 15 seals on painting. 1.355 x 0.625.

56.28. Chinese, Ming dynasty (1368–1644). Landscape in ink and color on paper; by Shen Chou; dated in correspondence with A. D. 1491; one inscription and five seals on painting. 1.125 x 0.598.

57.4. Chinese, Ch'ing dynasty (1644–1912). Landscape, "Peach-blossom Spring," after a story by T'ao Ch'ien; in ink and colors on paper; by Tao-chi; poem by the artist and one inscription on painting. 0.250 x 1.578.

57.14. Chinese, Yüan dynasty (1260–1368). Scroll in ink and colors on paper showing Yang Kuei-fei mounting a horse; by Ch'ien-hsüan (13th century); inscription and 14 seals on painting. 0.295 x 1.170.

56.12. Indian, Mughal, first half of the 17th century. Leaf from the "Jahāngīr Album"; recto: landscape with elephant, mahout, and servant; verso: a quatrain in *nasta'līq* on illuminated ground. Overall: 0.425 x 0.265. (Illustrated.)

56.8–56.10. Japanese, Ashikaga period (1333–1568). Set of three landscapes in ink on paper; each bears a seal purporting to be that of Kano Motonobu (1476–1559). Each 0.992 x 0.494.

56.17–56.18. Japanese, Momoyama period (1568–1615). Pair of six-fold screens painted in ink and color on paper; landscape with birds and flowers; attributed to Kano Sanraku. 1.645 x 3.733.

56.20–56.21 Japanese, Edo period (1615–1868). Pair of six-fold screens painted in color on paper with gold ground; two groups of walking cranes; by Kōrin (1658–1716). 1.660 x 3.710.

57.2. Japanese, Edo period, Ukiyoe school. Woman and child walking in the rain; ink and color on silk; by Kubo Shunman (1757–1820); signature, poem, and seal on painting. 0.842 x 0.280.

57.5. Japanese, Edo period, Ukiyoe school. Two courtesans under a tree; ink and color on silk; by Eishi (1756–1829); signature and one seal. 0.983 x 0.375.

57.6. Japanese, Edo period, Ukiyoe school. Two courtesans and a willow tree; in full color on silk; by Eishi (1756–1829); signature and one seal. 0.984 x 0.378.

57.7. Japanese, Edo period, Ukiyoe school. Three courtesans under a cherry tree; ink and color on silk; by Eishi (1756–1829); signature and one seal. 0.983 x 0.377.

57.9. Japanese, Fujiwara period (897–1185). Image of Fudō-son in ink and slight color on silk; attributed to Ichigyo. 1.675 x 1.175.

57.11. Japanese, Ashikaga period (1392–1568). Album of 8 paintings in ink on paper and 8 pages of calligraphy; by Sōami (d. 1525); 16 seals. Average page: 0.280 x 0.514–40.

POTTERY

56.23. Chinese, Sung dynasty (960–1279). Shallow dish of *Tz'u-chou* type; buff stoneware covered with white slip; decorated with green and red enamels over the glaze. 0.032 x 0.130.

56.24. Chinese, Sung dynasty (960–1279). Tea bowl of *Chien* type; coarse buff stoneware with thick blackish-brown glaze. 0.055 x 0.110.

56.25. Chinese, Ming dynasty, Hsüan-te period (1426–1435). Bottle-shaped vase of gray stoneware covered with thick, even, sea-green celadon glaze; six-character mark of the period incised under glaze on base. 0.257 x 0.139.

56.30. Chinese, Six Dynasties (265–589). Ewer of coarse gray stoneware covered with thick, oily, blackish-brown glaze; *Yüeh* ware of *Te-ch'ing* type. 0.235 x 0.116.

56.32. Chinese, Ming dynasty (1368–1644). Plain white porcelain vase in form of a faceted cube with cylindrical neck, two loop handles, high flaring base; four characters *ssŭ-nien-shih-yang* in underglaze blue under base; early 15th century. 0.240 x 0.131.

56.13. Japanese, 17th century, Kakiemon ware. Large white porcelain jar decorated in colored enamels over the glaze. 0.404 x 0.310. (Illustrated.)

57.1. Japanese, 18th century, Imari ware. Large white porcelain dish decorated in underglaze blue and enamel colors and gold. 0.555 x 0.077.

57.10. Japanese, 18th century, Kutani ware. White porcelain octagonal dish on high round foot; decorated in underglaze blue and enamel colors; character *fuku* in underglaze blue under base. 0.087 x 0.228.

REPAIRS TO THE COLLECTIONS

Thirty-two Chinese and Japanese objects were restored, repaired, or remounted by T. Sugiura. In addition to this work on the collections, Mr. Sugiura completed *t'ao* for 26 Chinese books. Assisted by his son Atsushi, he also mounted a large wall map, which was hung in the office. One Chinese painting was repaired for Dumbarton Oaks Library and Collections, and one page of calligraphy was mounted for the United States Department of State.

CHANGES IN EXHIBITIONS

Changes in exhibitions amounted to 1,603. This unusually large number is accounted for by the air-conditioning of the building, redecoration of exhibition galleries, and reinstallation of exhibitions. The changes were as follows:

American art:	
Oil paintings	132
Pastels and drawings	34
Watercolors	32
Chinese art:	
Bronze	179
Gold	11
Jade	177
Manuscripts	2

Chinese art—Continued	
Marble	3
Metalwork	26
Paintings	135
Pottery	292
Stone sculpture	26
Christian art:	
Crystal	2
Glass	4
Gold	18
Manuscripts	18
Paintings	8
Stone sculpture	2
Indian art:	
Bronze	2
Manuscripts	12
Paintings	26
Stone sculpture	8
Japanese art:	
Bronze	2
Lacquer	34
Paintings	130
Pottery	44
Wood sculpture	6
Korean art:	
Bronze	2
Pottery	36
Near Eastern art:	
Bookbindings	10
Crystal	2
Glass	8
Manuscripts	16
Metalwork	36
Paintings	86
Pottery	36
Stone sculpture	2
Tibetan art:	
Paintings	4

LIBRARY

The specialized museum library must combine many services. It must be a research unit for the staff and graduate students for documenting the gallery's objects and its possible acquisitions; it must serve the high-school, college, and university students, and all those studying the Oriental arts.

The reference service of the library is the most difficult to measure statistically. Each request answered requires immeasurable time, ingenuity, and imagination. The number of scholars from all parts of the world who used the library nearly doubled in number during the year. One visiting scholar, Miss Wellesz, was very grateful when the librarian was able to give her the name of the library in Washington

that had the rare book she had been searching for in Berlin, the British Museum, and the Library of Congress.

With the decataloging of material not in the Freer library subject field it is planned that the future acquisitions adhere to the policy of the library—to supplement the objects of art in the collections. Limited stack space is another governing control.

The most important acquisitions to the library in the past year were 784 books, pamphlets, and periodicals. Of these, 452 were welcome gifts from individuals and exchanges from other institutions. Outstanding among the purchases were *Art and art industry in Siam*, published in two elephant-sized folios, which describe and illustrate the technique of Siamese black-and-gold lacquer work; *Materiaux pour un corpus inscriptionum arabicarum*, issued in three parts in seven tomes of sixteen fascicles and as a part of the *Mémoires* published by the members of the Mission Archéologique Française au Caire; and the first three volumes of Dr. Sirén's work on *Chinese painting, leading masters and principles*. James Michener presented the library with the large folio of *Ukiyoe hanga senshu* (Selected masterpieces of Ukiyoe prints). Microfilms were purchased of the out-of-print books to round out some of the reference materials.

Many bibliographies were compiled; some for publication, a few for replies to letters, and many others for the objects of art in the collections.

PUBLICATIONS

There were no publications issued during the year. *Ars Orientalis* II was in press at the close of the year.

REPRODUCTIONS

The photographic laboratory made 2,510 items during the year as follows: 1,924 prints, 291 negatives, 1,255 color transparencies, and 40 black-and-white slides. Total negatives on hand, 11,308; lantern slides, 10,000; 121 reproductions in the round of Freer Gallery objects were sold.

BUILDING

The general condition of the building is good. Minor repairs were made when necessary throughout the year, and broken and damaged skylights were replaced and waterproofed. Paint was removed from the flagpole and two new coats applied.

Installation of air-conditioning equipment in the building, begun on August 6, 1956, was continued. A cooling tower was installed on the north side of the roof to work in conjunction with the air-conditioning equipment in the subbasement, and other major changes throughout the entire building were made.

56.26

Recent addition to the collections of the Freer Gallery of Art.

56.12

56.13

Recent additions to the collections of the Freer Gallery of Art.

Sections of the terrazzo floors in Galleries 13 and 17 were laid or reground and polished. A vinyl tile floor was installed in the technical laboratory.

The work of making exhibition cases for the galleries continued in the cabinet shop, and miscellaneous odd jobs related to storage, exhibition, restoration, crating, and maintenance of office and Gallery equipment were carried on as usual. Much time was given to various jobs arising as air conditioning of the building progressed, such as dustproofing all grills throughout the entire gallery floor, offices, and storage rooms.

In the court all plantings appear to be doing well. A few replacements were made in the azalea bed, and one American boxwood and one *Ligustrum* were set out to fill in the southeast corner of the court. The fountain was drained, cleaned, repointed, and waterproofed, and drainage around the fountain was corrected. To provide adequate watering, four 20-foot sprinklers were installed in the four corners of the court.

ATTENDANCE

The Gallery was open to the public from 9 to 4:30 every day except Christmas Day. The total number of visitors to come in the main entrance was 112,443. The highest monthly attendance was in April, 14,452, and the lowest was in January, 4,124.

Even while undergoing a major building change of air-conditioning, the office handled 1,948 visitors for the following purposes:

General information	861
To submit objects for examination	370
To see staff members	173
To take photographs in court or exhibition galleries	121
To study in library	252
To see building and installations	25
To examine or borrow slides	12
To sketch in galleries	21
To use Herzfeld Archive	1
To see objects in storage:	
American art	19
Armenian, Byzantine, Greek MSS., etc	3
Christian art (Washington MSS.)	18
Far Eastern jade, lacquer, wood, ivory, textiles, etc	11
Far Eastern paintings	83
For Eastern metalwork	12
Far Eastern pottery	48
Near Eastern glass, bookbindings, etc	13
Near Eastern metalwork	8
Near Eastern paintings	21
Near Eastern pottery	9

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AUDITORIUM

The series of illustrated lectures was continued as follows:

1956	
October 16.	Dr. Richard Edwards, Washington University (St. Louis). "Unique Aspects of Chinese Painting." Attendance, 119.
November 13.	George N. Kates, "The Imperial Lakes of the Forbidden City, Peking." Attendance, 208.
1957	
January 15.	Dr. Carl H. Kraeling, Oriental Institute, University of Chicago. "Recent Explorations in Libya." Attendance, 63.
February 12.	James F. Cahill, Freer Fellow. "Painting—Albums in China and Japan." Attendance, 119.
March 19.	E. Arthur Lane, Keeper of Department of Ceramics, Victoria and Albert Museum, London. "Islamic Pottery, XIV–XVIII Centuries." Attendance, 116.
April 16.	Dr. Alexander Soper, Bryn Mawr College. "The Southern Contribution to Early Buddhist Art in China." Attendance, 71.

Three outside organizations used the auditorium, as follows:

1956	
November 27, 28.	The United States Department of Agriculture held meetings for field staff members of the Federal Extension Service. Attendance, 78 and 95, respectively.
1957	
February 5.	Under the auspices of the Turkish Embassy, Prof. Nureddin Sevin, Ankara State Conservatory, Ankara, Turkey, lectured on "Turkish Art Through the Centuries." (Illustrated.) Attendance, 163.
February 25.	The Agriculture Extension Wives Group held a conference. Attendance, 14.

Four other meetings were held in the building by the Board of Governors, Washington Society, Archaeological Institute of America, Rutherford J. Gettens, president, as follows:

July 11, 1956	Attendance, 8
October 1, 1956	Attendance, 9
February 28, 1957	Attendance, 8
May 20, 1957	Attendance, 10

STAFF ACTIVITIES

The work of the staff members has been devoted to the study of new accessions, of objects contemplated for purchase, and of objects submitted for examination, as well as to individual research projects in the fields represented by the collections of Chinese, Japanese, Persian, Arabic, and Indian materials. Reports, oral or written, and exclusive of those made by the technical laboratory (listed below) were made on 3,660 objects as follows: For private individuals, 1,603; for

dealers, 787; for other museums, 1,270. In all, 1,850 photographs were examined, and 563 Oriental language inscriptions were translated for outside individuals and institutions. By request, 16 groups totaling 314 persons met in the exhibition galleries for docent service by staff members. Two groups totaling 25 persons were given docent service in the storage rooms by staff members.

Among the visitors were 57 distinguished foreign scholars or persons holding official positions in their own countries who came here under the auspices of the State Department to study museum administration and practices in this country.

In the technical laboratory 51 objects from the Freer collections and 46 from outside sources were examined. The following project was begun:

1. Collection of specimens and information on various efflorescences on objects in museum cases.

The following projects were continued:

1. X-ray diffraction studies on jade objects in the Freer collections.
2. Collection of further specimens and information about the occurrence and distribution of smalt (cobalt blue glass pigment) in the Near and Far East.
3. Collection of further specimens and information about Maya blue pigment from Central American sources.
4. Collection of further specimens and information on the red pigment vermilion on ancient Chinese objects.
5. Examination of specimens of wall paintings from the ancient Christian church of the Chora in Istanbul in cooperation with Dumbarton Oaks Research Library and Collection.

The following projects were completed:

1. Development of technique of mounting paint cross sections in cold-setting polyester resin for microscopic identification.
2. Preparation of a selected bibliography on the conservation of ancient bronzes.
3. Conservation and treatment of several Freer objects, including bronzes, pottery, stone reliefs, and wooden sculptures.
4. Collection of about 400 quantitative chemical analyses of ancient bronzes reported in the literature.

During the year, 7 written reports were made and 37 verbal reports given on objects examined in the technical laboratory.

In August, Dr. Pope began a 7-month trip to the Far East and Southeast Asia to study museums, private collections, and kilnsites in connection with his research in various phases of Far Eastern ceramics. After brief visits to the museums in Seattle and Honolulu, he spent 2 months in Japan, 2 weeks in Formosa, 10 days in Hong Kong, 5 days in Saigon, 3 days in Phnom Penh, 6 days at Angkor, and a week in Singapore. Then followed 17 days in Java, 2 weeks in Sarawak, a month in Thailand, 3 days in Rangoon, a week in Calcutta, and 2 weeks

in London to see further collections and consult with colleagues en route home.

By invitation the following lectures (illustrated unless otherwise noted) were given outside the Gallery by staff members:

1956

July 9. Dr. Ettinghausen, at the opening of an exhibition of Islamic art sponsored by the Summer Institute of Middle Eastern Studies of Ohio State University at the Ohio State Historical Museum, on "Islamic Art." Attendance, 175.

September 24. Dr. Pope, at the American Embassy, Tokyo, Japan, on "Chinese Ceramics in the Freer Gallery of Art." Attendance, 40.

October 16. Dr. Pope, at Jimbun Kagaku Kenkyusho (Institute for Humanistic Studies), Kyoto, Japan, on "Chinese Porcelains from the Ardebil Shrine." Attendance, 100.

November 9. Dr. Ettinghausen, in Baltimore, to the Women's Committee, Baltimore Museum of Art, on "Persian Miniature Painting." Attendance, 196.

November 14. Mr. Gettens, in Bethesda, Md., at the Abracadabra Club, on "The Van Meegeran Art Forgery Case and Trial." (Illustrated with his own photographs.) Attendance, 25.

1957

January 7. Mr. Stern, at the University of Maryland, on "Japanese Wood-block Prints" at the opening of an exhibition of Ukiyoe wood-block printing. Attendance, 50.

February 12. Mr. Gettens, at the Broadmoor Hotel, Washington, D. C., to the American Ceramic Society, Baltimore-Washington Section, on "The Early Use of Cobalt Minerals in the Coloring of Smalt, Glass and Pottery Glaze." Attendance, 30.

February 13. Mr. Stern, at the opening of the exhibition of the Hauge Collection, American University, Washington, D. C., on "Japanese Art." Attendance, 60. This was recorded for future broadcasts by the Voice of America, television and radio.

February 14. Mr. Gettens, at the Presbyterian Church, Falls Church, Va., to the Women's Group, on "Some Personal Experiences with the Dead Sea Scrolls." Attendance, 140.

February 25. Dr. Pope, at the Siam Society, Bangkok, on "The Smithsonian Institution and the Freer Gallery of Art." Attendance, 50.

March 20. Dr. Pope, at the Oriental Ceramic Society, London, on "Things of Interest Seen on My Trip." Attendance, 125.

April 29. Dr. Pope, at the Cosmos Club, Washington, D. C., on "Art in the Orient." Attendance, 275.

June 22. Mr. Gettens, at the Presbyterian Church, Mooers, N. Y., Sesquicentennial Celebration, on "Some Personal Experiences with the Dead Sea Scrolls." Attendance, 125.

Members of the staff traveled outside Washington on official business as follows:

1956

July 17–20. Mr. Gettens, in Cambridge, Mass., Fogg Art Museum, consulted the Conservation, Oriental, and Photography Departments about old records and photographs on smalt. Sampled three Fogg objects in connection with this technical problem.

July 21–22. Dr. Ettinghausen, in Cincinnati, Ohio, the Cincinnati Museum of Art, to study Near Eastern and Indian collections.

August 2–6. Dr. Ettinghausen, in Ann Arbor, at the University of Michigan, discussed *Ars Orientalis* III. Also visited the Kelsey Museum of Archaeology to see a Coptic exhibition.

August 7. Dr. Ettinghausen, in Detroit, to see the Near Eastern collection at the Detroit Institute of Arts.

August 11. Dr. Ettinghausen, in Corning, N. Y., examined objects at the Corning Museum of Glass and discussed research problems with their staff.

August 24. Dr. Ettinghausen, in Cambridge, Fogg Art Museum, saw an exhibition of Islamic art and studied their photographic collection. Examined objects at the Center of Middle Eastern Studies and in two private collections.

August 28. Dr. Ettinghausen, in Cambridge, examined Russian publications on Near Eastern archeology in the Semitic Museum, Harvard University. In Boston, examined objects at the Isabella Stewart Gardner Museum and the Museum of Fine Arts.

September 4. Mr. Stern, in New York, examined objects at dealers.

September 5. Miss Elisabeth West, in Toronto, Canada, at the Royal Ontario Museum of Archaeology, visited their laboratory where she examined objects and obtained samples of early Chinese blue glass for the Freer Gallery technical laboratory.

September 6–7. Mr. Gettens, in Corning, N. Y., examined objects at the Corning Museum of Glass and watched the processing and etching of glass.

September 20. Mr. Gettens, in Atlantic City, N. J., read a paper entitled "On the Origin of Smalt and the Early Use of Cobalt in Blue Glass and Pottery Glazes" at a symposium held by the American Chemical Society on "Ancient Chemistry." Attendance, 30.

October 5. Mr. Wenley and Mr. Stern, in Philadelphia, attended the opening of the exhibition of the Caspary Collection at the Philadelphia Museum of Art.

October 9. Dr. Ettinghausen, in Baltimore, examined objects at the Walters Art Gallery and the Baltimore Museum of Art.

October 28–30. Mr. Wenley, in Ann Arbor, attended a meeting of the Freer Fund Committee and conferred with staff members about *Ars Orientalis.*

1956

November 9–10. Mr. Stern, in New York, examined objects at the Willard Gallery and the Oriental Art Gallery.

November 23–26. Mr. Gettens, in New York, examined objects at dealers and in one private collection. Conferred with the Director of the Metropolitan Museum of Art about a Rembrandt painting.

November 30. Mr. Gettens and Miss Elisabeth West, in Baltimore, examined paintings in the Walters Art Gallery and obtained paint samples from Flemish and Florentine paintings.

December 3–7. Dr. Ettinghausen, in New York, examined objects belonging to dealers.

December 28–29. Mr. Gettens, in Philadelphia, attended the annual meeting of the Archaeological Institute of America; examined objects in the Pennsylvania Academy of Fine Arts and the University of Pennsylvania Museum, and also observed the restoration work in progress in Independence Hall.

1957

January 10–13. Mr. Stern, in New York, examined objects at dealers and in the Metropolitan Museum of Art.

January 24. Dr. Ettinghausen, in New York, examined objects at dealers and in one private collection.

February 1. Dr. Ettinghausen, in Baltimore, examined objects at the Baltimore Museum of Art.

February 2. Dr. Ettinghausen, in Baltimore, examined objects at the Walters Art Gallery.

March 8–9. Dr. Ettinghausen, in Chicago, attended a conference on the composition of a manual for the teaching of Islamic civilization sponsored by the University of Chicago and the Rockefeller Foundation. Examined photographs at the Oriental Institute.

March 11. Dr. Ettinghausen, in Minneapolis, examined objects at the Minneapolis Institute of Art.

March 12. Dr. Ettinghausen, in Chicago, examined objects at the Art Institute of Chicago.

March 11–13. Mr. Gettens, in Chicago, attended a Conference on Archaeological Identification and the Cooperation of Specialists in Related Disciplines at the Oriental Institute, University of Chicago, under the auspices of the National Research Foundation. He read a paper entitled "Problems in Archaeological Identifications: the Identification of Materials of Cultural Remains." Attendance, 40.

April 2–5. Mr. Gettens, in Oberlin, Ohio, attended a seminar on "Resinous Surface Coatings" at Oberlin College under the auspices of the Intermuseum Conservation Association. He read a paper entitled "Summary of the History of Resinous Surface Coatings." Attendance, 50.

April 2–6. Mr. Wenley, in Boston, attended the sessions of the Ninth Annual Meeting of the Association for Asian Studies (formerly the Far Eastern Association, Inc.), the Far Eastern Ceramic Group, and the Far Eastern Ceramic Group Council.

April 11–12. Mr. Wenley, in Ann Arbor, attended a meeting of the Freer Fund Committee at the University of Michigan.

1957

April 23–25. Mr. Wenley, in Princeton, N. J., attended sessions of the American Oriental Society, and in the absence of Dr. Schuyler Cammann, presided as chairman at the meeting of the Far Eastern Section.

April 26. Mr. Wenley and Dr. Ettinghausen, in New York, examined objects at dealers. Attended the dinner and formal opening of the Kevorkian Gallery of Ancient Near Eastern Art at the Brooklyn Museum of Art.

April 27. Mr. Wenley and Dr. Ettinghausen, in New York, examined objects at dealers.

May 21. Mrs. Lnor O. West, in Chicago, attended the Museum Store Association meeting at the Art Institute of Chicago.

May 25–26. Mr. Wenley, in St. Louis, Mo., attended the Association of Art Museum Directors meetings at the City Art Museum.

June 3–5. Mr. Gettens, in Winterthur, Del., attended the symposium on Museum Operation and Connoisseurship and participated in the round-table discussion on "Case Study, Identifying and Interpreting an Object" at the Henry Francis du Pont Winterthur Museum.

June 24–26. Mrs. Bertha M. Usilton, at Kansas City, Mo., attended the annual meeting and Art Reference Round Table of the American Library Association.

June 25–28. Mr. Gettens, in Boston, examined objects at the Fogg Art Museum in connection with his technical projects.

Members of the staff held honorary posts, received recognition, and undertook additional duties outside the Gallery as follows:

Mr. Wenley:

Research Professor of Oriental Art, Department of Fine Arts, University of Michigan.

Member, Visiting Committee, Board of Overseers of Dumbarton Oaks Research Library and Collection.

Member, Smithsonian Art Commission.

Member, Advisory Committee on Exchange in the Arts, Department of State, United States Advisory Commission on Educational Exchanges.

Member, Smithsonian Institution Sub-Committee on Research Programs.

Chairman, Louise Wallace Hackney Scholarship Committee of the American Oriental Society.

Vice President, Textile Museum, Washington, D. C.

Vice President, Cosmos Club, Washington, D. C.

Dr. Pope:

Member, Visiting Committee, Board of Overseers of Harvard College to the Department of Far Eastern Civilizations.

Member, Editorial Board, *Archives* of the Chinese Art Society of America.

President, Far Eastern Ceramic Group.

Made three tape recordings for Radio Sarawak, Kuching: (1) An interview with Tom Harrisson, Curator, Sarawak Museum, about Dr. Pope's interest in the ancient Chinese porcelain trade; (2) an interview by Mr. Harrisson on Dr. Pope's impressions of the excavations made by Mr. Harrisson in the Santubong delta; (3) a talk on Charles Lang Freer and the Freer Gallery of Art.

Dr. Pope: While going through the Freer exhibition galleries, made a tape recording in French in reply to questions by Mme. Fevrier for Voice of America broadcasts.

Dr. Ettinghausen: Organized an exhibition of Islamic art at the Ohio State Historical Museum, Columbus, Ohio, for the Summer Program on the Middle East at Ohio State University.

Discussed the Freer Gallery of Art and its collections in Persian with Mahmoud Danishvar of Tehran. This was tape recorded for use on Voice of America broadcasts.

Translated into Persian his "Foreword, An Exhibition of Illustrations to Fifty Quatrains by Omar Khayyam by the Contemporary Iranian Painter, Hossein Behzad" to be used on Voice of America broadcasts in Iran by Morteza K. Yahyavi.

Made a tape recording in German for Voice of America broadcasts in Vienna, Austria, on "The Freer Gallery of Art and Its Collections." The interviewer was Oliver Bryk.

Mr. Gettens: Chairman, Art Committee, Cosmos Club.

Member, Ad Hoc Committee on Restoration of Catlin Paintings, Smithsonian Institution.

President, Washington Society, Archaeological Institute of America.

Mrs. Usilton: Member, Council of the District of Columbia, Library Association, as Publicity Chairman.

Advisor and critic of the schedules for 700's (Fine Arts) of the Dewey Decimal Classification, 16th edition.

Respectfully submitted.

A. G. Wenley, *Director.*

Dr. Leonard Carmichael,
Secretary, Smithsonian Institution.

Report on the National Air Museum

SIR: I have the honor to submit the following report on the activities of the National Air Museum for the fiscal year ended June 30, 1957:

The occurrence of greatest importance to the National Air Museum during the fiscal year 1957 was the introduction in Congress of a bill proposing the reservation of a definite site on the Mall, in Washington, for the National Air Museum building. Introduced in the Senate on May 2, 1957, by the Honorable Clinton P. Anderson, this bill, S. 1985, would reserve for this Museum an area directly across the Mall from the National Gallery of Art. The site is bounded on the north by Jefferson Drive, on the east by Fourth Street, on the south by Independence Avenue, and on the west by Seventh Street, and would provide space for a building with a base of approximately 300,000 square feet. It has been approved for the Museum by the National Capital Planning Commission.

Great progress was made in establishing a shop for the restoration of aircraft that have long been in storage. The exhibition area remains the same as in former years, but rearrangements were made to give more space to individual exhibits. Important accessions were received. The number of sources from which specimens were obtained compares favorably with other years, while the number of specimens acquired is greater than in any previous year owing to an important transfer of aeronautical instruments and similar material from the National Bureau of Standards.

The fame of the National Air Museum as a depository for evidence of aeronautical history and progress is constantly increasing. More and more time is required from the staff to furnish information to visitors and correspondents. Many demands for facts are received by phone from Government agencies. It is increasingly apparent that the aircraft industry and persons engaged in aeronautical research depend on the Museum for this service. Accurate replies should be given promptly, but the present curatorial staff can no longer keep abreast of the increased demand. Two additional curatorial positions have been authorized, and it is hoped that qualified persons can be obtained to fill them.

ADVISORY BOARD

Two meetings of the Advisory Board of the National Air Museum were held, at which progress was reported and plans discussed.

Two changes occurred in the membership of the Board. Maj. Gen. John P. Doyle, who retired from the Air Force, was succeeded by Maj. Gen. Reuben C. Hood, Jr., as representative of the Chief of Staff of the Air Force. The vacancy created by the death in 1956 of William B. Stout was filled by the Presidential appointment of Lt. Gen. James H. Doolittle. The other members of the Board, Dr. Leonard Carmichael, chairman; Rear Adm. James S. Russell, representing the Chief of Naval Operations; and Grover Loening, Presidential appointee, continued their service on this Board.

At the meeting of the Board on December 14, 1956, all members were present. The chairman summarized the history of the National Air Museum; described progress in the care of stored aircraft; and again acknowledged the generous gift from the Aircraft Industries Association and the Air Transport Association of $25,000, used for an architectural study of a National Air Museum building. Mr. Loening advocated the division of the Museum into two parts: a monumental exhibition building for outstanding specimens, and a secondary facility in suburban Washington for the study collections. Dr. Carmichael outlined the difficulties encountered during efforts to obtain a preferred site for the exhibition building. Because of prospects of expansion, the appointment of a director for the Museum was urged. Cooperation with the new Air Force Central Museum recently established at Wright-Patterson Air Force Base in Ohio was discussed. A letter affirming Air Force policy was presented by General Hood, in which it was stated that aeronautical specimens held by the Air Force that were primarily of national importance would be transferred to the National Air Museum whenever space becomes available for their display. A progress report was presented on the sculpturing and casting of the William Mitchell statue. The Board resolved that it be accepted and an appropriate ceremony be scheduled for its presentation. Following a discussion of several aircraft believed to be available to the Museum, and a statement by Admiral Russell regarding the problems experienced by the Navy in recording and storing specimens being preserved for the Museum, the meeting adjourned.

The next meeting of the Advisory Board was held on May 24, 1957, following the news of the bill introduced in Congress to reserve a site on the Mall for the National Air Museum. All members attended the meeting and enthusiastically discussed the advantages of this site and plans for the building. It was pointed out that details of building construction and exhibition arrangements studied during the planning of buildings for other proposed sites could be utilized in determining the form of structure and interior arrangements for this latest project. It was agreed that the next step would be to obtain authorization by the Congress for the construction of the building and funds for the preparation of plans.

A written report of curatorial activities since the previous meeting was submitted; the need for additional staff, including a director, was considered; and activities of other aeronautical museums were discussed in terms of relation to and cooperation by and with the National Air Museum. Particular attention was given to progress with the William Mitchell statue project.

STEPHENSON BEQUEST

Previous annual reports have included details regarding the authorization by Congress for the Secretary of the Smithsonian Institution to accept as a gift from the late George H. Stephenson of Philadelphia a statue of Brig. Gen. William Mitchell. The sculpturing by Bruce Moore progressed during the year to the completion of the full-sized plaster cast and its delivery to the foundry for casting in bronze. The granite base is being cut. The full-length figure, in World War I uniform, mounted on its base will be about 10 feet in height and, pending completion of the Aeronautical Hall of Fame in the proposed new building, will be placed in the Arts and Industries Building adjacent to Air Force displays. The formal presentation ceremony is scheduled for December 17, 1957, as a climactic feature of the year that celebrates the 50th Anniversary of the United States Air Force.

SPECIAL EVENTS AND DISPLAYS

The year 1956 was celebrated in Denmark as the 50th anniversary of the first flight there by James Christian Ellehammer, which occurred September 12, 1906. A reproduction of his airplane of 1906 was constructed in Denmark, and a copy of his 1909 airplane was flown there. Another feature of the anniversary year occurred on December 11, 1956, when a model of the 1906 aircraft was presented to the Secretary of the Smithsonian Institution for the National Air Museum by His Excellency, the Ambassador of Denmark, Henrik Kauffmann, in the Regents' room of the Smithsonian Building, and in the presence of a distinguished group of officials, aeronautical historians, and Smithsonian personnel. The model is constructed to a scale of 1:14 and reflects Ellehammer's earlier interest in kites in the diamond shape of its principal surface. A miniature reproduction of the engine that Ellehammer made is mounted at the front, and the 3-wheeled chassis and tethering connection illustrates how the aircraft was guided over its circular path and rose for a flight of about 140 feet at a height of about 18 inches, with Ellehammer on a bicycle seat just behind the engine.

For the annual meeting of the Regents of the Smithsonian Institution on January 18, 1957, the National Air Museum displayed a series of scale models illustrating development of United States naval air-

planes. This display was particularly timely because the Vought F8U–1 "Crusader" Navy fighter plane had recently established a new national speed record of 1,015.4 miles an hour. Contrasted with a model of that jet-powered swept-winged fighter was a similarly scaled 1 : 16-size reproduction of the Navy's first seaplane of 1911, which flew at about 50 miles an hour, and of models of Navy planes used in World Wars I and II.

The National Air Museum was represented by the head curator at the National Air Races held at Oklahoma City on Labor Day; at the directors meeting of the National Aeronautic Association, held in Washington on October 2, on the Brewer Trophy Committee to choose the person most prominent in 1956 in the field of aviation education for youth; at the Wright Brothers Banquet of the Aero Club of Washington, on the 53d anniversary of the first flight, December 17, 1956; and at the American Helicopter Society Forum held in Washington on May 10, 1957. At the model airplane exhibition held at Cleveland on February 22, the head curator served as chief judge, selecting three outstanding models for the Museum collections. For the First National Conference on Aviation Education, organized by the National Aviation Education Council and held in Washington March 7–8, 1957, the National Air Museum was represented by both the head curator and the associate curator, the former as speaker on "Aviation as a Vocation and Avocation" and the latter as consultant on Aviation Curriculum Enrichment. Among the 23 lectures given on various aspects of flight during the year by the head curator, two were presented to aeronautical groups at universities, three to units of the Institute of Aeronautical Sciences, and three to military units. Six lecture tours of the aeronautical exhibits were given, five to military units, and the other to a group of progressive youths sponsored by Representative Peter Mack of Illinois.

The Museum participated in three television programs on aeronautical history during the year; the head curator spoke on three radio programs and made sound tapes for two others, all relative to the functions and exhibits of this Museum. Numerous persons preparing broadcast programs consulted the Museum for facts.

IMPROVEMENTS IN EXHIBITS

Many of the displays maintained in the Aircraft Building and in the Aeronautical Hall of the Arts and Industries Building were improved during the year. Several specimens were added to the Robert J. Collier Trophy display illustrating annual awards "for the greatest achievement in aviation in America, the value of which has been thoroughly demonstrated by actual use during the preceding year." The display of the Klemin Plaque awarded annually by the American

Helicopter Society to outstanding personages in that field; the case containing mementos of Wiley Post and his two world flights; the Postal Aviation exhibit featuring models of historic airmail planes; the Amelia Earhart Memorial Collection; and the aeronautical instrument collection were improved. A series of paintings of jet-powered aircraft by the noted artist Charles Hubbell was added to the exhibition of the Whittle jet engine. The case containing noted aeronautical awards, including the Curtiss Marine, Pulitzer, Harmon, Brewer, and Wright brothers trophies, was rearranged and labels were rewritten. The case containing model aircraft of the first World War and the commercial models exhibit were rearranged, and the impressive series of models illustrating types developed by the Wright brothers and their company was improved by the addition of several models, prints, and structural specimens. A seasonal exhibit of kites attracted attention from the younger visitors and from aeronautical historians who recognize the kite as the fundamental manmade aircraft. Some of these early types of kites embody the genesis of important aerodynamic features.

The 40-year-old prefabricated steel Aircraft Building, actually a World War I airplane hangar, was provided with a new skirting around its lower edge, extending over the concrete curbing so that rain will drain outward instead of seeping inward. The sloping wall was painted.

The Smithsonian Print Shop prepared a number of labels to replace the former temporary ones, greatly improving appearance and legibility. All the suspended airplanes in the Arts and Industries Building were cleaned, and several fabric repairs were made. The Wright Military and Curtiss Pusher airplanes were provided with glass screens at their wing tips to protect them from handling by visitors. The Langley quarter-size model aerodrome was re-covered; the large display case containing airplane models of the pre-World War I period was disassembled, moved from the Arts and Industries Building and re-erected in the Aircraft Building, and the models reinstalled; and exhibits of relics associated with the first transcontinental flight and the First Aero Squadron of World War I were improved.

The Air Force Central Museum at Wright-Patterson Field transferred to this Museum a 3-unit wall case in which scale models showing the progress in design of Air Force planes have been installed. This new case is provided with shielded lighting and illuminated label frames and is a great improvement over the floor case formerly used.

Many of the new accessions listed at the end of this report were prepared for exhibition during this year; others must be held in storage until the new building is completed.

RESTORATION OF STORED AIRCRAFT

At the end of the previous fiscal year all the buildings at the National Air Museum Restoration Facility in the Suitland, Md., building area had been erected; a force consisting of a foreman, two aircraft mechanics, a vehicular mechanic, and an aide had been engaged, and they were setting up a shop in the largest building. In that shop the stored aircraft, principally those World War II planes that had been transferred from the Air Force by order of Gen. H. H. Arnold, will be prepared for eventual exhibition and study.

That large building, known as No. 10, and measuring 200 by 180 feet, was improved by the addition of a concrete ramp in front; installation of gas heat in one of its 60-foot-wide sections, involving the erection of a 200-foot partition to confine the heat to that area; and insulation of the ceiling and walls. Electric service was increased and extended to the newly installed power tools and equipment, including a metal-cutting band saw, punch press, belt and disk sanders, air compressor, plastic-heating oven, drill press, and other devices for the fabrication and repair of aircraft parts. This shop area is becoming a well-organized and efficient unit of the Museum. Using scrap material for the most part, the facility personnel have constructed a tool crib, sheet-metal rack, scrap boxes, parts bins, welding area, and benches for special tools.

Because many of these aircraft were stored at Park Ridge, Ill., for a long time in the open, and then subjected to the hazards of overland shipment, they must be removed from their boxes and cared for as quickly as possible in order to arrest deterioration. During the year seven airplanes and seven rotorcraft were unboxed, inspected, and corrective work started. One aircraft, the World War I De Havilland-4, was completely restored. This entailed splicing the broken longerons; cleaning and repairing the transverse frame of the fuselage; re-covering the control surfaces, with assistance from the fabric shop at Bolling Air Force Base; cleaning and redoping the wings; cleaning the engine; and making numerous repairs to equipment. This airplane is now ready for exhibition. In connection with the work on other aircraft a number of pieces of shop equipment have been made, including fuselage and wing cradles, engine covers, and handling gear. Some special tools had to be fabricated from raw stock.

In response to a request from the Department of Justice all the autogiros in the facility were moved to Building 10, unboxed, and partly assembled for examination in connection with investigation of patent claims against the Government. The information thus obtained was helpful in studying details of the case. The DC–3 transport airplane, given to the Museum in 1953 by Eastern Airlines

and flown into the Washington Airport, was disassembled there by Museum personnel with help of the airline crew and hauled by truck to Suitland, the fuselage being towed on its own wheels. The German V–1 buzz bomb of World War II was assembled and painted, with the assistance of Andrews Air Force Base mechanics. At the close of the year preparations were being made to set up our own paint-spraying booth.

In Building 1 a shop for maintenance of vehicular and handling equipment has been organized. Because much of the equipment for lifting heavy loads was obtained from Government surplus stock, it has required reconditioning. Repairs have been conducted during the year on five forklifts, a crane, truck, and bulldozer, and the associated slings, dollies, jacks, hoists, and other material. Some repairs have been made to the roads connecting the buildings.

The four large aircraft that remain stored in the open at Andrews Air Force Base, and which suffered from vandalism and exposure until Museum personnel could be engaged to care for them, were the first to receive preservative attention from the Museum crew. All openings on these aircraft were sealed; control surfaces, propellers, and tires removed; engines cleaned and sprayed; landing gears shored; and the wings and fuselages securely tied down.

Final projects of the year were the unloading of the Bell VTOL aircraft, and the removal of two airplanes from exhibition for repair.

ASSISTANCE TO GOVERNMENT DEPARTMENTS

During the fiscal year it was acknowledged by the Court of Claims that the Curtiss Army racing airplane of 1925, preserved here since 1927, embodies wing details that enabled the Government successfully to defend itself against a claim involving nearly half a million dollars. That amount alone is several times the annual appropriation for this Museum. In addition, the Justice Department was furnished information and shown material relative to claims pertaining to rotorcraft, airplane control devices, and parachute releases. The fact that this information was readily made available to the investigators saved time and expense to the Justice Department. If the related specimens had not been preserved the Government's cause would certainly have been weakened.

Many offices within the Government requested and received assistance and information from the Museum during the year. Among these were the U. S. Information Agency; the Office of Military History; the Air Force Information Service; the Department of Defense, Office of Public Information, and the same Department's Office of Scientific Information; the Air Force Research Unit; the Air Research and Development Command; the State Department, Office of

Dependent Area Affairs; the Voice of America; and the Government-published magazine *America Illustrated.* Subjects included the history of jet aircraft and guided missiles, identification of persons in photographs, the story of skywriting, flight clothing and uniforms, addresses of companies and persons, the history of transatlantic flying, lives of aeronautical pioneers, data on famous aircraft and some obscure ones, first instances of structural details and accessories in aircraft, air-sea rescue devices, and many others. The Department of the Interior asked about early uses of airplanes in Alaska, the Air Force Museum was supplied with photographs for its displays, the Coast Guard received help with an exhibit on antarctic flying, the National Advisory Committee for Aeronautics was aided in locating data on a helicopter pioneer, and the Geological Survey was interested in maps used by Charles Lindbergh when he flew across the Atlantic in 1927. The Civil Aeronautics Administration was helped with facts about airmail history, in identifying an obsolete "flying wing" aircraft, and pioneer flyers. Speech writers in the Navy Department requested help in assembling facts for talks to be given by their head officers; at the beginning of the Naval project, which culminated in establishing a new altitude record for balloons, the Museum was asked to furnish information about earlier attempts to reach record heights; and the Navy's Hydrographic Laboratory, experimenting with hydrofoils, was informed about earlier experiments with water vanes. Several times during the year the Navy was assisted in preparation of a film illustrating the development of Naval aviation as recalled by the pilots and engineers who helped to make that history. Such assistance with important projects admittedly saved time for the research workers, and prevented duplication of work already accomplished and a search for details proved or rejected. From the offices of a number of Congressmen requests were received for information needed by constituents, and in every case help was given to the extent possible by the limited staff and facilities of the Museum.

PUBLIC INFORMATIONAL SERVICE

As stated in the opening paragraphs of this report, furnishing information to the public is a function most demanding on the time of the staff. This service occupies a large portion of each Museum day, but space permits only a few highlights to be given here.

General Dynamics Corporation's Convair Aircraft, preparing a history of its third of a century in aircraft production, used the National Air Museum's reference files and photographic prints to prepare the background, and Capital Airlines found useful information here for its historic review. Many aeronautical organizations found

Museum records to be helpful: the Aero Club of Washington selected its honor guests for the annual banquet on the basis of accomplishments determined in part from information furnished by the Museum; the Air Force Association used the Museum's files in planning its convention; the OX–5 Club, formed of pilots who flew behind the worthy engine of that name, was aided in preparing its meetings; and the reunion of the World War I 20th Squadron was made more enjoyable because of help from the Museum. The Early Birds, an organization of those who flew solo during the first 13 years of human flight, continue to ask the Museum to help in arranging meetings, recalling historic events, and preserving their treasures associated with early flying.

The city of Philadelphia was assisted in celebrating the 45th anniversary of a "race" between Lincoln Beachey, Hugh Robinson, and Eugene Ely, flying from Governors Island, N. Y., to Philadelphia in Curtiss pusher airplanes. The Art Center at Kalamazoo, Mich., was helped in preparing a display of artistic and aerodynamic kites. Artists were aided in preparing authentic paintings of World War aircraft, airmail planes, and Zeppelins. Many reporters consulted the Museum for details, especially at the time when the Presidential helicopters landed on the White House lawn, and newspapermen wanted to know of previous instances when landings had been made there. The Museum told them about Harry Atwood making a Presidential visit in his Wright–B airplane in 1911 and James Ray piloting an autogiro to land beside President Hoover in 1931.

Among the many publications that checked their articles from Museum facts were the *National Geographic Magazine* inquiring about airplane control, and Air Force history; *Reader's Digest* asking about Sikorsky's helicopters and Lindbergh's flight to Paris; *Life*, needing details on polar flying; the *Saturday Evening Post* to get the story of the first transcontinental flight; Fairchild Aircraft's *Pegasus* to obtain photographs and to learn about the military demonstration flights at Fort Myer, Va., in 1909; *Coronet* asking about the pioneer of rocketry, Robert Goddard; and the World Book Encyclopedia to receive help with biographies of noted flyers.

Many schoolteachers received help in planning their aviation courses, and numerous students appealed to the Museum for answers; the newly established school at Cedar Rapids, named for the Wright brothers, obtained from the Museum a series of photographs of Wright aircraft to decorate its halls; while college students used Museum facts in preparing their theses.

Several of the aviation motion pictures that were shown during the year had utilized Museum records in their preparation, notably, the "Spirit of St. Louis." Aeronautical books reflected the work of their

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authors who came to the Museum for assistance. Persons constructing full-sized reproductions of famous aircraft in which to recapture the romance of flying of the early days, and modelmakers enjoying the hobby of building noted aircraft in miniature, wrote or came to the Museum for help.

REFERENCE MATERIAL

The National Air Museum library, reference files, and documents form an indispensable supplement to the knowledge of the staff and are of great value to researchers who come to the Museum. These records are used when labels are written, catalogs compiled, letters answered, and statements require authentication. Realizing that all this constitutes a valuable public service, a number of other aeronautical historians and collectors have deposited their reference material with the Museum, where it continues to be available to themselves and also serves others. The cooperation of the following persons and organizations is sincerely appreciated:

BERLINER, HENRY A., Washington, D. C.: Two scrapbooks assembled by his father, Emile Berliner, recording experiments by father and son with helicopters, airplanes, and aircraft engines from 1903 to 1925.

BODINE, JOHN W., West Trenton, N. J.: Selection of aeronautical periodicals to aid in completing Museum volumes.

BOWEN, TREVOR, Burry Port, Wales: Photographs of the monument commemorating the arrival of Amelia Earhart at the end of her first transatlantic flight in the Fokker *Friendship*, with Wilmer Stutz and Louis Gordon, June 8, 1928.

CLINE, CAPT. JOSEPH, Coronado, Calif.: Photograph album illustrating activities of the First Aeronautic Detachment, U. S. Navy, in World War I (loan).

FIFE, RAY, Coronado, Calif.: File of newspaper articles pertaining to the airplane *Spirit of St. Louis* and reference items on Convair aircraft.

FIRST MARINE AVIATION FORCE VETERANS ASSOCIATION, through J. E. Nicholson, Adjutant, Baltimore, Md.: Photographs of U. S. Marine aircraft and personnel operating in France during World War I (loan).

FRANKLIN INSTITUTE, Philadelphia, Pa., through Director A. C. Carlton and Capt. Ralph Barnaby, U. S. N. (Ret.): A scrapbook and a selection of aviation prints collected by the late S. S. Jerwan, pioneer flyer in Moisant airplanes, 1910, and later an instructor in flying.

GREGG, RICHARD, Kalamazoo, Mich.: Photographs and slides of a special display of kites assembled by him at the Art Center (loan).

HAMILTON STANDARD, Windsor Locks, Conn.: A motion-picture film, "Keep 'Em Flying," describing the operation and servicing of a hydromatic propeller.

JARRETT, COL. BURLING, Aberdeen, Md.: A motion-picture film compiled by himself and Maj. Kimbrough Brown, describing the life and flight of the German World War I Ace, Baron Manfred Von Richthofen (loan).

JONES, MRS. ERNEST L., Clifton, Va.: Original manuscript of the chronology compiled by her late husband, Col. E. L. Jones, comprising a detailed listing of events in aeronautical history. A very valuable reference work.

KIRK, PRESTON, North Platte, Nebr.: An original booklet describing aircraft engines developed by Charles Lawrance.

LEVER, HARRY (Estate of), Washington, D. C.: Two aeronautical dictionaries used by him while aviation editor of the Washington *Star*.

Library of Congress, Washington, D. C.: Charts showing details of aeronautical equipment, drawings of German aircraft, World War I recognition posters of German airplanes, 21 photographs of historic aircraft, and, through Dr. Robert Multhauf, a copy of *Locomotion Aerienne* by D'Amecourt, 1864.

Lincoln Press, Washington, D. C.: Copies of Jane's "All the World's Aircraft" (loan); bound volumes of the magazine *Aero Digest*, and a quantity of back issues of this magazine (gift).

Mandrake, Charles G., and Longo, Robert, Wichita, Kans.; Copy of "The Gee Bee Story," a history of Granville brothers' racing planes, 1920–1939.

Navy, Department of the, Washington, D. C.: A reprint of the log of the Navy's first airplane, the Curtiss A–1 of 1911; drawings of the N–9 training plane and of the F5L patrol plane of World War I.

Nicewarner, Mrs. R. J., Bethesda, Md.: Album of photographs assembled by her father, Capt. Kenneth Whiting, U. S. N., illustrating his experiences as a pioneer in naval aviation and in the development of the aircraft carrier (loan).

Nieto, Joseph, San Antonio, Tex.: Drawings of World War I airplanes and of commercial planes of the 1930's (purchased). Motion-picture films of notable flights (gift).

Nippon Aero Club, Tokyo, Japan, through S. Sonoda: Recent Japanese aviation periodicals.

Prudential Insurance Co. of America, Newark, N. J.: Motion-picture film of the "You Are There" television program "Benjamin Franklin and His Kite."

Read, Robert E., Alexandria, Va.: A contemporary poster of the editorial in the *New York Sun*, May 21, 1927, "Lindbergh Flies Alone."

Seeley, R. D., Fort Meade, Md.: A collection of photographs of foreign aircraft and engines, principally German and Italian types of World War II (loan).

Sharp, John R., Sioux Falls, S. Dak.: Book by this author listing Aces of World War I.

United Aircraft Corporation, East Hartford, Conn.: With the assistance of Harvey Lippincott, a file of the Corporation magazine *Bee Hive*, copies of the publication *Aerosphere*, and a selection of texts describing Pratt & Whitney aircraft engines.

Verville, Alfred, Washington, D. C.: Drawings and texts describing the Verville "Messenger" airplane, 1920.

ACCESSIONS

Additions to the National Aeronautical Collections received and recorded this year total 1,050 specimens in 33 separate accessions from 30 sources. Those from Government departments are entered as transfers; others were received as gifts except as noted.

Air Force, Department of the, Washington, D. C.: Twin floats devised and constructed in 1907 by Orville and Wilbur Wright and tested on the Miami River, Dayton, Ohio, during experiments to develop a seaplane intended to be flown over the assembled world fleets at Hampton Roads, Va., during the Jamestown Exposition of that year, and a drawing illustrating that experiment (N. A. M. 945). Two dioramas, first received of a series illustrating the history of the United States Air Force. One diorama depicts a scene during the Civil War: the inflation of a captive balloon, piloted by T. S. C. Lowe and used for military observation of Confederate operations; the other diorama illustrates an important operation during World War II, after the capture of Finschafen, New Guinea, when a landing and takeoff strip had been prepared for use of Lockhead P–38 Lightning fighter planes (N. A. M. 946).

ATCHISON, JOS. ANTHONY, Washington, D. C.: Two paintings for an exhibit on Natural Flight, showing the extinct pterodactyl and the dragonfly (N. A. M. 918, purchased).

BELL AIRCRAFT CO., Buffalo, N. Y.: VTOL aircraft (Vertical Take Off and Landing), developed by Lawrence Bell and associates in 1954. Fairchild J–44 engines, located each side of the fuselage, were pivoted into vertical position for direct upward takeoff, and after gaining altitude were rotated to horizontal position for forward thrust. A conventional wing provided lift for forward flight, and a French Palouste compressor provided air blasts at the wing tips and empennage for reaction control. Landings were made either by descending gradually during forward flight, or by pivoting the Fairchild engines into upright position and descending vertically (N. A. M. 943).

BERLINER, COL. HENRY, Washington, D. C.: Two wing ribs from the Wright brothers' airplane of 1908 which was the first to be demonstrated to Government officials at Fort Myer, Va., those demonstrations being suspended by the unfortunate accident of September 17, 1908; an Erco propeller blade of about 1945 formed of impregnated wood and plastic; and a portrait photograph of the donor's father, Emile Berliner, who, beginning about 1890, and continuing later with the assistance of his son, experimented with rocket-powered model airplanes, full-scale helicopters, and engines. The donor developed helicopters that achieved vertical lift, successful airplanes, and aeronautical equipment (N. A. M. 937).

BOEING AIPLANE CO., Seattle, Wash.: A scale model, 1:48 size, of the Boeing B–52 Air Force bomber which was the subject for the 1955 award of the Robert J. Collier Trophy (N. A. M. 933).

BOLAND, JOSEPH, Frederick, Md.: A scale model, constructed by himself, of the Boland Tailless Pusher airplane developed by him and his brothers at Rahway, N. J., 1909. It incorporates a unique "jib" control and was flown most notably by Frank Boland in Venezuela and Trinidad, 1912, it being the first aircraft to fly in those places (N. A. M. 917).

BYRD, MRS. THOMAS, Boyce, Va.: Plaster cast of the Congressional Medal awarded posthumously to Brig. Gen. William Mitchell, August 8, 1946, "for outstanding pioneer service and foresight in field of American military aviation." Sculptured by Erwin Springweiler (N. A. M. 927).

CESSNA AIRCRAFT CO., Wichita, Kans.: Models, scale 1:36, of three airplanes: the Comet of 1911 developed by Clyde V. Cessna during the pioneer days of aeronautics; the Type 180, 4-seated high-wing monoplane introduced in 1953; and the Type 182, which is a 1956 improvement of the Type 180 having smoother flight characteristics (N. A. M. 936).

COMMERCE, U. S. DEPARTMENT OF, NATIONAL BUREAU OF STANDARDS, Washington, D. C.: A large and valuable collection of instruments dating back to the practical beginnings of aircraft instrumentation, including some types used with early lighter-than-air craft, compasses, engine instruments, navigation devices, fuel regulators, flight performance instruments, bombsights, and other equipment, both American and foreign. This material has been collected over the past 40 years or more in connection with the testing work of the Bureau's laboratories. The assistance of Dr. W. G. Brombacher in listing and identifying this collection is gratefully acknowledged (N. A. M. 924).

GARBER, PAUL EDWARD, Washington, D. C.: A Japanese "cricket" kite, embodyin pouches and dihedral angles for stability, made in 1956 (N.A.M. 915); a sculptured portrait of Dr. Samuel Pierpont Langley, third Secretary of the Smithsonian Institution, renowned astronomer, scientist, and pioneer of aviation; sculptured head by Joseph Anthony Atchison, 1957 (N. A. M. 939).

GRUMMAN AIRCRAFT ENGINEERING CORPORATION, Bethpage, L. I., N. Y.: Two scale models, 1:16 size, of the Grumman F11F–1 "Tiger" airplane in current use as a Navy fighter. One of these models is shown with the Robert J. Collier Trophy, it being the first airplane to embody the Area Rule principle developed at the National Advisory Committee for Aeronautics laboratories by Richard Whitcomb who was recipient of that Trophy for the year 1954. The other model is in the series illustrating naval aircraft (N. A. M. 935).

HAVEN, GILBERT P., Glastonbury, Conn.: Two load calculators, resembling a slide rule and used in determining the amount and dispositions of fuel, cargo, and other load factors to insure safe operation of aircraft. These are for B–17 and B–29 airplanes (N. A. M. 938).

HUBBELL, CHARLES H., Cleveland, Ohio: Scale model, 1:16 size, of the Morane-Saulnier monoplane of 1914, one of the first fighter airplanes used by the French in World War I (N. A. M. 922, purchased).

JERWAN, S. S., Philadelphia, Pa.: An autographed photograph of Admiral Richard E. Byrd, inscribed to the donor, who was a pioneer pilot of Moisant airplanes in 1910 (N. A. M. 931).

KIRK, PRESTON, North Platte, Nebr.: Three aircraft engines, a British Bentley BR–2, rotary engine used in World War I pursuit planes; an American Lawrance 2-cylinder opposed A–3 used in training airplanes of the same period; and an American Irwin 4-cylinder radial developed in 1926 for light airplanes (N. A. M. 929).

LEVER, HARRY, Washington, D. C.: A propeller blade from a Curtiss electric propeller, 13 feet diameter, made for a Convair CV240 transport plane, and an airplane bomb casing used for practice during World War II (N. A. M. 920).

MARTIN CO., Baltimore, Md.: An oil painting by Charles Baskerville of Glenn L. Martin, the renowned aviation pioneer who died December 4, 1955 (N. A. M. 932).

MCDONNELL AIRCRAFT CORP., St. Louis, Mo.: A scale model, 1:16 size, of the McDonnell F3H–2N "Demon" swept-wing single-place, all-weather jet fighter in current use by the U. S. Navy (N. A. M. 923).

NATIONAL COLLECTION OF FINE ARTS, Smithsonian Institution, Washington, D. C.: A group of 16 framed portraits in chalk by John Elliott and four photographic prints of portraits by the same artist of members of the Lafayette Escadrille, a renowned group of American flyers who fought with the French in World War I (N. A. M. 921, loan).

NAVY, DEPARTMENT OF THE, Washington, D. C.: The original insigne of the Naval Aircraft Factory, Philadelphia, Pa., organized during World War I, where many notable aircraft were developed and manufactured (N. A. M. 916). A Kaman K–225 helicopter, developed in 1948 and adopted the following year by the Navy as a utility type. Its rotor assembly is of the twin-intermeshing type, and its power was supplied by the Boeing 175-hp. YT–50 gas-turbine engine. The assistance of the Kaman Aircraft Corporation in conditioning this helicopter for Museum preservation is gratefully acknowledged (N. A. M. 940).

NORTH AMERICAN AVIATION, INC., Columbus, Ohio: A scale model, 1:16 size, of the FJ–4 "Fury," naval fighter; the first aircraft developed by this division of this company, produced 1955. This airplane incorporates such advanced features as mechanically drooped leading edge, slotted flaps, and split ailerons (N. A. M. 934).

PARKER, WILLIAM, Bartlesville, Okla.: The indicating unit of the radio compass used by Wiley Post during his extended substratosphere cross-country flights in the *Winnie Mae*, 1935 (N. A. M. 928).

POTTER, STANLEY L., Alexandria, Va.: A diamond-celled box kite of the type invented by his father, Samuel Potter, who was a pioneer in the development of cellular kites and their use for meteorological research by the U. S. Weather Bureau (N. A. M. 914).

ROYAL DANISH AERO CLUB, Copenhagen, Denmark, through His Excellency the Ambassador of Denmark, Henrik Kauffmann, Washington, D. C.: A scale model, 1:14 size, of the airplane designed, constructed, and flown by Jacob Christian Ellehammer on the island of Lindholm, September 12, 1906. The assistance of Erik Hildes-Heim in obtaining this model is gratefully acknowledged (N. A. M. 926).

RYAN AERONAUTICAL CO., San Diego, Calif.: A scale model, 1:16 size, of the Ryan M–1 mailplane used on commercial postal aviation routes of the mid-1920's and the basic form of high-wing closed-fuselage monoplane from which the *Spirit of St. Louis* was evolved by the same company (N. A. M. 930).

SPERRY GYROSCOPE CO., Great Neck, N. Y.: A scale model, 1:8 size, of the original "Aerial Torpedo," pilotless guided missile developed by the donors during the first World War (N. A. M. 919).

TUSTAN, MICHAEL, Cleveland, Ohio: A scale model, 1:16 size, of the Pfalz D–3, German World War I fighter airplane introduced in the spring of 1917 and favored by some of the German Aces because of its maneuverability and strong construction (N. A. M. 941).

VAGI, ERNEST F., Cleveland, Ohio: A scale model, 1:24 size, of the British F. E.2B World War I two-seated fighter, developed by the Royal Aircraft Factory. Because its propeller was behind the wings, the gunner in the front seat had a wide angle of fire (N. A. M. 942).

WHITNEY, CAPT. REGINALD, Baldwin, L. I., N. Y.: A Japanese aviator's flying suit used in World War II (N. A. M. 925).

WISEMAN, MRS. S. A., Washington, D. C.: Four silver trophy cups awarded to the pioneer aviator Arthur L. Welsh in 1911 and a framed photograph of him and Robert J. Collier seated in a Wright-B airplane. Welsh was taught to fly by Orville Wright and became instructor and test pilot at the Wright School in Dayton. He taught Lt. H. H. Arnold (later General of the Air Force) how to fly. Welsh was killed in the crash of a Wright-C at College Park, Md., in 1912 (N. A. M. 944).

Respectfully submitted.

PAUL EDWARD GARBER, *Head Curator.*

Dr. LEONARD CARMICHAEL,
Secretary, Smithsonian Institution.

Report on the National Zoological Park

SIR: I have the honor to submit the following report on the activities of the National Zoological Park for the fiscal year ended June 30, 1957:

This has been a year of many changes in the administration of the Park, as four men in key positions reached the retirement age. The first to leave, on October 31, 1956, was Dr. William M. Mann, who had been Director of the National Zoological Park since 1925. During his term of office the number of animals in the collection increased from 1,600 to 3,000, much of the increase being due to collecting expeditions he headed. Under his direction three modern exhibition buildings were erected and a new wing was added to the bird house. Also built under his administration were the machine shops, garage, a new restaurant, and the building that houses the police headquarters and public restrooms. Dr. Mann's enthusiasm for his institution endeared him to friends all over the world. He remains in touch with the Zoo as Honorary Research Associate of the Smithsonian Institution. On June 11, 1957, the American Association of Zoological Parks and Aquariums honored Dr. Mann at a luncheon in the Zoo, paying tribute to his many years of leadership in zoological park management. Those attending from out of town were Lee Crandall, formerly Director of the New York Zoological Park; Freeman Shelly, Director of the Philadelphia Zoo; Roger Conant, Curator of Reptiles, Philadelphia Zoo; Clyde Gordon, Director of the Staten Island Zoo; and Roland Lindemann of the Catskill Game Farm, Catskill, N. Y.

The Assistant Director, Ernest P. Walker, retired on December 30, after nearly 27 years with the Zoo. As a mammalogist, especially interested in small mammals and wildlife conservation, his services were invaluable. He developed new diets for animals, and devised new methods of exhibiting them. He is continuing to write about mammals.

On February 28, Frank O. Lowe, head keeper, said farewell to the animal charges he had worked with for 48 years; and on April 2, Peter Hilt, superintendent of maintenance and construction, retired after 36 years with the Zoo. Both of these men were remarkably efficient in their fields and were respected and liked by the men who worked under them.

EXHIBITS

Plans for the future of the Zoo are to maintain a well-balanced zoological collection, with special emphasis on the exhibition and propa-

gation of North American animals, inasmuch as this is the National Zoological Park. The exhibition of exotics will not be neglected, but an attempt will be made to feature such animals as Rocky Mountain goats, Rocky Mountain sheep, prong-horned antelope, and other native species. Variety of species will be emphasized rather than numbers of individuals.

This year, for the first time, an outdoor exhibit of trained birds of prey was started. With the cooperation of local falconers, a red-tailed hawk and a Swainson's hawk were taken from the Zoo's collection and trained to a stoop and to the wrist. A duck hawk, or peregrine falcon, already trained, was presented by a falconer. The public has shown much interest in this new exhibit, where the birds are to be seen at close range and with no bars between them and the visitors.

Albinism, a curious phenomenon, has been prominent in 1957, and an unusual number of birds, mammals, and reptiles have their pink-eyed representatives within the present collection—in fact, to an extent seldom seen in zoos. The mathematical improbabilities of a male and female albino black snake meeting in their natural habitat are staggering, but such might be possible under zoo conditions. It is hoped that some interesting genetic implications may develop from these exhibits.

ACCESSIONS

A number of outstanding additions came to the Zoo this year. The most important was a pair of white or square-lipped rhinoceroses, (pl. 5, fig. 1), purchased from John Seago, an English collector, who had been trying for two years to secure them for the National Zoological Park. They were the first ever to come to this country and are still the only ones in the United States. Another purchase was a pair of snow leopards, commonly considered the most beautiful of the big cats. (Pl. 5, fig. 2.)

The Government of the Belgian Congo, through the Minister of Colonies, presented the National Zoological Park with a fine pair of okapis (pl. 6), the first ever to be exhibited here. They were flown from Leopoldville to Hanover, Germany, for a 60-day quarantine and then to the United States Quarantine Station at Athenia, N. J., for a 30-day quarantine. Upon arrival at the Zoo they were formally presented by Baron Leopold Dhanis, Counsel at the Belgian Embassy in Washington. With their glossy, dark-brown coats and striped legs they form an outstanding exhibit.

An inconspicuous small black bird, with red eyes, which was obtained from an animal dealer, turned out to be an ornithological prize. It is a Colombian red-eyed cowbird (*Tangavius armenti*),

which had not been observed since 1866 and was assumed by scientists to be extinct.

Six poisonous black-and-white-striped sea snakes (*Laticauda colubrina*) were obtained through the efforts of Frederick M. Bayer, of the United States National Museum. These are seldom seen in captivity, as they are difficult to keep. Shortly after their arrival here, one of them laid 15 eggs, attracting a great deal of interest, as most reference books state that sea snakes are viviparous. Disappointingly, none of the eggs hatched.

The United States Army Signal Corps, giving up its homing pigeon loft at Fort Monmouth, N. J., brought two hero pigeons to the Zoo. These birds, known as Anzio Boy and Global Girl, completed, between them, 61 important World War II missions in the Mediterranean area and were given citations by the Army. They have been placed in an outdoor cage, and an account of their military history appears on a large label nearby.

GIFTS

Other gifts of special interest were received from the following:

Ballou, George, New York, N. Y., 19 spiny mice (*Acomys*).

Bonawit, George O., Suitland, Md., white-crested cockatoo.

Broadhead, William S., Middleburg, Va., Azara's wild dog.

Brown, Mrs. Helen, Washington, D. C., black spider monkey.

Cleveland Wild Boar Club, Cleveland, Tenn., wild boar.

Coalson, H. B., Berryville, Va., spider monkey.

Dennis, Wesley, Warrenton, Va., emu.

DePrato, Mario, Langley Park, Md., 125 hermit crabs, 7 turtles, 23 snakes, 6 frogs, 8 lizards, 1 toad.

Du Pont, Irénée, Wilmington, Del., 4 Cuban iguanas.

Gasch, Manning, Forestville, Va., American bison.

Gianturco, Delio, Washington, D. C., Mexican spider monkey.

Hamlett, George W., New Orleans, La., 3 western rattlesnakes.

Harbaugh, George, Safeway Warehouse, Washington, D. C., 3 tarantulas and 2 cat-eyed snakes, which had come in on bunches of bananas.

Hoffman, Irvin, Cabin John, Md., 2 Reeves' pheasants.

Kerwin, Charles H., Rockville, Md., Virginia deer.

Lichtenecker, Dr. Karl, Washington, D. C., collection of tropical fish and aquarium plants.

Martin, Mrs. Roy M., Winston-Salem, N. C., ocelot.

McBride, W. W., Chevy Chase, Md., kinkajou.

Medley, Miss Virginia, Washington, D. C., margay cat.

Muddiman, Buddy, Washington, D. C., collection of reptiles.

Murphy, Robert, Westtown, Pa., duck hawk.

National Aquarium Society, Washington, D. C., 2 black angelfish.

Operation Deepfreeze, Washington, D. C., through Cmdr. F. Dustin, black swan.

Overton Park Zoo, Memphis, Tenn., 2 anhingas.

Pabst, G., Jr., Washington, D. C., 2 masked lovebirds.

Palmer, Miss Gaela, Chevy Chase, Md., macaque.

Patuxent Research Refuge, Laurel, Md., through Dr. C. M. Herman, 8 partridges.

Pifer, Ray F., Takoma Park, Md., collection of local snakes.

Pittman, Miss Irma F., Washington, D. C., Indian hill mynah.

Pope, Mrs. Esa B., Berryville, Va., 6 ring-necked pheasants, chukar quail.

Rivero, Juan, Mayagüez, Cuba, 6 tree boas.

Royal Zoological Society, Amsterdam, Holland, European stork.

Sadler, Mrs. W. L., Monrovia, Liberia, golden cat (*Felis aurata*), and a small-clawed otter.

Sand Lake National Wildlife Refuge, Oberon, S. Dak., 6 blue geese.

Schmid, Paul F., Bethesda, Md., collection of local snakes.

Shearer, Miss Julia, Locust Dale, Va., yellow-thighed caique.

Sinsabaugh, Miss Doris, Washington, D. C., white-breasted toucan.

Sorensen, H. P., El Paso, Tex., cockatiel.

Stewart, Mrs. Elizabeth, Washington, D. C., Florida gallinule.

Sultan, W. E., Baltimore, Md., collection of tropical fish including the recently imported *Distichodus sexfasciatus*.

Turner, William, Washington, D. C., marsh hawk.

Wampler, Capt. French, Alexandria, Va., ringed aracari toucanet.

Warner, Mrs. C. F., Washington, D. C., collection of reptiles.

Welsh, Neal, Rockville, Md., collection of tropical fish.

Wheeler, Mrs. T. E., Cheam, Surrey, England, 40 grass parakeets, a superior English strain of birds.

Xanten, William R., Jr., Washington, D. C., collection of reptiles and a tarantula.

Zoologisk Have, Copenhagen, Denmark, 2 European oystercatchers, 2 ruff shorebirds.

EXCHANGES

The Zoo often obtains specimens of interest through exchanges with other zoos or with private individuals. Worthy of mention this year are a black-and-white casqued hornbill, obtained from Dr. Lawrence Kilham, Bethesda, Md.; four roadrunners, from the San Antonio Zoo, San Antonio, Tex.; Todd's toucan, from William H. Paul, Washington, D. C.; a collection of Florida reptiles, from Lewis H. Babbitt, Petersham, Mass.; four peafowl from the San Diego Zoological Society, San Diego, Calif.; and an albino black snake, from Allan G. Dillon, Arlington, Va.

PURCHASES

Purchases of special interest not previously mentioned were as follows:

An African elephant, about 2½ years old, named Nancy. The Zoo had lacked the African species since the death of Jumbina.

A young Asiatic elephant, named Dixie, purchased as a companion for the young African elephant.

Seven hoopoes (pl. 7). These attractive European birds had not been in the collection before. They are now mating, and it is hoped some young birds can be raised.

A male hippopotamus, purchased as a mate for the female bought last year.

A hawk eagle, a rare species from Colombia.

Two jacanas.
Two oropendolas.
One Cayenne kite.
One blue toucan.
Four giant tortoises.
Two African wild dogs.
A young giant anteater.
Three red howler monkeys.
Two pygmy cormorants.
One blossom-headed parakeet.
Two slaty-headed parakeets.
25 golden frogs.

BIRTHS AND HATCHINGS

One of the signs that an animal is doing well in captivity is its ability to reproduce its kind and, as the following list shows, the number of mammals, birds, and reptiles born in the National Zoological Park during the year is gratifying:

MAMMALS

Scientific name	*Common name*	*Number*
Pan satyrus	Chimpanzee	1
Cercopithecus aethiops sabaeus	Guenon	1
Cercopithecus neglectus	DeBrazza's guenon	1
Hylobates agilis × *H. lar pileatus*	Hybrid gibbon	1
Hylobates lar	White-handed gibbon	1
Choloepus didactylus	Two-toed sloth	1
Cynomys ludovicianus	Prairie dog	5
Phloeomys cumingi	Slender-tailed cloud rat	1
Hystrix galeata	African porcupine	1
Dasyprocta prymnolopha	Agouti	8
Vulpes fulva	Red fox	5
Atilax paludinosus	Water civet	1
Thalarctos maritimus × *Ursus middendorffi.*	Hybrid bear (second generation)	3
Ursus horribilis	Grizzly bear	2
Felis leo	Lion	3
Equus burchelli boehmi	Grant's zebra	1
Lama glama	Llama	3
Axis axis	Axis deer	2
Cervus canadensis	American elk	1
Cervus elaphus	Red deer	1
Cervus nippon	Sika deer	2
Dama dama	Brown fallow deer	2
	White fallow deer	6
Odocoileus virginianus	Virginia deer	4
Odocoileus virginianus costaricensis	Costa Rican deer	1
Giraffa camelopardalis	Nubian giraffe	2
Bibos gaurus	Gaur	1
Anoa depressicornis	Anoa	1
Ammotragus lervia	Aoudad or Barbary sheep	2
Taurotragus oryx	Eland	1
Capra hircus	Common goat	2

BIRDS

Agapornis personata	Masked lovebird	1
Anas platyrhynchos	Mallard duck	12
Branta canadensis	Canada goose	10
Chauna torquata	Crested screamer	1
Chrysolophus pictus	Golden pheasant	5
Columba livia	Pigeon	2
Gennaeus leucomelanus	Nepal kaleege pheasant	1
Larus novaehollandiae	Silver gull	5
Melopsittacus undulatus	Grass parakeet	7

BIRDS—continued

Scientific name	Common name	Number
Munia oryzivora	Java sparrow	15
Nycticorax nycticorax hoactli	Black-crowned night heron	15
Taeniopygia castanotis	Zebra finch	10
Tigrisoma lineatum	Tiger bittern	2

REPTILES

Chamaeleon bitaeniatus hoehneli	African chameleon	21
Chelydra serpentina	Snapping turtle	6
Chrysemys picta	Painted turtle	10
Epicrates angulifer	Cuban tree boa	2
Lampropeltis getulus	King snake	2
Natrix sipedon	Water snake	21
Pseudemys scripta	Red-lined turtle	11
Storeria dekayi	DeKay's snake	45

The total number of accessions for the year was 1,851. This includes gifts, purchases, exchanges, deposits, births, and hatchings. Space is too limited to list here the numbers of ducks, chickens, and rabbits, usually given to children at Easter time, which eventually find their way to the Zoo, or such pets as monkeys, parakeets, alligators, caimans, and guinea pigs. Many of the common local wild things are found by persons, often children, who, thinking the creatures need help, bring them to the Zoo. They include gray squirrels, cottontail rabbits, opossums, raccoons, foxes, woodchucks, blue jays, robins, sparrows, box turtles, and other less plentiful forms. Some are kept, some are exchanged, and some are liberated.

STATUS OF THE COLLECTION

Class	Species or subspecies	Individuals
Mammals	289	696
Birds	307	1,251
Reptiles	166	864
Fish	25	97
Arthropods	6	149
Mollusks	1	100
Total	794	3,157

Animals on hand July 1, 1956	2,965
Accessions during the year	1,851
Total number of animals in collection during the year	4,816
Removals for various reasons such as death, exchanges, return of animals on deposit, etc	1,659
In collection on June 30, 1957	3,157

ANIMALS IN THE COLLECTION ON JUNE 30, 1957

MAMMALS

MONOTREMATA

Scientific name	Common name	Number
Tachyglossidae:		
Tachyglossus aculeatus	Echidna, or spiny anteater	2

MARSUPIALIA

Didelphiidae:		
Caluromys philander	Woolly opossum	1
Didelphis marsupialis virginiana	Opossum	1
Phalangeridae:		
Petaurus norfolcensis	Lesser flying phalanger	3
Trichosurus vulpecula	Vulpine opossum	1
Phascolomyidae:		
Lasiorhinus latifrons	Hairy-nosed wombat	2
Vombatus hirsutus	Mainland wombat	1
Macropodidae:		
Dendrolagus inustus	Tree kangaroo	1
Hypsiprymnodon moschatus	Rat kangaroo	6
Macropus giganteus	Gray kangaroo	2
Macropus rufus	Red kangaroo	1
Protemnodon agilis	Wallaby	1
Protemnodon bicolor	Swamp wallaby	1

PRIMATES

Lorisidae:		
Galago crassicaudatus	Galago	4
Galago senegalensis	African galago	2
Nycticebus coucang	Slow loris	3
Lemuridae:		
Lemur mongoz	Mongooz lemur	1
Cebidae:		
Aotus trivirgatus	Night monkey	5
Ateles fusciceps robustus	Colombian black spider monkey	1
Ateles geoffroyi geoffroyi or *griscesens*	Spider monkey	3
Ateles geoffroyi vellerosus	Spider monkey	2
Cacajao rubicundus	Red uakari	1
Cebus capucinus	Brown capuchin monkey White-throated capuchin monkey Capuchin monkey	15
Lagothrix pygmaea	Woolly monkey	2
Saimiri sciureus	Squirrel monkey	4
Callithricidae:		
Callithrix sp.	Red-mantled marmoset	4
Cebuella pygmaea	Pigmy marmoset	1
Leontocebus rosalia	Golden marmoset	1
Marikina nigricollis	Black and red marmoset	1
Cercopithecidae:		
Allenopithecus nigroviridis	Allen's monkey	3
Cercocebus albigena	Gray-cheeked mangabey	1
Cercocebus aterrimus	Black-crested mangabey	4
Cercocebus aterrimus opdenboschii	Crested mangabey	1
Cercocebus chrysogaster	Golden-bellied mangabey	1
Cercocebus fuliginosus	Sooty mangabey	4
Cercocebus galeritus agilis	Agile mangabey	1
Cercocebus torquatus	Red-crowned mangabey	2
Cercopithecus aethiops sabaeus	Green guenon	8
Cercopithecus aethiops sabaeus × *C. a. pygerythrus*	Hybrid, green guenon × vervet guenon	2
Cercopithecus cephus	Mustached monkey	3
Cercopithecus diana	Diana monkey	3
Cercopithecus diana roloway	Roloway monkey	1

MAMMALS—Continued

PRIMATES—continued

Scientific name	*Common name*	*Number*
Cercopithecidae—Continued		
Cercopithecus neglectus	De Brazza's guenon	3
Cercopithecus nictitans	White-nosed guenon	1
Cercopithecus nictitans petaurista	Lesser white-nosed guenon	1
Cercopithecus preussi	Preussi's guenon	1
Macaca irus mordax	Javan macaque	1
Macaca lasioti	Chinese macaque	1
Macaca maurus	Moor macaque	2
Macaca mulatta	Rhesus monkey	5
Macaca nemestrina	Pig-tailed monkey	1
Macaca philippinensis	Philippine macaque	1
Macaca sinica	Toque or bonnet monkey	2
Macaca speciosa	Red-faced macaque	1
Macaca sylvanus	Barbary ape	9
Mandrillus sphinx	Mandrill	2
Papio comatus	Chacma baboon	1
Papio cynocephalus	Golden baboon	2
Papio hamadryas	Hamadryas baboon	1
Presbytis phayrei	Spectacled langur	1
Theropithecus gelada	Gelada baboon	1
Pongidae:		
Gorilla gorilla	Gorilla	2
Hylobates agilis × *H. lar pileatus*	Hybrid gibbon	1
Hylobates hoolock	Hoolock	1
Hylobates lar	White-handed gibbon	6
Hylobates moloch	Wau-wau gibbon	1
Pan satyrus	Chimpanzee	12
Pongo pygmaeus abelii	Bornean orangutan	1
Pongo pygmaeus pygmaeus	Sumatran orangutan	2

EDENTATA

Myrmecophagidae:		
Myrmecophaga tridactyla	Giant anteater	2
Bradypodidae:		
Choloepus didactylus	Two-toed sloth	5
Dasypodidae:		
Dasypus novemcinctus	Nine-banded armadillo	1

LAGOMORPHA

Leporidae:		
Oryctolagus cuniculus	Domestic rabbit	12
Sylvilagus floridanus	Cottontail rabbit	2

RODENTIA

Sciuridae:		
Callosciurus nigrovittatus	Southern Asiatic squirrel	8
Cynomys ludovicianus	Prairie dog	25
Glaucomys volans volans	Eastern flying squirrel	5
Marmota monax	Groundhog	1
Ratufa indica	Giant Indian squirrel	1
Sciurus carolinensis	Gray squirrel, albino	1
Sciurus niger	Fox squirrel	1
Sciurus variegatus	Mexican red-bellied squirrel	1
Tamias striatus	Eastern chipmunk, albino	1
Cricetidae:		
Mesocricetus auratus	Hamster	8
Muridae:		
Acomys cahirinus	Egyptian spiny mouse	16
Cricetomys gambianus	Giant pouched rat	4
Meriones unguiculatus	Mongolian gerbil	2
Phloeomys cumingi	Slender-tailed cloud rat	5

MAMMALS—Continued

RODENTIA—continued

Scientific name	Common name	Number
Gliridae:		
Graphiurus murinus	Dormouse	1
Hystricidae:		
Acanthion brachyura	Malay porcupine	1
Hystrix galeata	African porcupine	6
Erethizontidae:		
Coendou prehensilis	Prehensile-tailed porcupine	1
Caviidae:		
Cavia porcellus	Guinea-pig	16
Hydrochoeridae:		
Hydrochoerus hydrochoeri	Capybara	3
Dasyproctidae:		
Cuniculus paca	Paca	4
Dasyprocta punctata	Speckled agouti	7
Chinchillidae:		
Chinchilla chinchilla	Chinchilla	3
Lagidium viscaccia	Peruvian viscaccia	1
Capromyidae:		
Myocastor coypus	Coypu	2

CARNIVORA

Canidae:		
Canis antarcticus	Dingo	1
Canis lupus nubilus	Timber wolf	4
Canis niger rufus	Red wolf	1
Cerdocyon thous	South American fox	1
Fennecus zerda	Fennec fox	2
Lycaon pictus	African hunting dog	2
Nyctereutes procyonoides	Raccoon dog	6
Otocyon megalotis	Big-eared fox	4
Speothos venaticus	Bush dog	2
Urocyon cinereoargenteus	Gray fox	8
Vulpes fulva	Red fox	13
	Platinum fox	3
Ursidae:		
Euarctos americanus	Black bear	2
Helarctos malayanus	Malay sun bear	3
Selenarctos thibetanus	Himalayan bear	2
Selenarctos thibetanus japonicus	Japanese black bear	1
Selenarctos thibetanus ussuricus	Korean bear	2
Thalarctos maritimus	Polar bear	1
Thalarctos maritimus × *Ursus middendorffi.*	Hybrid bear	4
Tremarctos ornatus	Spectacled bear	1
Ursus sp	Alaskan brown bear	1
Ursus arctos	European brown bear	4
Ursus arctos occidentalis	Syrian brown bear	2
Ursus gyas	Alaskan Peninsula bear	2
Ursus horribilis	Grizzly bear	2
Ursus middendorffi	Kodiak bear	1
Ursus sitkensis	Sitka brown bear	2
Procyonidae:		
Ailurus fulgens	Lesser panda	2
Bassaricyon gabbi	Olingo	1
Bassariscus astutus	Ringtail, or cacomistle	1
Nasua narica	Coatimundi	1
Nasua nasua	Red coatimundi	2
Potos flavus	Kinkajou	3
Procyon lotor	Raccoon	13
Mustelidae:		
Lutra cinerea	African clawed otter	1
Mephitis mephitis	Common skunk	1
Mustela eversmanni	Ferret, albino	1

MAMMALS—Continued

CARNIVORA—continued

Scientific name	*Common name*	*Number*
Mustelidae—Continued		
Mustela frenata	Weasel	1
Pteronura brasiliensis	South American flat-tailed otter	1
Spilogale phenax	California spotted skunk	3
Taxidea taxus	American badger	1
Tayra barbara	Tayra	1
Cryptoproctidae:		
Cryptoprocta ferox	Fossa	1
Viverridae:		
Arctictis binturong	Binturong	1
Atilax paludinosus	Water civet	3
Genetta genetta	Genet	2
Genetta genetta neumanii	Genet	2
Herpestes ichneumon	African civet	2
Ichneumia albicauda	White-tailed civet	2
Paguma larvata taivana	Formosan masked civet	1
Viverra tangalunga	Ground civet	1
Hyaenidae:		
Crocuta crocuta germinans	Spotted hyena	2
Hyaena hyaena	Striped hyena	2
Felidae:		
Acinonyx jubata	Cheetah	2
Felis chaus	Jungle cat	2
Felis concolor	Puma	4
Felis leo	Lion	9
Felis onca	Jaguar	3
Felis pajeros	Pampas cat	1
Felis pardalis	Ocelot	2
Felis pardus	African leopard	3
	Black leopard	2
Felis serval	Serval cat	1
Felis sylvestris	African wildcat	2
Felis tigrina	Margay cat	2
Felis tigris	Bengal tiger	3
Felis uncia	Snow leopard	2
Lynx canadensis	Lynx	1
Lynx rufus	Bobcat	2

PINNIPEDIA

Otariidae:		
Otaria flavescens	Patagonian sea-lion	2
Zalophus californianus	Sea-lion	2
Phocidae:		
Phoca vitulina	Harbor seal	2

TUBULIDENTATA

Orycteropodidae:		
Orycteropus afer	Antbear, or aardvark	1

PROBOSCIDEA

Elephantidae:		
Elephas maximus	Indian elephant	3
Loxodonta africana	African elephant	1

PERISSODACTYLA

Equidae:		
Equus asinus	Burro, or donkey	1
Equus burchelli antiquorum	Chapman's zebra	1
Equus burchelli boehmi	Grant's zebra	4
Equus grevy	Grevy's zebra	3
Equus kiang	Asiatic wild ass, or kiang	1
Equus przewalskii	Mongolian wild horse	1

MAMMALS—Continued

PERISSODACTYLA—continued

Scientific name	Common name	Number
Tapiridae:		
Acrocodia indica	Indian tapir	1
Tapirus terrestris	Brazilian tapir	1
Rhinocerotidae:		
Ceratotherium simum	White or square-mouth rhinoceros	2
Diceros bicornis	African rhinoceros	2
Rhinoceros unicornis	Great Indian one-horned rhinoceros	1

ARTIODACTYLA

Suidae:		
Sus scrofa	European wild boar	2
Tayassuidae:		
Pecari tajacu angulatus	Collared peccary	2
Hippopotamidae:		
Choeropsis liberiensis	Pygmy hippopotamus	4
Hippopotamus amphibius	Hippopotamus	4
Camelidae:		
Camelus bactrianus	Bactrian camel	2
Camelus dromedarius	Single-humped camel	1
Lama glama	Llama	6
Lama glama guanicoe	Guanaco	3
Lama pacos	Alpaca	4
Cervidae:		
Axis axis	Axis deer	6
Cervus canadensis	American elk	5
Cervus elaphus	Red deer	2
Cervus nippon	Sika deer	10
Cervus nippon manchuricus	Dybowsky's deer	2
Dama dama	Brown fallow deer	16
	White fallow deer	17
Elaphurus davidianus	Père David's deer	2
Hydropotes inermis	Chinese water deer	3
Muntiacus muntjak	Rib-faced deer	1
Odocoileus virginianus	Virginia deer	17
Odocoileus virginianus costaricensis	Costa Rican deer	3
Giraffidae:		
Giraffa camelopardalis	Nubian giraffe	4
Okapia johnstoni	Okapi	2
Antilocapridae:		
Antilocapra americana	Pronghorn antelope	1
Bovidae:		
Ammotragus lervia	Aoudad	14
Anoa depressicornis	Anoa	3
Bibos gaurus	Gaur	4
Bison bison	American bison	8
Bison bonasus	European bison, or wisent	2
Bos indicus	Zebu	2
Bos taurus	West Highland or Kyloe cattle	4
	British Park cattle	6
Capra aegagrus cretensis	Cretan agrimi goat	1
Capra hircus	Domestic goat	5
Cephalophus nigrifrons	Black-fronted duiker	1
Hemitragus jemlahicus	Tahr	2
Ovis musimon	Mouflon	2
Poephagus grunniens	Yak	5
Pseudois nayaur	Blue sheep	1
Saiga tatarica	Saiga antelope	1
Syncerus caffer	African buffalo	2
Taurotragus oryx	Eland	2

BIRDS

STRUTHIONIFORMES

Scientific name	Common name	Number
Struthionidae:		
Struthio camelus	Ostrich	1

RHEIFORMES

Rheidae:		
Rhea americana	Rhea	2

CASUARIIFORMES

Casuariidae:		
Casuarius unappendiculatus unappendiculatus.	One-wattled cassowary	1
Dromiceiidae:		
Dromiceius novaehollandiae	Emu	5

TINAMIFORMES

Tinamidae:		
Tinamus major	Chestnut-headed tinamou	1

SPHENISCIFORMES

Spheniscidae:		
Aptenodytes patagonica	King penguin	4
Pygoscelis adeliae	Adelie penguin	1
Spheniscus humboldti	Humboldt's penguin	2

PELICANIFORMES

Pelecanidae:		
Pelecanus erythrorhynchus	White pelican	7
Pelecanus occidentalis occidentalis	Brown pelican	2
Pelecanus onocrotalus	Rose-colored pelican	2
Phalacrocoracidae:		
Phalacrocorax auritus albociliatus	Farallon cormorant	1

CICONIIFORMES

Ardeidae:		
Florida caerulea	Blue heron	2
Leucophoyx thula	Snowy egret	2
Notophoyx novaehollandiae	White-faced heron	1
Nycticorax nycticorax hoactli	Black-crowned night heron	24
Tigrisoma lineatum	Tiger bittern	4
Balaenicipitidae:		
Balaeniceps rex	Shoebill	1
Cochleariidae:		
Cochlearius cochlearius	Boat-billed heron	3
Ciconiidae:		
Dissoura episcopus	Woolly-necked stork	1
Leptoptilus crumeniferus	Marabou stork	1
Leptoptilus javanicus	Lesser adjutant	2
Threskiornithidae:		
Ajaia ajaja	Roseate spoonbill	2
Eudocimus alba	White ibis	4
Eudocimus ruber	Scarlet ibis	2
Mycteria americana	Wood ibis	1
Threskiornis melanocephala	Black-headed ibis	1
Phoenicopteridae:		
Phoenicopterus antiquorum	Old World flamingo	1
Phoenicopterus chilensis	Chilean flamingo	2
Phoenicopterus ruber	Cuban flamingo	1

BIRDS—Continued

ANSERIFORMES

Scientific name	Common name	Number
Anhimidae:		
Chauna torquata	Crested screamer	4
Anatidae:		
Aix sponsa	Wood duck	9
Aix sponsa × *Aythya americana*	Hybrid, wood duck × red-headed duck.	2
Anas acuta	Pintail duck	4
Anas discors	Blue-winged teal	1
Anas platyrhynchos	Mallard duck	57
	Rouen duck	8
	White mallard duck	1
Anas platyrhynchos × *A. acuta*	Hybrid, mallard duck × American pintail duck.	1
Anas platyrhynchos × *A. p. domestica.*	Hybrid, mallard × Peking duck	20
Anas platyrhynchos domestica	Peking duck	102
Anas poecilorhyncha	Indian spotted-bill duck	1
Anas rubripes	Black duck	1
Anser albifrons	White-fronted goose	3
Anser anser domesticus	Domestic Chinese goose	7
Anseranus semipalmata	Australian pied goose	1
Aythya americana	Red-headed duck	4
Aythya valisineria	Canvasback duck	3
Branta canadensis	Canada goose	40
Branta canadensis canadensis × *Chen caerulescens.*	Hybrid, Canada goose × blue goose.	2
Branta canadensis minima	Cackling goose	13
Branta canadensis occidentalis	White-cheeked goose	27
Cairina moschata	Muscovy duck	7
Cereopsis novaehollandiae	Cape Barren goose	1
Chen atlantica	Snow goose	7
Chen caerulescens	Blue goose	6
Chen hyperborea	Lesser snow goose	2
Chen rossi	Ross's goose	4
Chenopis atrata	Black swan	4
Chloephaga leucoptera	Upland goose	1
Cygnus columbianus	Whistling swan	5
Cygnus cygnus	Whooper swan	2
Dendrocygna autumnalis	Black-bellied tree duck	30
Dendronessa galericulata	Mandarin duck	2
Eulabeia indica	Indian bar-headed goose	5
Mareca americana	Baldpate	1
Netta rufina	Red-crested pochard	1
Nyroca affinis	Lesser scaup	1
Philacte canagica	Emperor goose	2
Plectropterus gambensis	Spur-winged goose	1
Sarkidiornis melanota	Comb duck	1
Somateria mollissima	Eider duck	1
Tadorna tadorna	European shell duck	1

FALCONIFORMES

Cathartidae:		
Cathartes aura	Turkey vulture	4
Coragyps atratus	Black vulture	6
Gyps rueppelli	Riippell's vulture	2
Pseudogyps africanus	White-backed vulture	1
Sarcoramphus papa	King vulture	1
Sagittariidae:		
Sagittarius serpentarius	Secretarybird	2

BIRDS—Continued

FALCONIFORMES—continued

Scientific name	Common name	Number
Accipitridae:		
Buteo jamaicensis	Red-tailed hawk	6
Buteo lineatus	Red-shouldered hawk	1
Buteo poecilochrous	Buzzard eagle	1
Butea swainsoni	Swainson's hawk	1
Haliaeetus leucocephalus	Bald eagle	8
Haliaeetus leucogaster	White-breasted sea eagle	1
Haliastur indus	Brahminy kite	1
Harpia harpyja	Harpy eagle	1
Leptodon cayanensis	Cayenne kite	1
Milvago chimango	Chimango	1
Milvus migrans parasitus	African yellow-billed kite	2
Morphnus guianensis	Guianan crested eagle	1
Pandion haliaetus carolinensis	Osprey	3
Pithecophagus jefferyi	Monkey-eating eagle	1
Spizaetus ornatus	Manduit's hawk-eagle	1
Falconidae:		
Falco mexicanus	Prairie falcon	1
Falco peregrinus anatum	Duck hawk	1
Falco sparverius	Sparrow hawk	6
Polyborus plancus	South American caracara	3

GALLIFORMES

Megapodiidae:		
Alectura lathami	Brush turkey	1
Cracidae:		
Crax alberti	Blue-cered curassow	2
Crax globulosa	Wattled curassow	2
Crax panamensis	Panama curassow	1
Phasianidae:		
Alectornis graeca	Chukar quail	5
Argusianus argus	Argus pheasant	1
Chrysolophus amherstiae	Lady Amherst pheasant	3
Chrysolophus pictus	Golden pheasant	8
Colinus virginianus	Bobwhite quail	3
	Red bobwhite quail	1
Crossoptilon auritum	Blue-eared pheasant	1
Gallus gallus	Red junglefowl	3
	Long-tailed fowl	2
	Fighting fowl	2
	Bantam chicken	7
	Silky bantam	1
	Silver-spangled Hamburg fowl	1
Gennaeus leucomelanus	Nepal pheasant	3
Hierophasis swinhoii	Swinhoe's pheasant	1
Lophortyx californica vallicola	California valley quail	1
Lophortyx gambelii	Gambel's quail	1
Pavo cristatus	Peafowl	7
Perdix perdix	Hungarian partridge	4
Phasianus colchicus torquatus	Ring-necked pheasant	7
	White ring-necked pheasant	2
Syrmaticus reevesi	Reeves's pheasant	2
Numididae:		
Numida meleagris	White guinea fowl	1
Meleagrididae:		
Meleagris gallopavo	Domestic turkey	1

GRUIFORMES

Gruidae:		
Anthropoides virgo	Demoiselle crane	1
Balearica pavonina	West African crowned crane	1
Balearica regulorum gibbericeps	East African crowned crane	1

BIRDS—Continued

GRUIFORMES—continued

Scientific name	Common name	Number
Gruidae—Continued		
Grus canadensis	Florida sandhill crane	1
Grus leucogeranus	Siberian crane	1
Psophiidae:		
Psophia crepitans	Gray-backed trumpeter	1
Rallidae:		
Fulica americana	American coot	1
Gallinula chloropus cachinnans	Florida gallinule	3
Laterallus leucopyrrhus	Black-and-white crake	1
Porphyrio poliocephalus	South Pacific swamp hen	1
Rallus limicola limicola	Virginia rail	1
Eurypygidae:		
Eurypyga helias	Sun bittern	2
Cariamidae:		
Cariama cristata	Cariama, or seriama	1
Otididae:		
Chlamydotis undulata macqueeni	MacQueen's bustard	1

CHARADRIIFORMES

Jacanidae:		
Jacana spinosa hypomelaena	Black jaçana	1
Recurvirostridae:		
Himantopus mexicanus	Black-necked stilt	1
Burhinidae:		
Burhinus bistriatus	South American thick-knee	2
Haematopodidae:		
Haematopus ostralegus	Oystercatcher	4
Charadriidae:		
Belonopterus cayennensis	South American lapwing	2
Charadrius vociferus	Killdeer	1
Philomachus pugnax	Ruff	1
Stercorariidae:		
Catharacta maccormicki	MacCormick's skua	5
Laridae:		
Larosterna inca	Inca tern	5
Larus atricilla	Laughing gull	1
Larus delawarensis	Ring-billed gull	2
Larus dominicanus	Kelp gull	2
Larus novaehollandiae	Silver gull	12

COLUMBIFORMES

Pteroclidae:		
Pterocles orientalis	Sand grouse	1
Columbidae:		
Columba livia	Homing pigeon	8
Columba nigrirostris	Black-billed pigeon	1
Gallicolumba luzonica	Bleeding-heart dove	5
Geopelia cuneata	Diamond dove	3
Goura victoria	Crowned pigeon	2
Streptopelia decaocto	Ring-necked dove	32
Streptopelia tranquebarica	Blue-headed ring dove	2
Zenaida asiatica	White-winged dove	2
Zenaidura macroura	Mourning dove	5

PSITTACIFORMES

Psittacidae:		
Agapornis fischeri	Yellow-collared lovebird	1
Agapornis personata	Masked lovebird	7
Agapornis roseicollis	Rosy-faced lovebird	1
Amazona aestiva	Blue-fronted parrot	1
Amazona auropalliata	Yellow-naped parrot	2
Amazona finschi	Finsch's parrot	3

BIRDS—Continued

PSITTACIFORMES—continued

Scientific name	*Common name*	*Number*
Psittacidae—Continued		
Amazona leucocephala	Cuban parrot	1
Amazona ochrocephala	Yellow-headed parrot	1
Amazona oratrix	Double yellow-headed parrot	2
Anodorhynchus hyacinthinus	Hyacinthine macaw	1
Ara ararauna	Yellow-and-blue macaw	3
Ara chloroptera	Red-and-blue macaw	3
Ara macao	Red-blue-and-yellow macaw	4
Aratinga canicularis	Petz's parakeet	1
Aratinga pertinax	Rusty-cheeked parrot	4
Brotogeris jugularis	Tovi parakeet	1
Callocephalon fimbriatum	Gang-gang cockatoo	5
Calyptorhynchus magnificus	Banksian cockatoo	2
Domicella garrula	Red lory	1
Eclectus pectoralis	Eclectus parrot	1
Kakatoe alba	White cockatoo	2
Kakatoe ducrops	Solomon Islands cockatoo	1
Kakatoe galerita	Sulphur-crested cockatoo	6
Kakatoe leadbeateri	Leadbeater's cockatoo	10
Kakatoe moluccensis	Great red-crested cockatoo	1
Kakatoe sanguineus	Bare-eyed cockatoo	5
Melopsittacus undulatus	Grass parakeet	45
Nestor notabilis	Kea parrot	3
Nymphicus hollandicus	Cockatiel	4
Pionus menstruus	Blue-headed conure	1
Platycercus elegans	Pennant's parakeet	3
Platycercus eximius	Rosella parakeet	1
Polytelis swainsoni	Barraband's parakeet	2
Psittacula cyanocephala	Plum-headed parakeet	1
Psittacula eupatria	Red-shouldered parakeet	1
Psittacula fasciata	Moustache parakeet	2
Psittacula krameri	Kramer's parakeet	1
Psittacus erithacus	African gray parrot	1

CUCULIFORMES

Cuculidae:		
Eudynamys scolospacea	Koel	1
Geococcyx californianus	Roadrunner	2
Musophagidae:		
Crinifer africanus	Plantain-eater	2
Tauraco corythaix	South African turaco	1
Tauraco persa	Purple turaco	1

STRIGIFORMES

Tytonidae:		
Tyto alba pratincola	Barn owl	2
Strigidae:		
Bubo virginianus	Great horned owl	6
Bubo virginianus elutus	Colombian great horned owl	1
Ketupa ketupu	Malay fishing owl	1
Otus asio	Screech owl	1
Strix varia varia	Barred owl	11

TROGONIFORMES

Trogoniidae:		
Priotelus temnurus	Cuban trogon	2

BIRDS—Continued

CORACIIFORMES

Scientific name	*Common name*	*Number*
Alcedinidae:		
Dacelo gigas	Kookaburra	5
Bucerotidae:		
Aceros undulatus	Malayan hornbill	1
Anthracoceros malabaricus	Pied hornbill	1
Buceros bicornis	Concave-casqued hornbill	1
Buceros hydrocorax	Philippine hornbill	1
Bucorvus abyssinicus	Abyssinian ground hornbill	1
Bycanistes subcylindricus	Black-and-white casqued hornbill	3
Momotidae:		
Momotus lessoni	Motmot	2
Upupidae:		
Upupa epops	Hoopoe	5

PICIFORMES

Ramphastidae:		
Andigena hypoglauca	Blue toucan	1
Aulacorhampus albivittatus	White-lined toucanet	2
Pteroglossus torquatus	Ringed toucanet	3
Ramphastos carinatus	Sulphur-breasted toucan	2
Ramphastos culminatus	White-breasted toucan	1
Ramphastos swainsoni	Swainson's toucan	1
Ramphastos toco	Toco toucan	3
Capitonidae:		
Cyanops asiatica	Asiatic red-fronted barbet	1
Megalaima zalonica	Streaked barbet	2

PASSERIFORMES

Cotingidae:		
Chasmorhynchus nudicollis	Bellbird	1
Rupicola rupicola	Orange cock-of-the-rock	2
Rupicola sanguinolenta	Scarlet cock-of-the-rock	1
Tyrannidae:		
Pitangus sulphuratus	Kiskadee flycatcher	4
Alaudidae:		
Alauda arvensis	Skylark	2
Corvidae:		
Calocitta formosa	Magpie jay	1
Corvus brachyrhynchos	Crow	6
Corvus corax principalis	Raven	1
Corvus insolens	Indian crow	2
Cyanocitta cristata	Blue jay	2
Gymnorhina hypoleuca	White-backed piping crow	1
Pica nuttalli	Yellow-billed magpie	1
Pica pica hudsonica	Magpie	4
Urocissa caerulea	Formosan red-billed pie	1
Ptilonorhynchidae:		
Ptilonorhynchus violaceus	Satin bowerbird	2
Timaliidae:		
Garrulax bicolor	White-headed laughing thrush	1
Pycnonotidae:		
Heterophasia capistrata	Black-headed sibia	1
Pycnonotus cafer	Red-vented bulbul	1
Pycnonotus leucogenys	White-cheeked bulbul	1
Mimidae:		
Mimus polyglottos	Mockingbird	1

BIRDS—Continued

PASSERIFORMES—continued

Scientific name	Common name	Number
Turdidae:		
Geokichla citrina	Orange-headed ground thrush	1
Thamnolaea cinnemomeiventris	Cliff chat	2
Turdus grayi	Bonaparte's thrush	1
Turdus migratorius	Robin	1
	Albino robin	1
Sturnidae:		
Acridotheres tristis	Jungle mynah	1
Gracula religiosa	Hill mynah	2
Gracula religiosa indica	Lesser hill mynah	2
Gracula religiosa robusta	Nias wattled mynah	1
Lamprocolius purpureus	Burchell's glossy starling	3
Pastor roseus	Rose-colored pastor	1
Spreo superbus	Tricolored or superb starling	1
Sturnia malabarica	Gray-headed mynah	1
Sturnus vulgaris	Starling	2
Ploceidae:		
Aidemosyne modesta	Plum-headed finch	1
Amadina fasciata	Cut-throat weaver finch	10
Diatropura procne	Giant whydah	5
Estrilda amandava	Strawberry finch	1
Estrilda angolensis	Cordon bleu finch	6
Estrilda astrild	Red-eared waxbill	1
Estrilda cinerea	Common waxbill	4
Estrilda coerulescens	Lavender finch	2
Estrilda melpoda	Orange-cheeked waxbill	1
Estrilda senegala	Fire finch	2
Euplectes afra	Yellow-crowned bishop weaver	10
Euplectes orix	Red bishop weaver	7
Lonchura maja	White-headed nun	16
Lonchura malacca	Black-throated munia	1
Lonchura punctulata	Spice finch	1
Munia oryzivora	Java finch	30
Ploceipasser mahali	Mahali weaver	1
Ploceus baya	Baya weaver	12
Ploceus vitellinus	Vitelline masked weaver	3
Poephila acuticauda	Shaft-tailed finch	2
Poephila gouldiae	Gouldian finch	3
	Black-headed Gouldian finch	2
Poephila guttata castanotis	Zebra finch	47
Poephila ruficauda	Star finch	1
Quelea quelea	Red-billed weaver	1
Steganopleura bichenovii	Bicheno's finch	1
Steganura paradisea	Paradise whydah	11
Icteridae:		
Agelaius icterocephalus	Yellow-headed marshbird	1
Icterus giraudi	Giraud's oriole	1
Icterus icterus	Troupial	1
Molothrus bonariensis	Silky cowbird	1
Psomocolax oryzivora	Rice grackle	1
Quiscalus quiscula	Purple grackle	1
Tangavius armenti	Colombian red-eyed cowbird	1
Xanthocephalus xanthocephalus	Yellow-headed blackbird	1
Xanthornus decumanus	Crested oropendola	1
Thraupidae:		
Calospiza ruficapilla	Brown-headed tanager	1
Psomocolax leveriana	Black-and-white tanager	2
Ramphocelus dimidiatus	Crimson tanager	3
Ramphocelus passerini	Passerini's tanager	6
Thraupis cana	Blue tanager	4
Thraupis leucoptera	White-edged tanager	1
Thraupis palmarum	Black-winged palm tanager	2

BIRDS—Continued

PASSERIFORMES—continued

Scientific name	Common name	Number
Fringillidae:		
Carduelis carduelis	European goldfinch	6
Carduelis carduelis × *Serinus canarius.*	European goldfinch × canary	1
Carpodacus mexicanus frontalis	House finch	1
Melospiza melodia	Song sparrow	1
Paroaria cucullata	Brazilian cardinal	1
Paroaria gularis nigro-genis	Black-eared cardinal	3
Poospiza torquata	Ringed warbling finch	1
Richmondena cardinalis	Cardinal	1
Saltator maximus	Buff-throated saltator	1
Serinus canarius	Canary	3
Sicalis luteola	Saffron finch	6
Sporophila gutturalis	Yellow-billed finch	32

REPTILES

LORICATA

Crocodylidae:		
Alligator mississipiensis	Alligator	19
Alligator sinensis	Chinese alligator	2
Caiman sclerops	Caiman	16
Crocodylus acutus	American crocodile	2
Crocodylus cataphractus	Narrow-nosed crocodile	1
Crocodylus niloticus	African crocodile	1
Crocodylus porosus	Salt-water crocodile	1
Osteolaemus tetraspis	Broad-nosed crocodile	3
Tomistoma schlegeli	Gavial	1

SAURIA

Gekkonidae:		
Gecko smithi	Giant gecko	1
Tarentola mauritanica	Gecko	1
Gerrhosauridae:		
Gerrhosaurus major	Plated lizard	8
Iguanidae:		
Anolis carolinensis	American anolis	35
Anolis cristatellus	Little crested anolis	5
Anolis krugi	Krug's anolis	5
Anolis stratulus	West Indian anolis	4
Cyclura macleayi	Cuban iguana	3
Cyclura stejnegeri	Mona Island iguana	1
Iguana iguana	Common iguana	11
Phrynosoma cornutum	Horned toad	10
Sceloporus undulatus	Fence lizard	8
Helodermatidae:		
Heloderma horridum	Mexican beaded lizard	2
Heloderma suspectum	Gila monster	5
Varanidae:		
Varanus varius	Australian lace monitor	2
Teiidae:		
Tupinambis nigropunctatus	Black tegu	1
Scincidae:		
Chalcides sepoides	Three-fingered skink	2
Egernia luctuosa	Mourning skink	2
Egernia whitei	White's skink	8
Eumeces fasciatus	Greater five-lined skink	5
Scincus officinalis	Sand skink	9
Trachysaurus rugosus	Stump-tailed lizard	1
Anguidae:		
Ophisaurus ventralis	Glass lizard	1
Chameleontidae:		
Chamaeleon dilepis	Flap-necked chameleon	1
Chamaeleon jacksoni	Three-horned chameleon	2

REPTILES—Continued

SERPENTES

Scientific name	*Common name*	*Number*
Boidae:		
Boa enydris cookii	Cook's tree boa	1
Boa enydris enydris	Tree boa	1
Constrictor constrictor	Boa constrictor	2
Constrictor imperator	Emperor boa	2
Epicrates angulifer	Cuban boa	5
Epicrates cenchria	Rainbow boa	5
Eryx thebaicus	Sharp-tailed sand boa	1
Eunectes murinus	Anaconda	5
Python molurus	Indian rock python	1
Python regius	Ball python	5
Python reticulatus	Regal python	3
Python sebae	African python	2
Colubridae:		
Abastor erythrogrammus	Rainbow snake	1
Boaedon lineatum	African house snake, or musaga	2
Coluber constrictor constrictor	Black racer	1
Diadophis punctatus edwardsi	Ring-necked snake	1
Elaphe obsoleta confinis	Southern pilot black snake	1
Elaphe obsoleta guttata	Corn snake	2
Elaphe obsoleta lindheimeri	Lindheimer's rat snake	3
Elaphe obsoleta obsoleta	Pilot black snake	10
	Pilot black snake, albino	2
Elaphe quadrivittata	Chicken snake	8
Farancia abacura	Mud snake	2
Heterodon contortrix	Hog-nosed snake	1
Lampropeltis doliata	Scarlet king snake	1
Lampropeltis getulus californiae	California king snake	2
Lampropeltis getulus getulus	King snake	3
Lampropeltis getulus splendida	Sonoran king snake	1
Lampropeltis rhombomaculata	Mole snake	1
Lampropeltis triangulum	Milk snake	2
Leptodiera annulata	Cat-eyed snake	4
Masticophis flagellum flavigularis	Coachwhip snake	6
Natrix erythrogaster	Red-bellied water snake	3
Natrix fasciata	Southern banded water snake	3
Natrix pictiventris	Florida water snake	11
Natrix septemvittata	Queen water snake	2
Natrix sipedon	Water snake	6
Opheodrys vernalis	Smooth-scaled green snake	2
Pituophis sayi	Bull snake	1
Simocephalus capensis	File snake	1
Storeria dekayi	DeKay's snake	2
Storeria o. occipitomaculata	Red-bellied snake	1
Thamnophis sauritus	Ribbon snake	1
Thamnophis sirtalis	Garter snake	3
Zamenis florulentus	Egyptian racer	1
Elapidae:		
Naja haje	Egyptian cobra	9
Naja hannah	King cobra	1
Naja melanoleuca	Black cobra	1
Naja naja	Indian cobra	5
Crotalidae:		
Ancistrodon contortrix mokeson	Northern copperhead snake	7
Ancistrodon piscivorus	Water moccasin	4
Crotalus atrox	Texas diamondback rattlesnake	6
Crotalus horridus	Timber rattlesnake	1
Crotalus lepidus	Rock rattlesnake	1
Sistrurus miliarius	Pygmy rattlesnake	2
Sistrurus miliarius streckeri	Ground rattlesnake	1
Trimeresurus sp	Korean viper	1
Trimeresurus flavoviridis	Habu	1

REPTILES—Continued

TESTUDINATA

Scientific name	*Common name*	*Number*
Chelyidae:		
Batrachemys nasuta	South American side-necked turtle.	2
Chelodina longicollis	Australian side-necked turtle	3
Hydromedusa tectifera	Small side-necked turtle	2
Phrynops geoffroyana	Geoffroy's side-necked turtle	1
Phrynops hilarii	Large side-necked turtle	15
Platemys platycephala	Flat-headed turtle	5
Kinosternidae:		
Kinosternon cruentatum	South American mud turtle	1
Kinosternon subrubrum	Mud turtle	5
Sternotherus odoratus	Musk turtle	6
Chelydridae:		
Chelydra serpentina	Snapping turtle	12
Emydidae:		
Batagur baska	Indian fresh-water turtle	1
Chrysemys picta	Painted turtle	31
Clemmys guttata	Spotted turtle	2
Clemmys insculpta	Wood turtle	8
Clemmys marmorata marmorata	Pacific pond turtle	1
Cyclemys amboinensis	Kura kura box turtle	1
Emydura krefftii	Krefft's turtle	3
Emydura macquariae	Murray turtle	8
Emys orbicularis	European pond turtle	3
Graptemys barbouri	Barbour's turtle	7
Graptemys geographica	Map turtle	3
Graptemys pseudogeographica	False map turtle	4
Kinixys belliana	Hinge-back turtle	1
Malaclemys terrapin	Diamondback turtle	6
Pseudemys decussata	Cuban water turtle	1
Pseudemys elegans	Mobile turtle	12
Pseudemys floridana	Florida water turtle	10
Pseudemys floridana suwannensis	Suwannee turtle	7
Pseudemys ornata	Central American turtle	2
Pseudemys rubriventris	Red-bellied turtle	6
Pseudemys scripta	Red-lined turtle	12
Pseudemys scripta callirostris	South American red-lined turtle	8
Pseudemys scripta troostii	Cumberland turtle	10
Terrapene bauri	Florida box turtle	1
Terrapene carolina	Box turtle	50
Terrapene carolina triunguis	Three-toed box turtle	3
Terrapene ornata ornata	Western box turtle	2
Pelomedusidae:		
Pelomedusa galeata	African water turtle	1
Pelusios nigricans	African black mud turtle	3
Pelusios sinuatus	African snake-neck turtle	8
Phrynops gibba	South American gibba turtle	3
Podocnemis unifilis	Amazon spotted turtle	13
Testudinidae:		
Testudo elephantina	Giant Aldabra turtle	6
Testudo ephippium	Duncan Island turtle	3
Testudo tabulata	South American turtle	2
Testudo vicina	Galápagos turtle	1
Trionychidae:		
Trionyx ferox	American soft-shelled turtle	7
Trionyx triunguis	African soft-shelled turtle	2

AMPHIBIANS

CAUDATA

Scientific name	*Common name*	*Number*
Ambystomidae:		
Ambystoma opacum	Marbled salamander	1
Salamandridae:		
Diemictylus viridescens	Red-spotted newt	28
Taricha torosa	California newt	1
Triturus pyrrhogaster	Red-bellied newt	21
Amphiumidae:		
Amphiuma means	Congo eel	1

SALIENTIA

Dendrobatidae:		
Dendrobates sp	Green poison-arrow frog	1
Dendrobates auratus	Black poison-arrow frog	1
Dendrobates typographus	Yellow poison-arrow frog	7
Bufonidae:		
Bufo americanus	American toad	4
Bufo guttatus	Forest toad	2
Bufo marinus	Giant toad	7
Bufo paracnemis	Rococo toad	1
Bufo peltocephalus	Cuban toad	6
Bufo viridis	European toad	1
Leptodactylidae:		
Ceratophrys calcarata	Colombian horned frog	2
Ceratophrys ornata	Argentine horned frog	1
Hylidae:		
Acris gryllus	Cricket frog	4
Hyla cinerea	Green tree frog	1
Hyla versicolor	Gray tree frog	4
Hylambates maculatus	African flash tree frog	6
Megalixalus fornasinii	African green frog	1
Microhylidae:		
Microhyla carolinensis	Narrow-mouthed toad	2
Pipidae:		
Pipa pipa	Surinam toad	5
Ranidae:		
Rana adspersa	African bull frog	12
Rana catesbeiana	American bull frog	2
Rana clamitans	Green frog	10
Rana pipiens	Leopard frog	25

FISHES

Acanthodoras spinosissimus	Talking catfish	1
Acanthophthalmus semicinctus	Large kuhlii	1
Anabas testudineus	Climbing perch	4
Astronotus ocellatus	Peacock cichlid	4
Barbus everetti	Clown barb	2
Betta sp	Fightingfish	1
Brachygobius xanthozonus	Bumblebee-fish	1
Corydoras hastatus	Corydoras	6
Distichodus sexfasciatus		1
Electrophorus electricus	Electric eel	1
Gambusia punctatus	Blue gambusia	15
Labeo chrysophekadion	Black sharkfish	2
Lebistes recticulatus	Guppy	25
	Flag-tailed guppy	10
Lepidosiren paradoxa	South American lungfish	1
Metynnis sp	Metynnis	2
Plecostomus plecostomus	Armored catfish	4
Protopterus annectens	African lungfish	1
Pterophyllum eimekii	Black angelfish	2
Serrasalmus niger	Piranha	1

FISHES—Continued

Scientific name	*Common name*	*Number*
Sternarchella schotti	African knifefish	2
Tanichthys albonubes	White Cloud Mountain fish	1
Trichogaster trichopterus	Pearl gourami	1
Xiphophorus helleri	Green swordtail	4
Xiphophorus maculatus	Platys or moonfish	6
Unidentified	Mouthbreeders	2
ARTHROPODS		
Crustacea:		
Birgus latro	Coconut crab	1
Coenobita clypeatus	Land hermit crab	35
Arachnida:		
Centruroides gracilis	Florida scorpion	2
Eurypelma sp	Tarantula	10
Latrodectus mactans	Black-widow spider	1
Insecta:		
Blaberus craniifer	Tropical giant cockroach	100
MOLLUSKS		
Lymnaea sp	Pond snails	100

FINANCES

The appropriation for the National Zoological Park is carried in the District of Columbia Appropriation Act. In the fiscal year 1957, $720,000 was appropriated, of which $545,627 was alloted for salaries, leaving $174,373 for the operation of the Zoo. Included in this last figure is $65,000 for animal food, $29,000 for maintenance and repair, and $15,000 for the purchase of animals. In addition to animals purchased from appropriated funds, many valuable animals are acquired through judicious exchange.

The estimated net worth of the Zoo is approximately $4,500,000, which includes the value of the land, buildings, improvements, animals, and the current appropriation.

PERSONNEL

J. Lear Grimmer, formerly Assistant Director of the Lincoln Park Zoo, Chicago, Ill., was appointed Assistant Director of the National Zoological Park on June 3. Mr. Grimmer is a trained zoologist, specializing in herpetology but interested in the entire field. He has had eight years experience in zoological park administration.

Former assistant head keeper Ralph Norris, who has had 25 years experience, has been appointed head keeper.

James M. Derrow, an employee since 1931, was promoted from assistant superintendent of maintenance and construction to superintendent.

There are 137 authorized positions at the Zoo, which at the present time are divided as follows: 12 in the administrative office, 52 in the animal department, 21 police, 47 in the mechanical shop, and 5 in the grounds department.

During this fiscal year $15,310.87 was utilized for terminal leave payments for retiring personnel. Funds are not appropriated for this purpose. In order to absorb this amount it was necessary to maintain vacancies throughout the year. To meet this unique situation all employees had to put forth extra effort. Their loyalty and devotion to the Zoo and their hard work have been reflected in the excellent health of the animals and the general appearance of the Zoo. Great credit is due the employees for their cooperation during this trying time.

Other personnel items referring to retirements are mentioned at the beginning of this report.

INFORMATION AND EDUCATION

The Zoo continues to handle a large correspondence with persons all over the world who write for information regarding animals. From every part of this country citizens write to the Zoo as a national institution. Telephone calls come in constantly, asking for identification of animals, proper diets, or treatment of disease. Visitors to the office as well as to the animal exhibits are constantly seeking information.

The Acting Director spoke before three civic groups and made one television appearance.

The Assistant Director made one television appearance, in which he showed the feeding and handling of gorillas. On another occasion, the Zoo's three baby lion cubs appeared on television.

Two groups of naval medical officers were taken on a tour of the Zoo, special attention being paid to those animals which are reservoirs of human infection, and those with which they might come in contact at their stations.

Malcolm Davis, assistant head keeper, in charge of birds, continues to contribute notes and observations to ornithological journals and publications. He helped revise "Parrots Exclusively" and assisted in the preparation of "Pet Mynas," both published by All-Pets Magazine.

Mario DePrato, principal keeper in charge of the reptile house, talked before a Navy Research group on poisonous reptiles. On a collecting trip in Florida and another in the Dismal Swamp, Va., Mr. DePrato gathered a number of interesting reptiles, which were added to the collection.

Travis Fauntleroy, administrative assistant, and Ralph Norris, head keeper, were sent to the Cincinnati Zoo for two days to study management problems and animal-handling techniques.

While the Zoo does not conduct a regular research program as such, every effort is made to study the animals, and to improve their health, housing, and diet in any way possible.

VETERINARIAN'S REPORT

The work in this department during the past year has been somewhat curtailed in its professional aspects owing to the promotion of the veterinarian to Acting Director upon the retirement of Dr. William M. Mann. The majority of his time has been absorbed in administrative duties which have, regrettably, necessitated leaving undone much of the routine veterinary work.

Several programs that had been started and that require much time and constant attention have been curtailed. Every effort has been made to see that the health of the animals in the Park is safeguarded, and necessary medications and treatment have been given. Particular emphasis has been placed upon the nutritional aspects of veterinary practice and changes in and additions to the diets have been made. This has meant a great deal of extra work on the part of the veterinarian with rather long hours. He has had to be on duty almost every day of the year to fulfill the dual requirements. With the addition of Mr. Grimmer as Assistant Director, the administrative duties have become less arduous. It is expected that after the first part of the next fiscal year a full-time veterinarian will be in residence, so that the programs already started can be continued, and new and better practices put into effect.

Owing to the intense interest among zoo veterinarians and all zoo people in the aspergillosis infection of birds, particularly penguins, there has been instituted a cooperative study with Dr. William Sladen, an English medical biologist, in residence at Johns Hopkins University on a Rockefeller scholarship, and Dr. Carlton Herman of the United States Fish and Wildlife Research Laboratory at Patuxent, Md., on various aspects of aspergillosis. Studies are being undertaken (1) to determine the best method of artificial infection; (2) to find the mode of natural transmission; (3) to develop a sensitivity test or some other method that will lead to an early diagnosis of this disease; (4) to find the most efficacious method of treatment. In connection with this last problem, several new drugs have been tried out by various routes of administration. So far, the work has been promising and many new facts have been learned about the disease although no definite conclusions have as yet been reached.

Following are the statistics for the mortality rates during the past fiscal year and a table of comparison with the last 5 years:

Mortality, fiscal year 1957	
Mammals	159
Birds	165
Reptiles	176
Amphibians	25
Fishes, arachnids, insects, etc	24
Total	549

Total mortality, past 5 fiscal years	
1953	672
1954	648
1955	735
1956	618
1957	549

Many of the losses during the year were natural attrition due to senility. During the war years the normal flow of animals was reduced, and since then political situations in many parts of the world and animal disease conditions (necessitating expensive quarantine) have made replacement of stock difficult. It is extremely gratifying to the veterinarian that this year shows a decrease in the number of deaths in comparison with the increase in total animal population and number of species.

COOPERATION

At all times special efforts are made to maintain friendly contacts with other Government and State agencies, private concerns and individuals, and scientific workers for mutual assistance. As a result the Zoo receives much help and advice, and many valuable specimens, and in turn it furnishes information and, whenever possible, specimens it does not need.

Special acknowledgment is due Howard Fyfe, United States Dispatch Agent in New York City. He is frequently called upon to clear shipments of animals coming from abroad, often at great personal inconvenience. The animals have been forwarded to Washington without the loss of a single specimen.

United States Marshal Carlton G. Beall turned over to the Zoo 800 pounds of whole eggs and 18 cases of crabmeat which had been condemned by the court as unfit for human consumption but was fit for animal feed. The poultry division of the Department of Agriculture gave several thousand day-old chicks, which are good food for many young animals. The National Institutes of Health cooperated in many ways, helping with postmortems, giving valuable advice, and donating surplus laboratory animals, some of which were exhibited and some used as food. Laboratory animals that had served their purpose were also donated by the Army Medical Center and the Navy Medical Center.

The Fish and Wildlife Service donated a pair of whistling swans and an eastern weasel, and placed on exhibition in the Zoo two mallard ducks, named MacMallard and Susie, which they intend to use in promotion work for wildlife conservation, much as "Smoky" the bear has been used by the Forestry Service in fire prevention.

In cooperation with Dr. Ray Erickson of the Fish and Wildlife Service, Department of the Interior, Mr. Davis has worked on the development of a brail for Canada geese. The purpose of this project is to develop a brail that will prevent flying but at a later date may be removed and permit the birds to have full use of their

1. Willie and Lucy, white or square-lipped rhinoceros, were captured for the Zoo in Uganda. They are the first of their species to be exhibited in the United States.

2. The snow leopard, or ounce, inhabits the high altitudes of central Asia. A pair of these beautiful cats was purchased by the Zoo in the late summer of 1956. Photograph by Ernest P. Walker.

Masudi and Hanadi are the first okapis to be exhibited at the National Zoological Park. Gifts of the Belgian Government, they were formally presented on November 28, 1956. Photograph by Rohland, Washington Post and Times-Herald.

Wild-caught hoopoes are too nervous to adapt themselves to captivity. The ones now in the Zoo were taken as nestlings and hand-raised by a collector in Hungary. Photograph by Ernest P. Walker.

wings. It is the desire of the Fish and Wildlife Service to use this brail in establishing flocks of geese in areas that they formerly inhabited, but which they have abandoned owing to hunting pressure and environmental changes.

VISITORS

Attendance at the Zoo this year reached a total of 3,998,546, an all-time high record. In general this figure is based on estimates rather than actual counts.

Estimated number of visitors for fiscal year 1957

July (1956)	548,950	February	206,850
August	491,300	March	315,900
September	442,700	April	403,346
October	313,900	May	468,200
November	189,400	June	389,300
December	100,800		
January (1957)	127,900	Total	3,998,546

Number of groups from schools

Locality	Number of groups	Number in groups	Locality	Number of groups	Number in groups
Alabama	21	903	Mississippi	6	204
California	1	3	Nebraska	2	93
Connecticut	9	475	New Hampshire	1	45
Delaware	16	730	New Jersey	20	3,130
District of Columbia	148	8,521	New York	120	6,154
Florida	14	2,045	North Carolina	262	11,718
Georgia	55	6,759	North Dakota	4	28
Illinois	7	85	Ohio	52	2,362
Indiana	7	491	Pennsylvania	259	14,644
Iowa	2	45	South Carolina	75	2,589
Kansas	1	31	Tennessee	63	2,622
Kentucky	15	667	Vermont	1	35
Louisiana	3	125	Virginia	567	38,266
Maine	17	822	West Virginia	53	4,346
Maryland	549	38,773	Wisconsin	2	167
Massachusetts	17	580			
Michigan	9	496	Total	2,388	148,064
Minnesota	8	75			

Other groups, totaling 278 persons, visited the Zoo: two groups from Japan, one from Germany, one from Canada, and three convention groups from the United States.

About 2 p. m. each day the cars then parked in the Zoo are counted and listed according to the State, Territory, or country from which they came. This is, of course, not a census of the cars coming to the Zoo but is valuable in showing the percentage of attendance by States of people in private automobiles. Many District of Columbia, Mary-

land, and Virginia cars come to the Zoo to bring guests from other States. The tabulation for the fiscal year 1957 is as follows:

	Percent		Percent
Maryland	28. 7	Massachusetts	0. 9
Virginia	22. 9	Connecticut	. 7
District of Columbia	22. 1	Illinois	. 7
Pennsylvania	4. 0	South Carolina	. 7
New York	2. 7	Michigan	. 6
North Carolina	2. 2	California	. 6
New Jersey	1. 6	Georgia	. 8
Ohio	1. 5	Tennessee	. 6
West Virginia	1. 3	Texas	. 5
Florida	1. 1		
			94. 0

The remaining 6 percent came from other States, Canada, Alaska, Newfoundland, Okinawa, France, Hawaii, Cuba, Panama, Germany, Mexico, British Columbia, Nova Scotia, England, Guam, South America, Philippine Islands, and Puerto Rico.

On the days of even small attendance there are cars parked in the Zoo from at least 15 States, Territories, the District of Columbia, and foreign countries. On average days there are cars from about 22 States, Territories, the District of Columbia, and foreign countries; and during the periods of greatest attendance the cars represent not less than 34 different States, Territories, and countries.

Parking spaces in the Zoo now accommodate 1,079 cars when the bus parking place is utilized, and 969 cars when it is not used.

GROUNDS, BUILDINGS, AND ENCLOSURES

The National Zoological Park covers an area of 176 acres. There are 3 miles of automobile roads, 3 miles of trails, 7 miles of pedestrian walks, 2 miles of boundary fence, and 8 miles of paddock fence. All told, there are 201 houses: 7 large exhibition buildings; the office; a building that contains police headquarters, public restrooms, and gardener's storeroom; the cafeteria; 19 service buildings, and 172 shelters for animals and equipment. There are 762 animal cages and 16 large outdoor pools.

Also to be considered under maintenance are a central high-pressure heating plant, which includes 1,800 linear feet of conduits, or 3,600 feet of steam lines to the buildings, and six smaller heating plants.

During the year there were extensive replacements, remodeling, and repairs to paddocks, cages, and water lines, with major repairs to the roofs of 12 large animal shelters. A large outdoor pen was remodeled for the African buffalo; the mouflon yard was enlarged by combining two paddocks, and the cage that had formerly housed the

gaur, in the elephant house, was remodeled to make it suitable for the forest-dwelling okapis.

Nine new picnic tables were made in the mechanical shop and set out in various parts of the grounds.

The work of the gardener's force has been mainly that of removing dead trees, which are a menace to both animals and visitors, and replacing them with young trees. The animal department is furnished with forage which is very beneficial for animals. In an exchange with the Park Department of Norfolk, Va., we supplied a few animals for the Zoo there, and received a large shipment of azaleas and camellias, which add greatly to the attractiveness of the Park.

Although the greater part of the Park is kept as natural woodland, there are 22 acres of lawn, which require 128 man-hours to mow, using the present equipment.

The accumulation of trash is still a major problem. After days of heavy attendance, such as Easter Sunday and Monday, 5 to 10 days are required to sweep walks, rake lawns, and make the Park presentable again.

PLANS FOR THE FUTURE

Owing to lack of appropriated funds, no major improvements were undertaken during the fiscal year. The old buildings continue to deteriorate, and even the newest exhibition building is now 20 years old and needs painting and repairs. Ten enclosures, including the pools for exhibition of aquatic mammals, have been abandoned for nearly 10 years. It is hoped that in the near future funds will be appropriated for the following badly needed new construction and improvements:

Buildings.—A building to house antelopes and other hoofed animals that require a heated building. The present structure, built in 1898 for $3,500 is inadequate, dimly lighted, and poorly ventilated. The rare and beautiful okapis had to be placed here when they arrived last November. The building houses a miscellaneous collection of cats, kangaroos, gaur, the rare agrimi goat, and others. The Zoo has made it a policy not to purchase or accept antelopes, because of the lack of housing for them.

A new administration building to replace the 152-year-old historic landmark, which is still in use as an office building but is not well adapted for the purpose. Termites destroyed the photographic file this year, and most of the Zoo library has now been moved to the second floor of the building to postpone the day when the invaders will attack this valuable collection of scientific books. A thorough examination of the office was made by the District of Columbia Department of Buildings and Grounds, which recommended that unless

extensive repairs are undertaken immediately, the building be condemned as unsafe.

A hospital, which will also serve as a fireproof receiving station for animals shipped in, for quarantining them when necessary and with facilities for caring for those in ill health. This building should also contain an office and laboratory for the veterinarian. There is no structure within the National Zoological Park suitable for conversion into an animal hospital. The building now in use is an ancient stone building, formerly used as a hay barn and storage shed, which was hastily cleaned out and sketchily furnished at the time the veterinarian was appointed in 1955.

Enclosures.—Enclosures and pools for beavers, otters, seals, and nutrias, which cannot be adequately cared for or exhibited under existing conditions.

New paddocks for the exhibition of such animals as deer, sheep, goats, and other hoofed animals, to provide for the exhibition of a greater assortment of these attractive and valuable animals.

Installations.—Extensive remodeling of some of the buildings is needed to bring them up to date with the latest techniques of zoological exhibits, making them more pleasing esthetically for the visitors and ecologically for the animals.

Respectfully submitted.

THEODORE H. REED, *Acting Director.*

DR. LEONARD CARMICHAEL,
Secretary, Smithsonian Institution.

Report on the Canal Zone Biological Area

SIR: It gives me pleasure to present herewith the annual report on the Canal Zone Biological Area for the fiscal year ended June 30, 1957.

SCIENTISTS, STUDENTS, AND OBSERVERS

Anyone with serious interest in tropical wildlife may use the field, laboratory, and living facilities on Barro Colorado Island. These people may stay on the island overnight, or for periods of weeks or months. Some who visit the island carry out technical scientific research, while others come to familiarize themselves with the wildlife and its environment. Most of them are residents of the United States, but some are from the Canal Zone or Europe. Following is a list of the 61 scientists, students, and observers who, during the past year, used the island living facilities and stayed at least one night.

Name	*Principal interest*
Ansley, Dr. and Mrs. H., Johns Hopkins University.	Insect cytology.
Banting, Mr. and Mrs. W. L., Amsterdam, Holland.	Wildlife observation.
Barbash, Miss B., Swarthmore College.	Wildlife studies.
Bartel, Mr. and Mrs. J. N., Pomona, Calif.	Bird observation.
Bates, Mr. and Mrs. R. H., Exeter, N. H.	Wildlife observation.
Blakely, R. L., Lincoln Park Zoo, Chicago.	Wildlife observation.
Burckle, L. H., Army Map Service.	Forest ecology.
Burkhart, Mrs. H. H., Sarasota, Fla.	Nature writing.
Burroughs, R. P., Board of Directors, Panama Canal.	Wildlife observation.
Carson, Dr. and Mrs. H. L., Washington University, St. Louis.	Genetics of *Drosophila*.
Carter, Mr. and Mrs. J. P., Berkeley, Calif.	Wildlife observation.
Clark, Dr. W., Eastman Kodak Co.	Photographic tests.
Coursen, Mr. and Mrs. B., General Biological Supply House.	Bird observation.
Cronin, Mr. and Mrs. W. J., Panama, R. P.	Wildlife observation.
Deusing, Murl and Don, Milwaukee Public Museum.	Wildlife photography.

Name	*Principal interest*
Eisenmann, Eugene, New York City.	Bird observation.
Enders, Dr. R. K., Swarthmore College.	Survey of mammal population.
Fast, A. H., Arlington, Va.	Bird observation.
Forbes, Dr. and Mrs. A., Milton, Mass.	Wildlife observation.
Fouquette, M. J., University of Texas.	Amphibians.
Galler, Dr. S. R., Office of Naval Research.	Investigation of laboratory facilities.
Graf, J. E., Smithsonian Institution.	Inspection of facilities.
Greenewalt, C. H., Wilmington, Del.	High-speed photography of birds.
Grégoire, Dr. and Mrs. C., Brussels, Belgium.	Microscopy of insect blood.
Groner, Miss D., Los Angeles, Calif.	Bird observation.
Hartman, Ziska, Chiriquí, Panama.	Wildlife observation.
Heed, Dr. W. B., The Genetics Foundation.	Genetics of *Drosophila*.
Howes, P. G., Bruce Museum, Connecticut.	Wildlife photography.
Hughes-Schrader, Dr. S., Columbia University.	Insect cytology.
Johnson, Dr. P. T., U. S. Department of Agriculture.	Arthropods.
Johnston, H. R., U. S. Forest Service.	Inspection of termite tests.
Kellogg, Dr. Remington, Smithsonian Institution.	Inspection of facilities.
Kosan, W. M., Margarita, Canal Zone.	Wildlife photography.
Lee, Mr. and Mrs. G. E., Balboa, Canal Zone.	Wildlife observation.
Marsh, Miss R. E., Margarita, Canal Zone.	Wildlife photography.
McHale, J. P., Lincoln Park Zoo, Chicago.	Wildlife observation.
McRoberts, Mr. and Mrs. D., Colorado Springs, Colo.	Mammals.
Musteric, J. P., Army Map Service.	Forest ecology.
Napier, F. C., Frick Park Museum, Pittsburgh.	Wildlife observation.
Preston, Dr. and Mrs. F. W., Butler, Pa.	Wildlife observation.
Reed, Mr. and Mrs. C. S., Board of Directors, Panama Canal.	Wildlife observation.
Rettenmeyer, C. W., University of Kansas.	Army ants.

Name	*Principal interest*
Reynolds, Dr. Orr E., Office of Naval Research.	Investigation of laboratory facilities.
Schull, Lieut. Gov. and Mrs. H. W., Balboa, Canal Zone.	Wildlife observation.
Smith, V. K., U. S. Forest Service.	Inspection of termite tests.
Sonneborn, D., Swarthmore College.	Wildlife observation.
Soper, Dr. C., Eastman Kodak Tropical Research Laboratory.	Deterioration studies.
Stappenbeck, Dr. and Mrs. C., Lake Junaluska, N. C.	Wildlife observation.
Stultz, Mrs. O. M., Montebello, Calif.	Bird observation.
Sturn, Dr. H., Mainz, Germany.	Plant ecology.
Thurman, E. B., National Institutes of Health.	Arthropods.
Tryon, Drs. R. M. and A., Missouri Botanical Garden.	Ferns.
Usinger, Dr. and Mrs. R. L., University of California.	Insects.
Vogel, Dr. S., Mainz, Germany.	Plant ecology.
Walch, Miss C., Swarthmore College.	Wildlife observation.
Ward, Mr. and Mrs. R., Kennett Square, Pa.	Bird photography.
Wasserman, M., The Genetics Foundation.	Genetics of *Drosophila*.
Weatherwax, Dr. and Mrs. P., Indiana University.	Grasses.
Weber, Dr. N. A., Swarthmore College.	Fungus-growing ants.
Wetmore, Dr. and Mrs. A., Smithsonian Institution.	Bird observation.
Wilmar, Mr. and Mrs. H., Walt Disney Productions.	Wildlife photography.

VISITORS

Visitors for the day were permitted on the island twice a week. Most of these were guided on a walk through the forest by the Resident Naturalist. In all, about 750 visitors, including organized groups of Boy Scouts, Girl Scouts, and military personnel, took advantage of the opportunity to spend a day on the island. This increase of 310 over last year was primarily due to special charges made on an experimental basis to organized groups, particularly Boy and Girl Scouts. The visitors are met in the morning by the launch at Frijoles. Then they are taken to the Island, guided on a 3-hour walk in the forest, provided with lunch, and returned to Frijoles in time for the evening train. In order to aid in accounting for visitors, a system of issuing tickets was introduced.

RAINFALL

During the dry season (January through April) of the calendar year 1956, rains of 0.01 inch or more fell during 55 days (279 hours) and amounted to 12.53 inches, as compared to 10.78 inches during 1955. During the wet season of 1956 (May through December), rains of 0.01 inch or more fell on 215 days (989 hours) and amounted to 101.52 inches, as compared to 103.62 inches during 1955. Total rainfall for the year was 114.05 inches. During 32 years of record the wettest year was 1935, with 143.42 inches, and the driest year was 1930, with only 76.57 inches. February was the driest month of 1956 (2.11 inches) and July the wettest (19.5 inches). The maximum records for short periods were: 5 minutes 1.30 inches; 10 minutes 1.65 inches; 1 hour 4.11 inches; 2 hours 4.81 inches; 24 hours 10.48 inches.

TABLE 1.—*Annual rainfall, Barro Colorado Island, C. Z.*

Year	Total inches	Station average	Year	Total inches	Station average
1925	104. 37	------	1941	91. 82	108. 41
1926	118. 22	113. 56	1942	111. 10	108. 55
1927	116. 36	114. 68	1943	120. 29	109. 20
1928	101. 52	111. 35	1944	111. 96	109. 30
1929	87. 84	106. 56	1945	120. 42	109. 84
1930	76. 57	101. 51	1946	87. 38	108. 81
1931	123. 30	104. 69	1947	77. 92	107. 49
1932	113. 52	105. 76	1948	83. 16	106. 43
1933	101. 73	105. 32	1949	114. 86	106. 76
1934	122. 42	107. 04	1950	114. 51	107. 07
1935	143. 42	110. 35	1951	112. 72	107. 28
1936	93. 88	108. 98	1952	97. 68	106. 94
1937	124. 13	110. 12	1953	104. 97	106. 87
1938	117. 09	110. 62	1954	105. 68	106. 82
1939	115. 47	110. 94	1955	114. 42	107. 09
1940	86. 51	109. 43	1956	114. 05	107. 30

TABLE 2.—*Comparison of 1955 and 1956 rainfall, Barro Colorado Island (inches)*

Month	Total		Station average	Years of record	1956 excess or deficiency	Accumulated excess or deficiency
	1955	1956				
January	9. 05	5. 57	2. 19	31	+3. 38	+3. 38
February	0. 46	2. 11	1. 25	31	+. 86	+4. 24
March	0. 90	2. 24	1. 19	31	+1. 05	+5. 29
April	0. 37	2. 61	3. 06	32	−0. 45	+4. 84
May	10. 58	16. 55	11. 01	32	+5. 54	+10. 38
June	13. 54	6. 85	11. 11	32	−4. 26	+6. 12
July	11. 49	19. 55	11. 81	32	+7. 74	+13. 86
August	11. 36	9. 48	12. 18	32	−2. 70	+11. 16
September	9. 27	11. 27	9. 97	32	+1. 30	+12. 46
October	16. 33	18. 64	13. 90	32	+4. 74	+17. 20
November	18. 35	12. 37	18. 81	32	−6. 44	+10. 76
December	12. 72	6. 81	10. 82	32	−4. 01	+6. 75
Year	114. 42	114. 05	107. 30	----------	----------	+6. 75
Dry season	10. 78	12. 53	7. 69	----------	----------	+4. 84
Wet season	103. 64	101. 52	99. 61	----------	----------	+1. 91

Evaporation in excess of precipitation is of greater ecological importance than rainfall alone. To measure this quantity a 4-foot-diameter evaporation pan was installed near the laboratory. Water loss in excess of rainfall for the dry season of 1957 was as follows (inches):

January 3.511	March 6.629
February 5.344	April 8.146

The dry season was unusually long and rainfall did not exceed evaporation until the last few days of May. For that month the net gain was 0.8 inch.

BUILDINGS, EQUIPMENT, AND IMPROVEMENTS

The major building project of the year was the construction of a 12-by-24-foot above-ground wooden house for use of the workmen living on the island. This house has shower, toilet, and full concrete slab floor at the ground level. The generator house and floor were enlarged, and a third diesel generator was installed in this building. Near Chapman House a new concrete septic tank was built. In order to decrease fire hazard, an isolated gasoline-kerosene storage shed was constructed.

A large part of the work of building a new unloading dock was completed. The project requires bridging of the mouth of Allee Creek, cutting and filling a slope to make a bed for car track and walkway, and extending the unloading dock in front of the generator house. Completion of this work will permit abandonment of the old wooden dock which has been extended again and again because of silting.

Minor construction and maintenance work included building steel and wooden shelves and tables for the darkroom and stockroom in the new laboratory; repairing and painting metal cabinets and shelves which were badly rusted; painting two launches, the aluminum runabout, and several of the old wooden buildings; and replacing all broken screens. All this construction and repair work was done by Mr. Vitola and the regular staff of island laborers.

Among the equipment received on the island was a 14.5-KWA Caterpillar generator. The electric plant now includes three generators, each sufficient for all present electrical needs. Additional electrical apparatus has increased the danger of fire which would cause irreparable loss of the valuable materials on the island. As an added safeguard, 5 CO_2 and 3 water-pump extinguishers were added to the fire-fighting equipment.

Much of the equipment received was for use in the laboratory and in scientific work. This included two window air-conditioners, attic fans, oscillating fans, study lamps, room dehumidifiers, a laboratory refrigerator and freezer, small drying oven, compound and dissecting

microscopes, microscope lamp, binoculars, a spotting telescope, portable typewriter, 4-by-5 Crown Graphic camera, tripod, telephoto lens, exposure meter, photographic enlarger, projection screen, thermograph, hygrograph, small and large live-mammal traps, insect nets, and a metal label embosser. Some of this equipment was donated by the General Biological Supply House. Many needed reference books and a subscription to Ecology were purchased. To facilitate shoreline exploration, two 12-foot cayucos were acquired.

James Zetek, soon after his retirement, gave to the island most of his extensive biological library. This created the major task of transferring hundreds of books and reprints from the Balboa Office to Barro Colorado Island. With the former island library these publications are now shelved in dehumidified rooms of the new laboratory. One large room of the laboratory is used as a stockroom for supplies which scientists may borrow. Almost the entire present stock of vials, flasks, graduates, and other laboratory glassware, as well as most of the chemicals, was donated by Mr. Zetek. The herbarium, bird skins, and alcoholic collections were also moved to the new laboratory. Now all indoor scientific work may be carried on in this one building, well separated from eating, sleeping, recreational, and other living areas.

The administrative office was moved from Mr. Zetek's house in Balboa to a building in nearby Diablo Heights.

PLANS AND URGENT REQUIREMENTS

Inasmuch as the large wooden water-storage tank near the kitchen may not last even a few more years, the possibility of supplementing stored rainwater with spring water during the dry season has been investigated. A spring was located about 1,000 feet from the concrete water tank at the new laboratory, and 40 feet above the level of this tank. As this spring continued to run throughout the abnormal dry season of early 1957, it should be enclosed and the water piped to the concrete storage tank. It is doubtful, however, that this additional water supply will eliminate the need to replace the wooden water tank. But, with the spring water, a moderate-sized replacement tank may suffice.

The short bridge from the Frijoles dock to the shore must be rebuilt. Materials have been obtained. Most of the ties forming the walkway from this dock to the railroad station need replacement. The trackway from dock to station should be straightened and lengthened, to facilitate the handling of heavy loads. An unloading ramp to aid in carrying gravel, machinery, and other heavy materials from a freight car to the launch is also needed at Frijoles.

Among other projects planned for the coming year on Barro Colorado Island are the following: completion of bridge, trackway, and

unloading area of new dock; overhaul of gasoline winch engine; sheathing the ceiling of the lower floor of the new laboratory, strengthening hallway floor of new laboratory; insulating two rooms of laboratory for efficient air conditioning; construction of clothes-changing rooms at dock level; partitioning the old Zetek office into a separate living apartment and storeroom; construction of drying rooms in the old and new laboratories; addition of dry closets to the Z–M–A and Barbour houses; installation of shower and toilet in Barbour house; installation of shower in Chapman house; rebuilding of dock at Drayton trail-end house; and replacement of termite-eaten timbers of Chapman House.

From the foregoing plans it is apparent that our present labor force of one foreman and two laborers is totally inadequate, considering that these men must also operate the launches, haul supplies, keep the trails clear, guard against poachers, dispose of refuse, and perform other maintenance chores. Ways must be found to augment the labor force with contractual labor, or to increase funds for adding other laborers to our staff. Shortage of labor, especially of skilled type, is the greatest hindrance to proper maintenance and to completion of the construction program.

OTHER ACTIVITIES

The United States Forest Service made final inspection of all termite-resistance tests on the island, with the exception of Drayton trail-end house. Completion of these tests leaves the way clear for the repair or reconstruction of some of the former test houses, if there is demand for their use.

To aid 1-day visitors and naturalists who visit the island, information leaflets were prepared and multilithed for distribution.

More than 1,000 identified plant specimens were mounted on herbarium sheets by women of the Canal Zone College Club, under direction of Mrs. C. B. Koford. These women also bound reprints, sorted publications, and performed other helpful tasks, voluntarily.

To inaugurate population studies on the island many vertebrates were captured, banded or otherwise marked, and released. These animals included more than 100 birds of 31 species, 58 mammals of 11 species, and several reptiles and amphibians. Birds and bats were banded with regulation Fish and Wildlife Service bands.

As part of long-range ecologic studies of forest vegetation, the Naturalist, aided by Joseph Musteric of the Army Map Service, staked out two permanent transects 200 feet in length, plotted the forest profiles, and measured the diameter of the trees. Many more transects should be established, and the vegetation remeasured at intervals of a few years. Many plants, animals, and scenes were photo-

graphed in color for a permanent file of 2-x-2-inch slides. These will be used on the island as orientation and identification aids and as a record of habitat conditions.

The major ornithological event of the year was the discovery in January of a young king vulture (*Sarcoramphus papa*), still largely covered with down, on the forest floor. Heretofore little was known of the nesting and young of this huge spectacular bird. Also of note was the return of the oropendolas (*Zarhynchus wagleri*) to a conspicuous nesting site in the laboratory area. Twenty nests were constructed above the Kodak Test Table Building.

Principally through use of mist nests, the number of species of bats known to occur on Barro Colorado Island was increased from 17 to 28. These bats included two species apparently not previously recorded for Panama (*Centurio senex* and *Micronycteris hirsuta*). Including these, and deleting a few old, unconfirmed, or unnatural reported occurrences, the number of species of mammals known to occur on Barro Colorado Island is 70.

FINANCES

Trust funds for maintenance of the island and its living facilities are obtained by collections from visitors and scientists, by table subscriptions from institutions, and by other donations. The table subscriptions were greatly appreciated as they helped to defray the cost of maintaining the island facilities. Organizations that continued their subscriptions, and the amounts donated, are as follows:

Eastman Kodak Co	$1,000.00
New York Zoological Society	300.00
Smithsonian Institution	300.00

Donations are also gratefully acknowledged from Blair Coursen, Eugene Eisenmann, C. M. Goethe, Frank Hartman, and F. W. Preston.

ACKNOWLEDGMENTS

The Canal Zone Biological Area can operate only with the excellent cooperation of the Canal Zone Government and the Panama Canal Company. Thanks are due especially to Executive Secretary Paul Runnestrand and his staff, the Customs and Immigration officials, personnel of the Panama Railroad, and the Police Division. The technical advice and assistance provided by P. Alton White, Chief of the Dredging Division, and members of his staff was of invaluable help to the Island.

CARL B. KOFORD, *Resident Naturalist.*

Dr. LEONARD CARMICHAEL,
Secretary, Smithsonian Institution.

Report on the International Exchange Service

SIR: I have the honor to submit the following report on the activities of the International Exchange Service for the fiscal year ended June 30, 1957:

The Smithsonian Institution is the official United States agency for the exchange with other nations of governmental, scientific, and literary publications. The International Exchange Service, initiated by the Smithsonian Institution in the early years of its existence for the interchange of scientific publications between learned societies and individuals in the United States and those of foreign countries, serves as a means of developing and executing in part the broad and comprehensive objective, "the diffusion of knowledge." It was later designated by the United States Government as the agency for the transmission of official documents to selected depositories throughout the world, and it continues to execute the exchanges pursuant to conventions, treaties, and other international agreements.

The number of packages of publications received for transmission during the year increased by 43,184 to the yearly total of 1,205,039, and the weight of the packages increased by 24,841 to the yearly total of 827,897 pounds. The average weight of the individual package decreased to 10.99 ounces as compared to the 11.14-ounce average for the fiscal year of 1956.

The publications received from foreign sources for addressees in the United States and from domestic sources for shipment abroad are classified as shown in the following table:

Classification	*Packages*		*Weight*	
	Number	*Number*	*Pounds*	*Pounds*
United States parliamentary documents sent abroad	686,446		231,661	
Publications received in return for parliamentary documents		8,264		14,644
United States departmental documents sent abroad	279,520		283,024	
Publications received in return for departmental documents		6,377		19,035
Miscellaneous scientific and literary publications sent abroad	164,541		177,552	
Miscellaneous scientific and literary publications received from abroad for distribution in the United States		59,891		101,981
Total	1,130,507	74,532	692,237	135,660
Grand total	1,205,039		827,897	

The packages of publications are forwarded to the exchange bureaus of foreign countries by freight or, where shipment by such means is impractical, to the foreign addressees by direct mail. Distribution in the United States of the publications received through the foreign exchange bureaus is accomplished primarily by mail, but by other means when more economical. The number of boxes shipped to the foreign exchange bureaus was 3,132, or 58 more than for the previous year. Of these boxes 911 were for depositories of full sets of United States Government documents, these publications being furnished in exchange for the official publications of foreign governments which are received for deposit in the Library of Congress. The number of packages forwarded by mail and by means other than freight was 208,503.

There was allocated to the International Exchange Service for transportation $40,900. With this amount it was possible to effect the shipment of 859,071 pounds, which was 21,883 pounds more than was shipped in the previous year. However, approximately 10,540 pounds of the full sets of United States Government documents accumulated during the year because the Library of Congress had requested suspension of shipment to certain foreign depositories.

During the year ocean freight rates per cubic foot increased from the June 30, 1956, average of $1.28 to $1.464. However, about a fourth of the cost of this increase will be offset by a reduction on June 13, 1957, of approximately 17 percent in the truck rates to the Baltimore piers.

The total outgoing correspondence comprised 2,406 letters, exclusive of information copies.

With the exception of those to Taiwan, no shipments are being made to China, North Korea, Outer Mongolia, Communist-controlled area of Viet-Nam, or Communist-controlled area of Laos.

Shipping arrangements were completed with the newly established Rumanian International Exchange Service and the first postwar shipment was made to Rumania on November 29.

With certain exceptions the regulations of the Bureau of Foreign Commerce, Department of Commerce, provide that each package of publications exported bear a general license symbol and the legend, "Export License Not Required." The International Exchange Service accepts for transmission to foreign destinations only those packages of publications that fall within the exception and those packages of publications to which the general license symbol and legend have been applied by the consignor.

FOREIGN DEPOSITORIES OF GOVERNMENTAL DOCUMENTS

The number of sets of United States official publications received by the Exchange Service for transmission abroad in return for the

official publications sent by foreign governments for deposit in the Library of Congress is now 105 (62 full and 43 partial sets), listed below. Changes that occurred during the year are shown in the footnotes.

DEPOSITORIES OF FULL SETS

ARGENTINA: División Biblioteca, Ministerio de Relaciones Exteriores y Culto, Buenos Aires.
AUSTRALIA: Commonwealth Parliament and National Library, Canberra.
NEW SOUTH WALES: Public Library of New South Wales, Sydney.
QUEENSLAND: Parliamentary Library, Brisbane.
SOUTH AUSTRALIA: Public Library of South Australia, Adelaide.
TASMANIA: Parliamentary Library, Hobart.
VICTORIA: Public Library of Victoria, Melbourne.
WESTERN AUSTRALIA: Public Library of Western Australia, Perth.
AUSTRIA: Administrative Library, Federal Chancellery, Vienna.
BELGIUM: Bibliothèque Royale, Bruxelles.
BRAZIL: Biblioteca Nacional, Rio de Janeiro.
BULGARIA: Bulgarian Bibliographical Institute, Sofia.[1]
BURMA: Government Book Depot, Rangoon.
CANADA: Library of Parliament, Ottawa.
MANITOBA: Provincial Library, Winnipeg.
ONTARIO: Legislative Library, Toronto.
QUEBEC: Library of the Legislature of the Province of Quebec.
CEYLON: Department of Information, Government of Ceylon, Colombo.
CHILE: Biblioteca Nacional, Santiago.
CHINA: National Central Library, Taipei, Taiwan.
National Chengchi University, Taipei, Taiwan.
COLOMBIA: Biblioteca Nacional, Bogotá.
COSTA RICA: Biblioteca Nacional, San José.
CUBA: Ministerio de Estado, Canje Internacional, Habana.
CZECHOSLOVAKIA: National and University Library, Prague.
DENMARK: Institut Danois des Échanges Internationaux, Copenhagen.
EGYPT: Bureau des Publications, Ministère des Finances, Cairo.
FINLAND: Parliamentary Library, Helsinki.
FRANCE: Bibliothèque Nationale, Paris.
GERMANY: Deutsche Staatsbibliothek, Berlin.
Free University of Berlin, Berlin.
Parliamentary Library, Bonn.
GREAT BRITAIN:
ENGLAND: British Museum, London.
LONDON: London School of Economics and Political Science. (Depository of the London County Council.)
HUNGARY: Library of Parliament, Budapest.[1]
INDIA: National Library, Calcutta.
Central Secretariat Library, New Delhi.
INDONESIA: Ministry for Foreign Affairs, Djakarta.
IRELAND: National Library of Ireland, Dublin.
ISRAEL: State Archives and Library, Hakirya, Jerusalem.[2]
ITALY: Ministerio della Pubblica Istruzione, Rome.
JAPAN: National Diet Library, Tokyo.[3]

[1] Shipment suspended.
[2] Changed from Government Archives and Library, Hakirya, Tel Aviv.
[3] Receives two sets.

MEXICO: Secretaría de Relaciones Exteriores, Departamento de Información para el Extranjero, México, D. F.
NETHERLANDS: Royal Library, The Hague.
NEW ZEALAND: General Assembly Library, Wellington.
NORWAY: Utenriksdepartmentets Bibliothek, Oslo.
PERU: Sección de Propaganda y Publicaciones, Ministerio de Relaciones Exteriores, Lima.
PHILIPPINES: Bureau of Public Libraries, Department of Education, Manila.
POLAND: Bibliothèque Nationale, Warsaw.[1]
PORTUGAL: Biblioteca Nacional, Lisbon.
SPAIN: Biblioteca Nacional, Madrid.
SWEDEN: Kungliga Biblioteket, Stockholm.
SWITZERLAND: Bibliothèque Centrale Fédérale, Berne.
TURKEY: Department of Printing and Engraving, Ministry of Education, Istanbul.
UNION OF SOUTH AFRICA: State Library, Pretoria, Transvaal.
UNION OF SOVIET SOCIALIST REPUBLICS: All-Union Lenin Library, Moscow.
UNITED NATIONS: Library of the United Nations, Geneva, Switzerland.
URUGUAY: Oficina de Canje Internacional de Publicaciones, Montevideo.
VENEZUELA: Biblioteca Nacional, Caracas.
YUGOSLAVIA: Bibliografski Institut, Belgrade.[3]

DEPOSITORIES OF PARTIAL SETS

AFGHANISTAN: Library of the Afghan Academy, Kabul.
ANGLO-EGYPTIAN SUDAN: Gordon Memorial College, Khartoum.
BOLIVIA: Biblioteca del Ministerio de Relaciones Exteriores y Culto, La Paz.
BRAZIL:
    MINAS GERAIS: Directoria Geral de Estatistica em Minas, Belo Horizonte.
BRITISH GUIANA: Government Secretary's Office, Georgetown, Demerara.
CANADA:
    ALBERTA: Provincial Library, Edmonton.
    BRITISH COLUMBIA: Provincial Library, Victoria.
    NEW BRUNSWICK: Legislative Library, Fredericton.
    NEWFOUNDLAND: Department of Provincial Affairs, St. John's.
    NOVA SCOTIA: Provincial Secretary of Nova Scotia, Halifax.
    SASKATCHEWAN: Legislative Library, Regina.
DOMINICAN REPUBLIC: Biblioteca de la Universidad de Santo Domingo, Ciudad Trujillo.
ECUADOR: Biblioteca Nacional, Quito.
EL SALVADOR:
    Biblioteca Nacional, San Salvador.
    Ministerio de Relaciones Exteriores, San Salvador.
GREECE: National Library, Athens.
GUATEMALA: Biblioteca Nacional, Guatemala.
HAITI: Bibliothèque Nationale, Port-au-Prince.
HONDURAS:
    Biblioteca y Archivo Nacionales, Tegucigalpa.
    Ministerio de Relaciones Exteriores, Tegucigalpa.
ICELAND: National Library, Reykjavik.
INDIA:
    BOMBAY: Secretary to the Government, Bombay.
    BIHAR: Revenue Department, Patna.

INDIA—Continued
UTTAR PRADESH:
University of Allahabad, Allahabad.
Secretariat Library, Uttar Pradesh, Lucknow.
WEST BENGAL: Library, West Bengal Legislative Secretariat, Assembly House, Calcutta.
IRAN: Imperial Ministry of Education, Tehran.
IRAQ: Public Library, Baghdad.
JAMAICA:
Colonial Secretary, Kingston.
University College of the West Indies, St. Andrew.
LEBANON: American University of Beirut, Beirut.
LIBERIA: Department of State, Monrovia.
MALAYA: Federal Secretariat, Federation of Malaya, Kuala Lumpur.
MALTA: Minister for the Treasury, Valleta.
NICARAGUA: Ministerio de Relaciones Exteriores, Managua.
PAKISTAN: Central Secretariat Library, Karachi.
PANAMA: Ministerio de Relaciones Exteriores, Panamá.
PARAGUAY: Ministerio de Relaciones Exteriores, Sección Biblioteca, Asunción.
PHILIPPINES: House of Representatives, Manila.[4]
SCOTLAND: National Library of Scotland, Edinburgh.
SIAM: National Library, Bangkok.
SINGAPORE: Chief Secretary, Government Offices, Singapore.
VATICAN CITY: Biblioteca Aspostolica Vaticana, Vatican City.

INTERPARLIAMENTARY EXCHANGE OF THE OFFICIAL JOURNAL

There are now being sent abroad 77 copies of the Federal Register and 89 copies of the Congressional Record. This is an increase over the preceding year of 1 copy of the Federal Register and 1 copy of the Congressional Record. The countries to which these journals are being forwarded are given in the following list:

DEPOSITORIES OF CONGRESSIONAL RECORD AND FEDERAL REGISTER

ARGENTINA:
Biblioteca del Poder Judicial, Mendoza.[5]
Boletín Oficial de la República Argentina, Ministerio de Justica e Instrucción Pública, Buenos Aires.
Cámara de Diputados Oficina de Información Parlamentaria, Buenos Aires.
AUSTRALIA:
Commonwealth Parliament and National Library, Canberra.
NEW SOUTH WALES: Library of Parliament of New South Wales, Sydney.
QUEENSLAND: Chief Secretary's Office, Brisbane.
VICTORIA: Public Library of Victoria, Melbourne.[5]
WESTERN AUSTRALIA: Library of Parliament of Western Australia, Perth.
BRAZIL: Secretaria de Presidencia, Rio de Janeiro.[6]
BRITISH HONDURAS: Colonial Secretary, Belize.

[4] Added during the year.
[5] Federal Register only.
[6] Congressional Record only.

CANADA:
Library of Parliament, Ottawa.
Clerk of the Senate, Houses of Parliament, Ottawa.
CEYLON: Ceylon Ministry of Defense and External Affairs, Colombo.[5]
CHINA:
Legislative Yuan, Taipei, Taiwan.[6]
Taiwan Provincial Government, Taipei, Taiwan.
CUBA:
Biblioteca del Capitolio, Habana.
Biblioteca Pública Panamericana, Habana.[5]
CZECHOSLOVAKIA: Ceskoslovenska Akademie Ved, Prague.[4 6]
EGYPT: Ministry of Foreign Affairs, Egyptian Government, Cairo.[6]
FRANCE:
Bibliothèque Assemblée Nationale, Paris.
Bibliothèque Conseil de la République, Paris.
Library, Organization for European Economic Cooperation, Paris.[6]
Research Department, Council of Europe, Strasbourg.[6]
Service de la Documentation Étrangère, Assemblée Nationale, Paris.[6]
GERMANY:
Amerika-Institut der Universität München, München.[6]
Archiv, Deutscher Bundesrat, Bonn.
Bibliothek der Instituts für Weltwirtschaft an der Universität Kiel, Kiel-Wik.
Bibliothek Hessischer Landtag, Wiesbaden.[6]
Der Bayrische Landtag, Munich.[6 7]
Deutschen Institiut fur Rechtswissenschaft, Potsdam-Babelsberg II.[4 5]
Deutscher Bundesrat, Bonn.[6]
Deutscher Bundestag, Bonn.[6]
Hamburgisches Welt-Wirtschafts-Archiv, Hamburg.
GHANA: Chief Secretary's Office, Accra.[6]
GREAT BRITAIN:
Department of Printed Books, British Museum, London.
House of Commons Library, London.[6]
Printed Library of the Foreign Office, London.
Royal Institute of International Affairs, London.[6]
GREECE: Bibliothèque, Chambre des Députés Hellénique, Athens.
GUATEMALA: Biblioteca de la Asamblea Legislativa, Guatemala.
HAITI: Bibliothèque Nationale, Port-au-Prince.
HONDURAS; Biblioteca del Congreso Nacional, Tegucigalpa.
HUNGARY: National Library, Budapest.
INDIA:
Civil Secretariat Library, Lucknow, United Provinces.[5]
Indian Council of World Affairs, New Delhi.[6]
Jammu and Kashmir Constituent Assembly, Srinagar.[6]
Legislative Assembly, Government of Assam, Shillong.[6]
Legislative Assembly Library, Lucknow, United Provinces.
Legislative Assembly Library, Trivandrum.[6]
Madras State Legislature, Madras.[6]
Parliament Library, New Delhi.
Servants of India Society, Poona.[6]

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[7] Three copies.

IRELAND: Dail Eireann, Dublin.
ISRAEL: Library of the Knesset, Jerusalem.
ITALY:
Biblioteca Camera dei Deputati, Rome.
Biblioteca del Senato della Republica, Rome.
European Office, Food and Agriculture Organization of the United Nations, Rome.[5]
International Institute for the Unification of Private Law, Rome.[5]
JAPAN:
Library of the National Diet, Tokyo.
Ministry of Finance, Tokyo.
JORDAN: Parliament of the Hashemite Kingdom of Jordan, Amman.[6]
KOREA: Secretary General, National Assembly, Pusan.
LUXEMBOURG: Assemblée Commune de la C. E. C. A., Luxembourg.
MEXICO:
Dirección General Information, Secretaría de Gobernación, México, D. F.
Biblioteca Benjamin Franklin, México, D. F.
AGUASCALIENTES: Gobernador del Estado de Aguascalientes, Aguascalientes.
BAJA CALIFORNIA: Gobernador del Distrito Norte, Mexicali.
CAMPECHE: Gobernador del Estado de Campeche, Campeche.
CHIAPAS: Gobernador del Estado de Chiapas, Tuxtla Guitiérrez.
CHIHUAHUA: Gobernador del Estado de Chihuahua, Chihuahua.
COAHUILA: Periódico Oficial del Estado de Coahuila, Palacio de Gobierno, Saltillo.
COLIMA: Gobernador del Estado de Colima, Colima.
GUANAJUATO: Secretaría General de Gobierno del Estado, Guanajuato.[5]
JALISCO: Biblioteca del Estado, Guadalajara.
MÉXICO: Gaceta del Gobierno, Toluca.
MICHOACÁN: Secretaría General de Gobierno del Estado de Michoacán, Morelia.
MORELOS: Palacio de Gobierno, Cuernavaca.
NAYARIT: Gobernador de Nayarit, Tepic.
NUEVO LEÓN: Biblioteca del Estado, Monterrey.
OAXACA: Periódico Oficial, Palacio de Gobierno, Oaxaca.[5]
PUEBLA: Secretaría General de Gobierno, Puebla.
QUERÉTARO: Secretaría General de Gobierno, Sección de Archivo, Querétaro.
SINALOA: Gobernador del Estado de Sinaloa, Culiacán.
SONORA: Gobernador del Estado de Sonora, Hermosillo.
TAMAULIPAS: Secretaría General de Gobierno, Victoria.
VERACRUZ: Gobernador del Estado de Veracruz, Departamento de Gobernación y Justicia, Jalapa.
YUCATÁN: Gobernador del Estado de Yucatán, Mérida.
NETHERLANDS: Koninklijke Bibliotheek, The Hague.[5]
NEW ZEALAND: General Assembly Library, Wellington.
NORWAY: Library of the Norwegian Parliament, Oslo.
PANAMA: Biblioteca Nacional, Panama City.[6]
POLAND: Kancelaria Rady, Panstwa, Biblioteka Sejmova, Warsaw.[4]
PORTUGUESE TIMOR: Repartição Central de Administração Civil, Dili.[5]

SWITZERLAND: Bibliothèque, Bureau International du Travail, Geneva.[5]
International Labor Office, Geneva.[5 8]
Library, United Nations, Geneva.
UNION OF SOUTH AFRICA:
CAPE OF GOOD HOPE: Library of Parliament, Cape Town.
TRANSVAAL: State Library, Pretoria.
UNION OF SOVIET SOCIALIST REPUBLICS: Fundamental'niia Biblioteka Obschestvennykh Nauk, Moscow.
URUGUAY: Diario Ofical, Florida 1178, Montevideo.

FOREIGN EXCHANGE SERVICES

Exchange publications for addresses in the countries listed below are forwarded by freight to the exchange services of those countries. Exchange publications for addresses in other countries are forwarded directly by mail.

LIST OF EXCHANGE SERVICES

AUSTRIA: Austrian National Library, Vienna.
BELGIUM: Services des Échanges Internationaux, Bibliothèque Royale de Belgique, Bruxelles.
CHINA: National Central Library, Taipei, Taiwan.
CZECHOSLOVAKIA: Bureau of International Exchanges, University Library, Prague.
DENMARK: Institut Danois des Échanges Internationaux, Bibliothèque Royale, Copenhagen.
EGYPT: Government Press, Publications Office, Bulaq, Cairo.
FINLAND: Delegation of the Scientific Societies, Helsinki.
FRANCE: Service des Échanges Internationaux, Bibliothèque Nationale, Paris.
GERMANY (Eastern): Deutsche Staatsbibliothek, Berlin.
GERMANY (Western): Notgemeinschaft der Deutschen Wissenschaft, Bad Godesberg.
HUNGARY: National Library, Széchényi, Budapest.
INDIA: Government Printing and Stationery, Bombay.
INDONESIA: Minister of Education, Djakarta.
ISRAEL: Jewish National and University Library, Jerusalem.
ITALY: Ufficio degli Scambi Internazionali, Ministero della Pubblica Istruzione, Rome.
JAPAN: Division of International Affairs, National Diet Library, Tokyo.
NETHERLANDS: International Exchange Bureau of the Netherlands, Royal Library, The Hague.
NEW SOUTH WALES: Public Library of New South Wales, Sydney.
NEW ZEALAND: General Assembly Library, Wellington.
NORWAY: Service Norvégien des Échanges Internationaux, Bibliothèque de l'Université Royale, Oslo.
PHILIPPINES: Bureau of Public Libraries, Department of Education, Manila.
POLAND: Service Polonais des Échanges Internationaux, Bibliothèque Nationale, Warsaw.
PORTUGAL: Secção de Trocas Internacionais, Biblioteca Nacional, Lisbon.
QUEENSLAND: Bureau of International Exchange of Publications, Chief Secretary's Office, Brisbane.

[8] Two copies.

RUMANIA: International Exchange Service, Biblioteca Centrala de Stat, Bucharest.
SOUTH AUSTRALIA: South Australian Government Exchanges Bureau, Government Printing and Stationery Office, Adelaide.
SPAIN: Junta de Intercambio y Adquisición de Libros y Revistas para Bibliotecas Públicas, Ministerio de Educación Nacional, Madrid.
SWEDEN: Kungliga Biblioteket, Stockholm.
SWITZERLAND: Service Suisse des Échanges Internationaux, Bibliothèque Centrale Fédérale, Palais Fédéral, Berne.
TASMANIA: Secretary of the Premier, Hobart.
TURKEY: National Library, Ankara.[9]
UNION OF SOUTH AFRICA: Government Printing and Stationery Office, Cape Town.
UNION OF SOVIET SOCIALIST REPUBLICS: Bureau of Book Exchange, State Lenin Library, Moscow.
VICTORIA: Public Library of Victoria, Melbourne.
WESTERN AUSTRALIA: State Library of Western Australia, Perth.[10]
YUGOSLAVIA: Bibliografski Institut FNRJ, Belgrade.

Respectfully submitted.

D. G. WILLIAMS, *Chief.*

Dr. LEONARD CARMICHAEL,
Secretary, Smithsonian Institution.

[9] Changed from Ministry of Education, Istanbul.
[10] Changed from Public Library of Western Australia, Perth.

Report on the National Gallery of Art

SIR: I have the honor to submit, on behalf of the Board of Trustees, the 20th annual report of the National Gallery of Art for the fiscal year ended June 30, 1957. This report is made pursuant to the provisions of section 5 (d) of Public Resolution No. 14, 75th Congress, first session, approved March 24, 1937 (50 Stat. 51).

ORGANIZATION

The statutory members of the Board of Trustees of the National Gallery of Art are the Chief Justice of the United States, the Secretary of State, the Secretary of the Treasury, and the Secretary of the Smithsonian Institution, ex officio. On May 1, 1957, Chester Dale was reelected a general trustee of the National Gallery of Art to serve in that capacity for the term expiring July 1, 1967. Mr. Dale was also reelected by the Board of Trustees on May 2, 1957, to serve as President of the Gallery, and Ferdinand Lammot Belin was reelected Vice President. The four other general trustees continuing in office during the fiscal year ended June 30, 1957, were Ferdinand Lammot Belin, Duncan Phillips, Paul Mellon, and Rush H. Kress.

On September 13, 1956, the Trustees of the Gallery elected Perry B. Cott as Chief Curator and Mrs. Fern R. Shapley as Assistant Chief Curator. At this same meeting the Trustees approved the appointments of William P. Campbell as Curator of Paintings and John E. Pancoast as Registrar.

The executive officers of the Gallery as of June 30, 1957, are as follows:

Huntington Cairns, Secretary-Treasurer.
John Walker, Director.
Ernest R. Feidler, Administrator.
Huntington Cairns, General Counsel.
Perry B. Cott, Chief Curator.
Macgill James, Assistant Director.

On July 1, 1957, Macgill James retired as Assistant Director of the Gallery.

The three standing committees of the Board, as constituted at the annual meeting on May 2, 1957, are as follows:

EXECUTIVE COMMITTEE

Chief Justice of the United States, Earl Warren, Chairman.
Chester Dale, Vice Chairman.
Ferdinand Lammot Belin.
Secretary of the Smithsonian Institution, Dr. Leonard Carmichael.
Paul Mellon.

FINANCE COMMITTEE

Secretary of the Treasury, George M. Humphrey, Chairman.
Chester Dale, Vice Chairman.
Secretary of the Smithsonian Institution, Dr. Leonard Carmichael.
Ferdinand Lammot Belin.
Paul Mellon.

ACQUISITIONS COMMITTEE

Ferdinand Lammot Belin, Chairman.
Duncan Phillips.
Chester Dale.
Paul Mellon.
John Walker.

PERSONNEL

On June 30, 1957, full-time Government employees on the staff of the National Gallery of Art numbered 313 as compared with 312 as of June 30, 1956. The United States Civil Service regulations govern the appointment of employees paid from appropriated public funds.

APPROPRIATIONS

For the fiscal year ended June 30, 1957, the Congress of the United States in the regular annual appropriation for the National Gallery of Art provided $1,505,000 to be used for salaries and expenses in the operation and upkeep of the Gallery, the protection and care of works of art acquired by the Board of Trustees, and all administrative expenses incident thereto, as authorized by Joint Resolution of Congress approved March 24, 1937 (20 U. S. C. 71–75; 50 Stat. 51). Congress also included in a supplemental appropriation act $30,000 to cover (a) the additional cost of steam for heating and air-conditioning the Gallery, which cost exceeded the original estimate of General Services Administration by $18,000; (b) the increased cost of electric current ($3,800), and (c) the increase of salaries of employees whose rates of pay were adjusted as of December 2, 1956, by Wage Board determination under authority of Public Law 763, 83d Congress ($8,200). The total appropriation for the fiscal year was $1,535,000. The following expenditures and encumbrances were incurred:

Personal services (including $413,088.28 for guard protection)	$1,293,635.00
Other than personal services	241,336.07
Unobligated balance	28.93
Total	1,535,000.00

ATTENDANCE

There were 942,196 visitors to the Gallery during the fiscal year 1957 as compared to an attendance of 1,013,246 for the fiscal year 1956. The average daily number of visitors was 2,596.

ACCESSIONS

There were 650 accessions by the National Gallery of Art as gifts, loans, or deposits during the fiscal year.

GIFTS

During the year, the following gifts or bequests were accepted by the Board of Trustees:

PAINTINGS

Donor	*Artist*	*Title*
William Robertson Coe	Renoir	Girl with a Basket of Fish.
William Robertson Coe	Renoir	Girl with a Basket of Oranges.
Lewis Einstein	Fragonard	Adoration d'un trone.
Lewis Einstein	School of Antwerp	Goosen van Bonhuysen.
Lewis Einstein	Greco-Egyptian	Portrait of a Woman.
Howard Sturges	Gainsborough	Shepherd Boys and Dog Sheltering from Storm.
Howard Sturges	Guardi	Castel Sant' Angelo.
Howard Sturges	Shee	The Earl of Beverley.
Howard Sturges	Shee	The Countess of Beverley.
Howard Sturges	Hoppner	Portrait of a Man.
Miss Edith Reynolds	Henri	Edith Reynolds.
Horace Havemeyer	Manet	Gare Saint-Lazare.
Col. and Mrs. E. W. Garbisch.	Buddington	Father and Son.
Col. and Mrs. E. W. Garbisch.	Chambers	The Connecticut River Valley.
Col. and Mrs. E. W. Garbisch.	Field	Ark of the Covenant.
Col. and Mrs. E. W. Garbisch.	Hashagen	Ship Arkansas Leaving Havana.
Col. and Mrs. E. W. Garbisch.	MacKay	Catherine Brower.
Col. and Mrs. E. W. Garbisch.	Ropes	Mount Vernon.
Col. and Mrs. E. W. Garbisch.	Unknown	Boy and Girl.
Col. and Mrs. E. W. Garbisch.	Unknown	Brothers.
Col. and Mrs. E. W. Garbisch.	Unknown	Miss Daggett.
Col. and Mrs. E. W. Garbisch.	Unknown	Landscape with Group of Buildings.
Col. and Mrs. E. W. Garbisch.	Unknown	Woman Taking Footbath.
Col. and Mrs. E. W. Garbisch.	Unknown	Washington, the Mason.
Col. and Mrs. E. W. Garbisch.	Unknown	"We Go for the Union."
Col. and Mrs. E. W. Garbisch.	Vanderlyn, attr. to	Miss Van Alen.

PAINTINGS—Continued

Donor	*Artist*	*Title*
Alexander D. Thayer	Harding	Charles Carroll of Carrollton.
William Nelson Cromwell	Goya	Victor Guye.
George Matthew Adams	Legros	Memory Copy of Holbein's Erasmus.
Katharine Husson Horstick	Eakins	Louis Husson.
Katharine Husson Horstick	Eakins	Mrs. Louis Husson.
Albert M. Friend, Jr	Neagle	George Dodd.
Albert M. Friend, Jr	Neagle	Julia Anne Dodd.
Avalon Foundation	Harnett	My Gems.
Curt H. Reisinger	Zorn	Hugo Reisinger.
Curt H. Reisinger	Besnard	Nude.
Curt H. Reisinger	Melchers	The Sisters.

SCULPTURE

George Matthew Adams	Dalou	Alphonse Legros.
Miss Syma Busiel	Houdon	Diana.

PRINTS AND DRAWINGS

Mellon Collection	Bellows	15 lithographs.
Mrs. Andrew Carey	Various	17 prints and drawings.
Herbert and Claiborne Pell	Various	8 prints.
Mrs. Roger H. Plowden	Hazeltine	2 watercolors.
Howard Sturges	Various	10 drawings.
George Matthew Adams	Legros	24 prints and drawings.
William Robertson Coe	Various	1 print, 17 books.
Lewis Einstein	Various	3 drawings.

WORKS OF ART ON LOAN

The following works of art were received on loan by the Gallery:

From:	*Artist*
The Putnam Foundation, San Diego, Calif.:	
View of Volterra	Corot.
Virgin and Child with St. Elizabeth, the Infant St. John and St. Justine.	Veronese.
Christ on the Cross	Murillo.
Chester Dale, New York, N. Y.:	
Portrait of a Little Girl	Eigleton (?).
Col. and Mrs. Edgar W. Garbisch, New York, N. Y.:	
Eighty-two early American paintings.	
Peter Jay, Havre de Grace, Md.:	
John Jay	Stuart.
Robert Woods Bliss, Washington, D. C.:	
Twenty-two objects of Pre-Columbian art.	
Mrs. Eugene Meyer, Washington, D. C.:	
Vase of Flowers	Cezanne.
Portrait of a Sailor	Cezanne.
Le Chateu Noir	Cezanne.
Still Life	Cezanne.
Still Life	Dufresne.
Still Life	Manet.
Nude	Renoir.
Portrait of a Man	Renoir.

WORKS OF ART ON LOAN RETURNED

The following works of art on loan were returned during the fiscal year:

To:	*Artist*
Samuel H. Kress Foundation, New York, N. Y.:	
75 paintings and 2 sculptures.	
Mr. and Mrs. C. B. Wrightsman, Palm Beach, Fla.:	
Portrait of a Young Girl	Vermeer.
Claiborne Pell, Washington, D. C.:	
The Jolly Flatboatmen	Bingham.
Mrs. Eugene Meyer, Washington, D. C.:	
Vase of Flowers	Cezanne.
Portrait of a Sailor	Cezanne.
Le Chateau Noir	Cezanne.
Still Life	Cezanne.
Still Life	Dufresne.
Still Life	Manet.
Nude	Renoir.
Portrait of a Man	Renoir.
Chester Dale, New York, N. Y.:	
Head of a Woman	Derain.
Woman in an Armchair	Derain.
Woman in a Chemise	Derain.
The Bathers	Tondu.
Indian Maiden	Wright.
Robert Woods Bliss, Washington, D. C.:	
Six objects of Pre-Columbian art.	

WORKS OF ART LENT

During the fiscal year the Gallery lent the following works of art for exhibition purposes:

To:	*Artist*
American Embassy, Paris:	
Mary Barry	Stuart.
Ann Barry	Stuart.
Two drawings of Classic Ruins	Guardi.
Blair-Lee House, Washington, D. C.:	
General Marshall	Stephens.
Secretary Forrestal	Murray.
Corcoran Gallery of Art, Washington, D. C.:	
Mending the Harness	Ryder.
Dallas Museum of Fine Arts, Dallas, Tex.:	
Andrew Jackson	Earl.
Franklin Pierce	Healy.
William Henry Harrison	Lambdin.
The Washington Family (engraving)	Savage.
John Quincy Adams	Sully.
Andrew Jackson	Sully.
General Dwight Eisenhower	Stephens.
George Washington	Stuart.
Alexander Hamilton Bicentennial Commission, Washington, D. C.:	
Alexander Hamilton	Trumbull.

To:	
Toledo Museum of Art, Toledo, Ohio:	*Artist*
Mending the Harness	Ryder.
Virginia 350th Anniversary, Jamestown Festival, Williamsburg, Va.:	
Pocahontas	British School.
Wadsworth Atheneum, Hartford, Conn.:	
William Rogers	Trumbull.
Detroit Institute of Arts, Detroit, Mich.:	
Siegfried and the Rhine Maidens	Ryder.
Columbus Gallery of Fine Arts, Columbus, Ohio:	
Chester Dale	Bellows.
Connecticut Historical Society, Hartford, Conn.:	
Miss Daggett	Artist unknown.
Institute of Contemporary Arts, Washington, D. C.:	
Six prints	Canaletto.
Four prints	Piranesi.
Smithsonian Institution Traveling Exhibition Service, Washington, D. C.:	
Forty-five modern German prints.	

EXHIBITIONS

The following exhibitions were held at the National Gallery of Art during the fiscal year 1957:

Masterpieces of Graphic Art from the Rosenwald Collection. Reopened May 23, 1956, continuing through July 8, 1956.

American Paintings from the Collection of the National Gallery of Art. July 13, 1956, through August 12, 1956.

Prints by the French Impressionists. From the Rosenwald Collection. August 15, 1956, through December 31, 1956.

A Retrospective Exhibition of the Work of George Bellows. The first one-man show in the history of the National Gallery of Art. January 19, 1957, through February 24, 1957.

American Primitive Paintings. From the Collection of Edgar William and Berince Chrysler Garbisch (2d exhibition). March 16, 1957, through April 28, 1957.

"One Hundred Years of Architecture in America." An exhibition celebrating the Centennial of the American Institute of Architects. May 15, 1957, through July 14, 1957.

TRAVELING EXHIBITIONS

Rosenwald Collection.—Special exhibitions of prints from the Rosenwald Collection were circulated to the following places during the fiscal year 1957:

Rijks Museum, Amsterdam, Holland:	
Three Rembrandt drawings	May–October 1956.
Minneapolis Institute of Arts, Minneapolis, Minn.:	
Exhibition, "Prints, 1400–1800," three prints	October–November 1956.

Philadelphia Art Alliance, Philadelphia, Pa.:	
Twenty-nine Rowlandson prints	October–November 1956.
Marion Koogler McNay Art Institute, San Antonio, Tex.:	
Twenty-two Rembrandt etchings	November–December 1956.
North Carolina Museum of Art, Raleigh, N. C.:	
Exhibition, "Rembrandt and School," 54 prints	November–December 1956.
The Baltimore Museum of Art, Baltimore, Md.:	
Exhibition, "4,000 Years of Modern Art," one print	November 1956–June 1957.
The Museum of Fine Arts, Houston, Tex.:	
Exhibition, "The Life of Christ," 68 prints	December 1956–January 1957.
Art Institute of Chicago, Ill.:	
Exhibition, "Prints, 1400–1800," three prints	January 1957.
The University Gallery, University of Minnesota:	
Exhibition, "Musical Exhibition," 33 prints	January-February 1957.
Fort Worth Art Center, Fort Worth, Tex.:	
Exhibition, "Horse and Rider," eight prints	January–March 1957.
Literature and Fine Arts Gallery, Michigan State University:	
Exhibition, "Impressionist Prints," 30 prints	February–March 1957.
Museum of Modern Art, New York, N. Y.:	
Exhibition, "Munch," one print	February–March 1957.
Smithsonian Institution Traveling Exhibition Service, Washington, D. C.:	
Exhibition, "Bellows," 19 prints	March– 1957.
Grolier Club, New York, N. Y.:	
Exhibition, "Blake," four prints	April–June 1957.
Community Arts Program, Munson-Williams-Proctor Institute, Utica, N. Y.:	
Exhibition, "Portraiture: The 19th and 20th Centuries," six prints	April–December 1957.

Index of American Design.—During the fiscal year 1957, 23 traveling exhibitions (including 804 plates) with 50 bookings were circulated to the following States and Germany:

State	*Number of exhibitions*	*State*	*Number of exhibitions*
Alabama	2	Minnesota	1
Arkansas	4	Missouri	2
Connecticut	3	New Mexico	1
District of Columbia	2	New York	2
Florida	1	North Carolina	3
Illinois	1	Oklahoma	1
Kentucky	2	South Carolina	3
Maine	2	Tennessee	2
Maryland	1	Virginia	13
Michigan	3	Germany	1

CURATORIAL ACTIVITIES

The Curatorial Department accessioned 131 gifts to the Gallery during the fiscal year 1957. Advice was given with respect to 346 works of art brought to the Gallery for expert opinion, and 10 visits to collections were made by members of the staff in connection with offers of gift or for expert opinion. About 1,520 inquiries requiring research were answered verbally and by letter.

William Campbell gave three lectures on American primitive painting at the Cooperstown summer seminars and also spoke to a women's group at Shepherdstown, W. Va. He assisted in the judging of an exhibition of the art work of State Department employees. John Pancoast judged an art contest for AMVETS. Erwin O. Christensen lectured on African Negro sculpture at Howard University, gave a Washington Seminar lecture on the Index of American Design, and held 12 monthly talks for USIA groups on the Index. Miss Elizabeth Mongan lectured at the Detroit Institute of Art, served on a jury for an exhibition in Philadelphia, and spoke to 10 groups visiting Alverthorpe Gallery. Miss Elizabeth Benson spoke to two women's organization meetings. Hereward Lester Cooke assisted in the judging of seven art exhibitions in the Washington area.

Perry B. Cott served as a member of the Board of Governors of the Archaeological Institute of America, Washington Society. Miss Katherine Shepard was secretary of this organization and went as official delegate to its General Meeting in Philadelphia. Miss Mongan was Honorary Vice President of the American Color Print Society, served on the American Jury of Selection of the International Graphic Arts Society and was a director and member of the Executive Committee of the Print Council of America.

RESTORATION

Francis Sullivan, Resident Restorer of the Gallery, made regular and systematic inspection of all works of art at the Gallery, and periodically removed dust and bloom as required. He relined 6 paintings, and gave special treatment to 34 paintings. Nineteen paintings were X-rayed as an aid in research. Experiments were continued with the application of 27H and other synthetic varnishes developed by the National Gallery of Art Fellowship at the Mellon Institute of Industrial Research, Pittsburgh, Pa. Proofs of all color reproductions of Gallery paintings were checked and approved, and technical advice on the conservation of paintings was furnished to the public upon request.

Mr. Sullivan inspected all Gallery paintings on loan in Government buildings in Washington. He also gave advice on and special

treatment to works of art belonging to other Government agencies including the White House, the Freer Gallery of Art, and the Smithsonian Institution.

PUBLICATIONS

The Director's book on The Feast of the Gods and related paintings, entitled "Bellini and Titian at Ferrara," appeared during the year. Mrs. Fern R. Shapley was the coauthor of a book "Comparisons in Art," also published by the Phaidon Press. She also prepared the text for the Gallery's Portfolio No. 5, "Masterpieces from the Samuel H. Kress Collection." Mr. Campbell compiled the data for the Bellows and Garbisch exhibition catalogs, and wrote the introduction to the Garbisch catalog. Mr. Christensen prepared a guide to the Chinese porcelains of the Widener Collection, and wrote an article on "An American Primitive Portrait Group" for Antiques magazine. Mr. Cooke's research on "Documents Relating to the Fontana di Trevi" was published in the September Art Bulletin, and six of his short articles for the Ladies Home Journal appeared during the year. Mr. Pancoast reviewed a book on Ghiberti for The American Scholar.

During the past fiscal year the Publications Fund published three new 11-x-14-inch color reproductions, and two more were on order. Eleven new color postcards were published; and plates were made for seven new Christmas and Easter folders. Two more large collotype reproductions of paintings on exhibition, distributed by a New York publisher, were placed on sale; 11-x-14-inch reproductions printed on canvas, an entirely new type of item, were also on order.

Two new books of A. W. Mellon Lectures in the Fine Arts, "The Art of Sculpture," by Herbert Read, and "The Nude," by Kenneth Clark, were placed on sale. "American Primitive Paintings," Part II, was made available, and a book "Portrait of Jesus," by Marian King, based on pictures in the National Gallery of Art, was stocked, as well as a paper-bound edition of a booklet, "Favorite Paintings from the National Gallery of Art," by present and former members of the Gallery staff. There was a fourth printing issued of the Gallery's Handbook No. 1, "How to Look at Works of Art; The Search for Line," by Lois A. Bingham.

Catalogs of the George Bellows show and "One Hundred Years of Architecture in America" exhibition were distributed.

A boxed set of ten 2-x-2-inch color slides with text was made available.

EDUCATIONAL PROGRAM

The program of the Educational Office was carried out under the supervision of the Curator in Charge of Educational Work and his staff who lectured and conducted guided tours in the National Gallery of Art on the works of art in its collection.

The attendance for the general tours, Congressional tours, "Tours for the Week," and "Pictures of the Week," totaled 43,954 while that for the 51 auditorium lectures on Sunday afternoons was approximately 11,488 during the fiscal year 1957.

Tours, lectures, and conferences were arranged by special appointment for 322 groups and individuals. The total number of people served in this manner was 7,640. This is an increase over last year of 23 groups and 350 persons. These special appointments were made for such groups as representatives from high schools, universities, museums, governmental agencies, and distinguished visitors.

The program of training volunteer docents was continued during the fiscal year. Fifty-seven ladies were given special instruction under the general supervision of the Curator in Charge of Educational Work and under the specific direction of one of the members of the staff. By arrangement with the school systems of the District of Columbia and surrounding counties of Virginia and Maryland, these ladies assisted in giving guided tours for the children from these schools. In all, 751 classes, with a total of 22,561 children, were given the tours during the fiscal year. This represents an increase over last year of 4,046 children in attendance.

The staff of the Educational Office delivered 20 lectures in the auditorium on Sunday afternoons. Twenty-four lectures were given by guest speakers, and during April and May Dr. Sigfried Giedion delivered the Sixth Annual Series of seven A. W. Mellon Lectures in the Fine Arts on the theme "Constancy and Change in Art and Architecture."

During the past year 205 persons borrowed a total of 6,110 slides from the slide lending collection.

The office completed in May two new slide strip films on paintings in the National Gallery of Art which will be available for sale about July 1, 1957. These are in addition to two other slide strips (one on sculpture, and one on prints) and one strip film, which have been available.

The centers throughout the country that distribute the National Gallery of Art film, "Your National Gallery," report approximately 72,339 persons viewed the film in 310 showings.

Members of the staff prepared leaflets on the works of art in individual galleries; prepared mimeographed material for school tours and to accompany slide loans; and prepared and recorded 33 radio broadcasts for use during intermission periods of the National Gallery concerts.

The printed Calendar of Events announcing all the Gallery's activities was prepared by the Educational Office and distributed monthly to a mailing list of approximately 4,500 names.

LIBRARY

The most important acquisitions to the Library this year were 2,137 books, pamphlets, periodicals, subscriptions, and photographs purchased from private funds, and 53 books, pamphlets, and subscriptions to periodicals purchased from Government funds made available for this purpose. Gifts included 849 books and pamphlets; while 713 books, pamphlets, periodicals, and bulletins were received in exchange from other institutions. More than 420 persons other than Gallery staff spent time in the Library for study or research, and approximately 1,500 telephone reference requests were handled.

The Library is the depository for photographs of works of art in the collections of the National Gallery of Art. A stock of reproductions is maintained for use in research occupations by the curatorial staff and other departments of the Gallery, for the dissemination of knowledge to qualified sources; for exchange with other institutions; for reproduction in scholarly works; and for sale at the request of interested individuals. Approximately 5,000 photographs were added to the Library's stock; 585 mail orders, and 500 direct sales were handled; and 300 permits to reproduce 680 subjects were processed in the Library.

INDEX OF AMERICAN DESIGN

The work of the Index continued as in previous years. The Curator in charge of the Index continued to take part in the orientation program for United States Information Agency personnel with thirteen 50-minute illustrated talks on the background and purpose of the Index and on the folk arts and crafts in the United States.

A new project of printed guide leaflets on the material in the Index was started, as well as a project of 20 color-slide sets which were placed on sale.

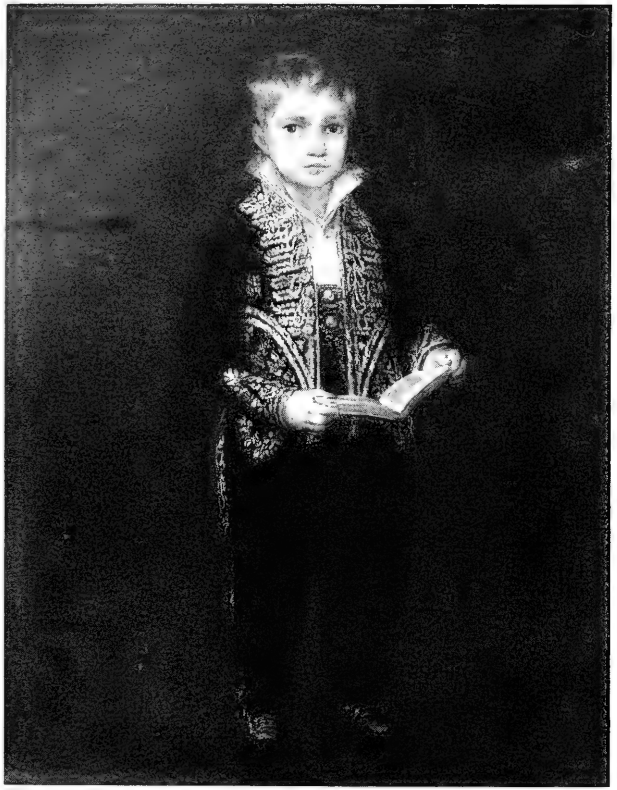
The Index cooperated with the USIA in making these slide sets available to their overseas personnel. Approximately 704 persons studied the Index material for purposes of research or exhibition, to gather material for publication and design, and to become familiar with the Index.

Twenty groups of color slides (801 in all) were lent in eight States and India. Three exhibitions of Index material were held in the National Gallery of Art, and 23 traveling exhibitions were circulated.

MAINTENANCE OF THE BUILDING AND GROUNDS

The Gallery building, its mechanical equipment, and its grounds have been maintained at the established standard throughout the year; emphasis, however, has been given to reducing the water leaks which are common to skylight roofs.

Manet: Gare Saint-Lazare. Gift of Horace Havemeyer to the National Gallery of Art in memory of his mother Louisine W. Havemeyer, 1956.



1. Goya y Lucientes: Victor Guye. Gift of William Nelson Cromwell to the National Gallery of Art.

2. Houdon: Diana. Gift of Syma Busiel to the National Gallery of Art.

With funds made available by the A. W. Mellon Educational and Charitable Trust, the air-conditioning system has been extended to cover first-aid rooms, other areas on the ground floor, art storage rooms, and shops.

With funds made available by Congress a contract has been let for changing the elevator in the west wing of the Gallery building from operator controlled to passenger operated.

A contract has been let for an experimental electronic installation of a 10-minute tape-recorded Gallery broadcast providing a lecture, receivable on an earphone device, pertaining to the works of art in several gallery rooms. It is proposed to rent the earphone receiving devices at a small fee to persons wishing to hear the lectures in the wired gallery rooms.

OTHER ACTIVITIES

Forty Sunday evening concerts were given during the fiscal year in the East Garden Court. The National Gallery Orchestra, conducted by Richard Bales, played 10 concerts at the Gallery. Two of these concerts were made possible by the Music Performance Trust Fund of the American Federation of Musicians. The first eight concerts of the series were given in commemoration of the Mozart Bicentennial. A string orchestra under Mr. Bales' direction played during the opening of the Bellows Exhibition on January 19, 1957, and during the Garbisch Exhibition opening on March 15, 1957. The Orchestra was engaged to play a concert at Constitution Hall on February 3 with Mr. Bales conducting. In September 1956 Mr. Bales' cantata "The Union" (premiere at the National Gallery of Art June 10, 1956), was recorded at the Gallery by Columbia Records. The National Gallery Orchestra and soloists played for the recording. During May 1957, the four Sunday evening concerts were devoted to the Gallery's Fourteenth American Music Festival. All concerts were broadcast in their entirety by Station WGMS AM and FM, Washington.

The American Institute of Architects commissioned Mr. Bales to compose an orchestral work as part of its Centennial Celebration. This composition, "National Gallery Suite No. 3," was premiered on May 26, 1957. The intermissions during the Sunday evening concerts featured discussions by members of the Educational Office staff and Mr. Bales.

During the fiscal year 2,056 copies of nine press releases were issued in connection with Gallery activities. One hundred and fifty permits to copy and 208 permits to photograph in the Gallery were also issued.

The Photographic Laboratory of the Gallery produced 12,967 prints, 242 black-and-white slides, 814 color slides, 1,974 black-and-

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white negatives, 52 color-separation negatives, and 126 color transparencies, 8 infrareds, 5 ultraviolets, 10 X-rays, and 5 film positives.

OTHER GIFTS

Gifts of money were made during the fiscal year 1957 by the Old Dominion Foundation, Avalon Foundation, Corning Museum of Glass, J. Hopkins Smith, Jr., and Donald F. Hyde.

AUDIT OF PRIVATE FUNDS OF THE GALLERY

An audit of the private funds of the Gallery will be made for the fiscal year ended June 30, 1957, by Price Waterhouse & Co., public accountants, and the certificate of that company on its examination of the accounting records maintained for such funds will be forwarded to the Gallery.

Respectfully submitted.

HUNTINGTON CAIRNS, *Secretary.*

Dr. LEONARD CARMICHAEL,
Secretary, Smithsonian Institution.

Report on the Library

SIR: I have the honor to submit the following report on the activities of the Smithsonian library for the fiscal year ended June 30, 1957:

The 54,316 publications received during the year included purchases and gifts, but the larger number of them came, as usual, from scientific, technical, and cultural institutions and societies all over the world, in exchange for publications of the Smithsonian Institution. These exchange publications, foreign and domestic, especially the files of scientific serials, form the backbone of the library's collections and are the principal primary sources of information upon which the library's services to the Institution are based. There were 87 new exchanges arranged this year.

Many friends of the Institution gave books and papers to the library. Among the 7,972 publications so received were L. L. Buchanan's gift of 475 books and many bulletins, pamphlets, and separates from his own private scientific library; Frank Morton Jones's gift of 39 volumes on Psychidae; and Mrs. George P. Merrill's gift of 100 volumes from the library of her late husband, formerly head curator of geology. Harold J. Coolidge most generously turned over to the library some 400 handsome publications of the Institut des Parcs Nationaux du Congo Belge, with the privilege of selecting anything needed to fill gaps in our own sets, the remainder to be sent to a designated library on the west coast.

From among the much larger number of recommended titles, funds permitted the purchase of only 621 books and subscriptions for 475 periodicals not obtainable in exchange. These were the reference books and journals most urgently needed for the common use of all, and the most important of the primary sources of information in special subject areas of the Institution's researches and curatorial responsibilities. The list of desiderata of books, new and old, that it would be useful and time-saving for the curators and other specialists to have immediately at hand continues to grow. The expanding program of work and the many new projects being initiated in the Institution find many subjects inadequately covered by the literature in the library, and there are serious gaps in the working collections that ought to be filled. Unfortunately, the prices of books and periodicals continue to rise, and a good many institutions and societies that formerly sent their journals freely in exchange, or gratis, now find

it financially necessary to charge for them in order to assure continuity of publication.

There were 22,359 publications sent to the Library of Congress, 5,086 of which were books and periodicals to be added to the Smithsonian Deposit. The others, not individually recorded in the library, were documents, doctoral dissertations, and miscellaneous publications of no immediate interest to the Institution. The library transferred 1,474 publications, mostly medical dissertations, to the National Library of Medicine.

The year's record of cataloging included a total of 4,044 volumes cataloged, 26,184 cards filed, and 23,173 periodicals entered. The catalog section had full responsibility for the much-expanded bindery program which was continued for the second year, and 11,900 volumes of periodicals and books, new and old, were prepared and sent to be bound or rebound. Again, through a waiver from the Government Printing Office, the work was done by a commercial binder, under contract. The very considerable reduction in the long-standing arrearage of binding during the past 2 years has saved from progressive deterioration and possible loss many thousands of hitherto unbound numbers of important scientific journals, and has greatly increased the ease of use of the journals. By no means to be minimized is the improved appearance that fresh, newly bound volumes give to the library shelves.

The position of bindery assistant skilled in the repair of rare and fragile old books has been vacant since October 1956, and so only 321 volumes from among the large number requiring special handling were repaired in the library. It is regrettable that there are now so few available craftsmen skilled in the hand-binding and repair of books.

The staff of the catalog section continued the work begun last year, partly in connection with the binding program, of sorting and arranging the accumulation of wholly uncataloged or incompletely cataloged publications in the library of the Bureau of American Ethnology. Those needed to fill gaps in sets, or found to be otherwise important to the work of the Bureau, were processed, and 4,406 others as well as 1,360 similar pieces culled from the main library shelves were discarded.

David Ray, foreign language specialist of the catalog section, was called upon frequently by staff members of the Institution to translate short letters written in different languages, including Russian, to make résumé's, in English, of longer ones, and to give advice about meanings of special words and phrases. Requests for more extensive help, such as translating scientific articles from the Russian, had to

be refused, because they would have encroached too much on the time needed to do the regular cataloging of incoming foreign publications. It is apparent that the full time of a language specialist, whether attached to the library staff or to some other office of the Institution, might easily be occupied in making translations.

In the reference and circulation section, the record of 9,537 publications borrowed for use outside the library represented only a small part of the actual use of books and periodicals. To this figure might well be added the 8,493 publications that were sent to the sectional libraries for intramural circulation and filing, as indicative of the uncounted use of the library's collections that is made in all the bureaus, divisions, and sections throughout the Institution.

Interlibrary loans of 1,110 volumes were made to 116 Government and other libraries throughout the country. The largest borrowers were the Department of Agriculture, the Geological Survey, and the Indian Claims section of the Department of Justice. This library, in turn, borrowed 607 publications from libraries other than the Library of Congress, chiefly from the Department of Agriculture, the Geological Survey, and the National Library of Medicine.

Except as interlibrary loans, the library does not lend books to individuals outside the Institution, but it is freely open for reference to any responsible person. Among the 7,000 readers counted in the reference room during the year, there were occasional visitors from many different countries of all the continents, some of whom made more or less extensive use of the collections.

Some 13,000 reference questions of all degrees of difficulty, many of them requiring extensive bibliographical research, were answered in response to inquirers who came to the library in person or who wrote or telephoned for the information wanted.

A special summer task force, engaged in mid-June to help clear the west stacks for other use, has already made good headway in preparing duplicates, special collections, and other stored material for transfer elsewhere or for other suitable disposal. It is hoped that the project may be completed by September 1.

Following the death of Mrs. Hope Simmons, chief of the acquisitions section, just at the close of the preceding fiscal year, Mrs. L. Frances Jones was made acting chief of the section. Mrs. Elisabeth H. Gazin has continued to be chief of the reference and circulation section, and the catalog section has been headed by Miss Ruth Blanchard.

SUMMARIZED STATISTICS

ACCESSIONS

	Volumes	Total recorded volumes, 1957
Smithsonian Deposit at the Library of Congress	253	586, 700
Smithsonian main library (including former Office and Museum libraries)	8, 230	308, 613
Astrophysical Observatory (including Radiation and Organisms)	103	14, 945
Bureau of American Ethnology	1, 373	37, 350
National Air Museum	64	497
National Collection of Fine Arts	209	14, 079
National Zoological Park	12	4, 217
Total	10, 244	966, 401

Unbound volumes of periodicals, and reprints and separates from serial publications, of which there are many thousands, have not been included in these totals.

EXCHANGES

New exchanges arranged	87
Specially requested publications received	485

CATALOGING

Volumes cataloged	4, 044
Catalog cards filed	26, 184

PERIODICALS

Periodical parts entered	23, 173

4,833 were sent to the Smithsonian Deposit.

CIRCULATION

Loans of books and periodicals	9, 537

Circulation in sectional libraries is not counted except in the Division of Insects.

BINDING AND REPAIR

Volumes sent to the bindery	11, 900
Volumes repaired in the library	321

Respectfully submitted,

LEILA F. CLARK, *Librarian.*

DR. LEONARD CARMICHAEL,
Secretary, Smithsonian Institution.

Report on Publications

SIR: I have the honor to submit the following report on the publications of the Smithsonian and its branches for the year ended June 30, 1957:

The publications of the Smithsonian Institution are issued partly from federally appropriated funds (Smithsonian Reports and publications of the National Museum, the Bureau of American Ethnology, and the Astrophysical Observatory) and partly from private endowment funds (Smithsonian Miscellaneous Collections, publications of the Freer Gallery of Art, and some special publications). The Institution also edits and publishes under the auspices of the Freer Gallery of Art the series Ars Orientalis, which appears under the joint imprint of the University of Michigan and the Smithsonian Institution. The second volume in this series was about ready to print at the end of the year. In addition, the Smithsonian publishes a guide book, a picture pamphlet, postcards and a postcard folder, a color-picture album, color slides, a filmstrip of Smithsonian exhibits, and popular publications on scientific and historical subjects related to its important exhibits and collections for sale to visitors. Through its publication program the Smithsonian endeavors to carry out its founder's expressed desire for the diffusion of knowledge.

During the year the Institution published 15 papers and title page and contents of 3 volumes in the Miscellaneous Collections; 1 Annual Report of the Board of Regents and separates of 19 articles in the General Appendix of the Report; 1 Annual Report of the Secretary; 2 special publications; and a reprint of 1 special publication.

The United States National Museum issued 1 Annual Report, 17 Proceedings papers and title page, table of contents, and index to 1 volume of the Proceedings, 5 Bulletins, and 1 paper in the series Contributions from the United States National Herbarium.

The Bureau of American Ethnology issued 1 Annual Report, 2 Bulletins, and 1 miscellaneous publication.

The Astrophysical Observatory issued 6 numbers in the series Smithsonian Contributions to Astronomy.

The National Collection of Fine Arts published 2 catalogs, and the Smithsonian Traveling Exhibition Service, under the National Collection of Fine Arts, published special catalogs for two of its circulating exhibits.

There were distributed 405,266 copies of publications and miscellaneous items. Publications: 32 Contributions to Knowledge, 31,786

Miscellaneous Collections, 8,252 Annual Reports and 17,658 pamphlet copies of Report separates, 449 War Background Studies, 24,136 special publications, 475 reports of the Harriman Alaska Expedition, 46,378 publications of the National Museum, 28,558 publications of the Bureau of American Ethnology, 20,907 publications of the National Collection of Fine Arts, 574 publications of the Freer Gallery of Art, 6,370 publications of the Astrophysical Observatory, 228 reports of the American Historical Association, and 1,147 publications not issued by the Smithsonian Institution. Miscellaneous: 74 sets and 540 prints of North American Wildflowers and 3 Pitcher Plant volumes, 60,621 guide books, 16,720 picture pamphlets, 128,896 postcards and postcard folders, 809 photo sets, 16,456 color slides, 4,666 color-picture albums, 64,406 information leaflets, 41 New Museum of History and Technology pamphlets, and 139 statuettes.

The 1957 allotment from Government funds of $152,000 for printing and binding was entirely obligated at the close of the year.

SMITHSONIAN PUBLICATIONS

Smithsonian Miscellaneous Collections

VOLUME 125

Title page and table of contents. (Publ. 4262.) [August 16], 1956.

VOLUME 126

Title page and table of contents. (Publ. 4263.) [August 16], 1956.

VOLUME 128

Title page and table of contents. (Publ. 4264.) [August 16], 1956.

VOLUME 129

Small arms and ammunition in the United States Service, 1776–1865, by Berkeley R. Lewis. 338 pp., 52 pls., 28 figs. (Publ. 4254.) August 14, 1956. ($8.00.)

VOLUME 130

Annotated, subject-heading bibliography of termites, 1350 B. C. to A. D. 1954, by Thomas E. Snyder. 305 pp. (Publ. 4258.) September 25, 1956. ($4.00.)

VOLUME 131

No. 7. The upper Paleocene Mammalia from the Almy formation in western Wyoming, by C. Lewis Gazin. 18 pp., 2 pls. (Publ. 4252.) July 31, 1956. (35 cents.)

No. 8. The geology and vertebrate paleontology of upper Eocene strata in the northeastern part of the Wind River Basin, Wyoming. Pt. 2. The mammalian fauna of the Badwater area, by C. Lewis Gazin. 35 pp., 3 pls., 1 fig. (Publ. 4257.) October 30, 1956. (55 cents.)

No. 9. Breeding and other habits of the casqued hornbills, by Lawrence Kilham. 45 pp., 6 pls., 2 figs. (Publ. 4259.) (70 cents.)

No. 10. Crustacean metamorphoses, by R. E. Snodgrass. 78 pp., 28 figs. (Publ. 4260.) October 17, 1956. (80 cents.)

No. 11. The ventral intersegmental thoracic muscles of cockroaches, by L. E. Chadwick. 30 pp., 18 figs. (Publ. 4261.) January 15, 1957. (40 cents.)

VOLUME 134

No. 1. Periods related to 273 months or 22¾ years, by C. G. Abbot. 17 pp., 7 figs. (Publ. 4265.) September 13, 1956. (20 cents.)

No. 2. The Asiatic species of birds of the genus *Criniger* (Aves: Pycnonotidae), by H. G. Deignan. 9 pp. (Publ. 4266.) October 25, 1956. (20 cents.)

No. 3. Loop development of the Pennsylvanian terebratulid *Cryptacanthia*, by G. Arthur Cooper. 18 pp., 2 pls., 12 figs. (Publ. 4267.) (35 cents.)

No. 4. Geology and vertebrate paleontology of upper Eocene strata in the northeastern part of the Wind River Basin, Wyoming. Pt. 1. Geology, by Harry A. Tourtelot. 27 pp., 1 pl., 7 figs. (Publ. 4269.) March 27, 1957. (45 cents.)

No. 5. Trochamminidae and certain Lituolidae (Foraminifera) from the Recent brackish-water sediments of Trinidad, British West Indies, by John B. Saunders. 16 pp., 4 pls. (Publ. 4270.) March 15, 1957. (35 cents.)

No. 6. Studies by phase-contrast microscopy on distribution of patterns of hemolymph coagulation in insects, by Charles Grégoire. 35 pp., 1 pl., 4 figs. (Publ. 4271.) May 8, 1957. (60 cents.)

No. 7. Early White influence upon Plains Indian painting: George Catlin and Carl Bodmer among the Mandan, 1832–1834, by John C. Ewers. 11 pp., 12 pls. (Publ. 4292.) April 24, 1957. (50 cents.)

No. 8. A skull of the Bridger Middle Eocene creodont *Patriofelis ulta* Leidy, by C. Lewis Gazin. 20 pp., 4 pls. (Publ. 4293.) April 30, 1957. (40 cents.)

Annual Reports

Report for 1955.—The complete volume of the Annual Report of the Board of Regents for 1955 was received from the printer October 22, 1956:

Annual Report of the Board of Regents of the Smithsonian Institution showing the operations, expenditures, and condition of the Institution for the year ended June 30, 1955. ix+537 pp., 70 pls., 24 figs. (Publ. 4232.)

The general appendix contained the following papers (Publs. 4233–4252):

Science serving the Nation, by Lee A. DuBridge.

The development of nuclear power for peaceful purposes, by Henry D. Smyth.

The time scale of our universe, by E. J. Öpik.

Solar activity and its terrestrial effects, by Sir Harold Spencer Jones.

Forty years of aeronautical research, by J. C. Hunsaker.

A transatlantic cable, by H. A. Affel.

Genetics in the service of man, by Bentley Glass.

Cultural status of the South African man-apes, by Raymond A. Dart.

The history of the mechanical heart, by George B. Griffenhagen and Calvin H. Hughes.

Some chemical studies on viruses, by Wendell M. Stanley.

The scent language of honey bees, by Ronald Ribbands.

The army ants, by T. C. Schneirla.

The hibernation of mammals, by L. Harrison Matthews.
Parasites common to animals and man, by Benjamin Schwartz.
Some observations on the functional organization of the human brain, by Wilder Penfield.
The place of tropical soils in feeding the world, by Robert L. Pendleton.
Tree rings and history in the western United States, by Edmund Schulman.
New light on the dodo and its illustrators, by Herbert Friedmann.
George Catlin, painter of Indians and the West, by John C. Ewers.

Report for 1956.—The Report of the Secretary, which will form part of the Annual Report of the Board of Regents to Congress, was issued on January 18, 1957:

Report of the Secretary and financial report of the Executive Committee of the Board of Regents for the year ended June 30, 1956. ix+211 pp., 8 pls. (Publ. 4268.)

Special Publications

The national aeronautical collections, by Paul E. Garber. 166 pp., illustr. (Publ. 4255.) [August 20], 1956. ($1.50.)
The world of the dinosaurs, by David H. Dunkle. 22 pp., illustr. (Publ. 4296.) [May 24], 1957. (50 cents.)

Reprints

A biographical sketch of James Smithson, by Samuel Pierpont Langley. 20 pp., 4 pls. Smithsonian Spec. Publ. 2276. 1956. (50 cents.)

Filmstrip

Let's Visit the Smithsonian, a filmstrip with 48 color views of the buildings, exhibits, and activities of the Institution, a recorded 30-minute lecture, and an accompanying booklet containing pictures and text. Produced under a grant from the Link Foundation by the Society for Visual Education. 1957. ($10 complete; $6.50 without record.)

PUBLICATIONS OF THE UNITED STATES NATIONAL MUSEUM

Report

The United States National Museum annual report for the year ended June 30, 1956. Pp. ix+105, illustr., January 18, 1957.

Bulletins

185, part 6. Checklist of the coleopterous insects of Mexico, Central America, the West Indies, and South America, by Richard E. Blackwelder. Pp. viii+927–1492, May 15, 1957.
207. American moths of the subfamily Phycitinae, by Carl Heinrich. viii+581 pp., 1,138 figs., September 18, 1956.
209. Nearctic wasps of the subfamilies Pepsinae and Ceropalinae, by Henry Townes. iv+286 pp., 161 figs., 4 pls., March 11, 1957.
210. The first quarter-century of steam locomotives in North America: Remaining relics and operable replicas, with a catalog of locomotive models in the United States National Museum, by Smith Hempstone Oliver. 112 pp., 81 figs., frontispiece, August 6, 1956.
213. Automobiles and motorcycles in the U. S. National Museum, by Smith Hempstone Oliver. 157 pp., 103 figs., frontispiece, June 25, 1957.

CONTRIBUTIONS FROM THE U. S. NATIONAL HERBARIUM

VOLUME 32

Part 2. A revision of the genus *Nissolia*, by Velva E. Rudd. Pp. iii+173–206, 3 figs., November 7, 1956.

PROCEEDINGS

VOLUME 104

Title page, table of contents, and index. Pp. i–iv, 651–694, June 5, 1957.

VOLUME 106

No. 3364. Chiggers of the genus *Euschöngastia* (Acarina: Trombiculidae) in North America, by Charles E. Farrell. Pp. 85–235, 8 figs., 21 pls., October 19, 1956.

No. 3365. A new pinecone fish, *Monocentris reedi*, from Chile, a new family record for the eastern Pacific, by Leonard P. Schultz. Pp. 237–239, 1 pl., July 24, 1956.

No. 3366. Some crickets from South America (Grylloidea and Tridactyloidea), by Lucien Chopard. Pp. 241–293, 6 figs., September 20, 1956.

No. 3367. The Nearctic species of tringonalid wasps, by Henry Townes. Pp. 295–304, 1 fig., October 16, 1956.

No. 3368. *Latheticomyia*, a new genus of acalyptrate flies of uncertain family relationship, by Marshall R. Wheeler. Pp. 305–314, 2 figs., October 2, 1956.

No. 3369. A tribal revision of the brachycyrtine wasps of the world (Cryptinae—Ichneumonidae), by Luella M. Walkley. Pp. 315–329, 1 fig., October 16, 1956.

No. 3370. A new species of *Candacia* (Copepoda: Calanoida) from the western North Atlantic Ocean, by Abraham Fleminger and Thomas E. Bowman. Pp. 331–337, 2 figs., October 15, 1956.

No. 3371. Emended description and assignment to the new genus *Ronalea* of the idotheid isopod *Erichsonella pseudoculata* Boone, by Robert J. Menzies and Thomas E. Bowman. Pp. 339–343, 1 fig., October 17, 1956.

No. 3372. Observations on the amphipod genus *Parhyale*, by Clarence R. Shoemaker. Pp. 345–358, 4 figs., October 15, 1956.

No. 3373. A revision of the acrocerid flies of the genus *Pialea* Erichson with a discussion of their sexual dimorphism (Diptera), by Evert I. Schlinger. Pp. 359–375, 4 figs., October 12, 1956.

No. 3374. Further data on African parasitic cuckoos, by Herbert Friedmann. Pp. 377–408, 4 pls., October 24, 1956.

No. 3375. Studies in Neotropical Mallophaga, XVI: Bird lice of the suborder Ischnocera, by M. A. Carriker, Jr. Pp. 409–439, 9 figs., January 30, 1957.

No. 3376. A new genus and species of marine asellote isopod, *Caecianiropsis psammophila*, from California, by Robert J. Menzies and Jean Pettit. Pp. 441–446, 3 figs., November 2, 1956.

No. 3377. Mammals of the Anglo-Egyptian Sudan, by Henry W. Setzer. Pp. 447–587, 10 figs., November 28, 1956.

VOLUME 107

No. 3378. A new species of *Mysidopsis* (Crustacea: Mysidacea) from the southeastern coast of the United States, by Thomas E. Bowman. Pp. 1–7, 2 figs., February 15, 1957.

No. 3379. *Rhynobrissus cuneus*, a new echinoid from North Carolina, by C. Wythe Cooke. Pp. 9–12, 1 pl., June 18, 1957.

No. 3380. Formosan cossonine weevils of bamboo (Coleoptera: Curculionidae: Cossoninae), by Elwood C. Zimmerman. Pp. 13–23, 2 figs., March 25, 1957.

PUBLICATIONS OF THE BUREAU OF AMERICAN ETHNOLOGY

Annual Report

Seventy-third Annual Report of the Bureau of American Ethnology, 1955–1956, ii+23 pp., 2 pls. 1957.

Bulletins

Bulletin 161. Seminole music, by Frances Densmore. xxviii+223 pp., 18 pls., 1 fig. 1956.

Bulletin 162. Guaymí grammar, by Ephraim S. Alphonse. ix+128 pp. 1956.

Miscellaneous Publications

List of publications of the Bureau of American Ethnology, with index to authors and titles. Revised to June 30, 1956. 112 pp. 1956.

PUBLICATIONS OF THE ASTROPHYSICAL OBSERVATORY

Smithsonian Contributions to Astrophysics

VOLUME 1

No. 1. New horizons in astronomy. Thirty-nine papers, edited by Fred L. Whipple. Pp. i–x, 1–181, 6 figs., 1 pl. December 19, 1956.

No. 2. Papers on reduction methods for photographic meteors. Papers by Fred L. Whipple and Luigi G. Jacchia; Gerald S. Hawkins; Richard E. McCrosky; Allan F. Cook and Robert F. Hughes; and Fred L. Whipple and Frances W. Wright. Pp. 1–iii, 183–243, 4 figs., 5 pls. May 8, 1957.

VOLUME 2

No. 1. Notes on the solar corona and the terrestrial ionosphere, by Sydney Chapman, with a supplementary note by Harold Zirin. Pp. 1–14, February 18, 1957.

No. 2. Chromospheric spicules, by Sarah Lee Lippincott. Pp. 15–23, 6 figs., 4 pls. June 14, 1957.

No. 3. Studies of solar granulation: I. The statistical interpretation of granule structure from one-dimensional microphotometer tracings, by Gerard Wlérick. Pp. 25–34, 8 figs. June 14, 1957.

No. 4. Variations in the thermodynamic state of the chromosphere over the sunspot cycle, by R. G. Athay, D. H. Menzel, and F. Q. Orrall. Pp. 35–50, 9 figs. June 14, 1957.

PUBLICATIONS OF THE NATIONAL COLLECTION OF FINE ARTS

Meissen and other German porcelain in the Alfred Duane Pell collection, by Paul Vickers Gardner. 66 pp., 31 pls., 11 figs. (Publ. 4256.) 1956. ($2.00.)

Alice Pike Barney: Paintings in oil and pastel. With introduction and biographical note by Thomas M. Beggs. 99 pls. (Publ. 4291.) 1957. ($1.50.)

Smithsonian Traveling Exhibition Catalogs

Canadian abstract paintings. Illustr. 1956.

George Bellows prints and drawings. Illustr. 1957.

REPORT OF THE AMERICAN HISTORICAL ASSOCIATION

The annual reports of the American Historical Association are transmitted by the Association to the Secretary of the Smithsonian Institution and are by him communicated to Congress, as provided in the act of incorporation of the Association. The following report was issued during the year:

Annual Report of the American Historical Association for the year 1955. Vol. 1. Proceedings. 1957.

REPORT OF THE NATIONAL SOCIETY, DAUGHTERS OF THE AMERICAN REVOLUTION

The manuscript of the Fifty-ninth Annual Report of the National Society, Daughters of the American Revolution, was transmitted to Congress, in accordance with law, on April 1, 1957.

Respectfully submitted.

PAUL H. OEHSER,
Chief, Editorial and Publications Division.

Dr. LEONARD CARMICHAEL,
Secretary, Smithsonian Institution.

Report of the Executive Committee of the Board of Regents of the Smithsonian Institution

For the Year Ended June 30, 1957

To the Board of Regents of the Smithsonian Institution:

Your executive committee respectively submits the following report in relation to the funds of the Smithsonian Institution, together with a statement of the appropriations by Congress for the Government bureaus in the administrative charge of the Institution.

SMITHSONIAN ENDOWMENT FUND

The original bequest of James Smithson was £104,960 8s. 6d.—$508,318.46. Refunds of money expended in prosecution of the claim, freight, insurance, and other incidental expenses, together with payment into the fund of the sum of £5,015, which had been withheld during the lifetime of Madame de la Batut, brought the fund to the amount of $550,000.

Since the original bequest, the Institution has received gifts from various sources, the income from which may be used for the general work of the Institution. These, plus accretions, are listed below, together with a statement showing the income for the present year.

ENDOWMENT FUNDS

(Income for the unrestricted use of the Institution)

Partly deposited in the United States Treasury at 6 percent and partly invested in stocks, bonds, and other holdings

Fund	Investment 1957	Income 1957
Parent Fund (original Smithson bequest, plus accumulated savings)	$729,218.73	$43,740.94
Subsequent bequests, gifts, and other funds, partly deposited in the U. S. Treasury and partly invested in the consolidated fund:		
Abbott, W. L., Special	19,266.29	1,007.04
Avery, Robert S. and Lydia	65,079.69	3,509.97
Endowment	457,060.68	23,890.54
Habel, Dr. S	500.00	30.00
Hachenberg, George P. and Caroline	5,200.82	271.85
Hamilton, James	3,022.02	177.29
Henry, Caroline	1,563.98	81.75
Hodgkins, Thomas G	155,173.52	9,007.61
Olmsted, Helen A	1,036.08	54.18
Porter, Henry Kirke	370,358.60	19,358.62
Rhees, William Jones	1,201.81	67.38
Sanford, George H	2,251.16	126.14
Witherspoon, Thomas A	166,835.20	8,723.08
Total	1,248,599.85	66,305.45
Grand Total	1,977,818.58	110,046.39

The Institution holds also a number of endowment gifts, the income of each being restricted to specific use. These, plus accretions to date, are listed below, together with income for the present year.

Fund	Investment 1957	Income 1957
Abbott, William L., for investigations in biology	$135,097.58	$7,047.04
Arthur, James, for investigations and study of the sun and annual lecture on same	51,718.65	2,703.32
Bacon, Virginia Purdy, for traveling scholarship to investigate fauna of countries other than the United States	64,789.42	3,386.56
Baird, Lucy H., for creating a memorial to Secretary Baird	31,135.76	1,627.48
Barney, Alice Pike, for collection of paintings and pastels and for encouragement of American artistic endeavor	37,090.52	1,938.71
Barstow, Frederick D., for purchase of animals for Zoological Park	1,292.87	67.59
Canfield Collection, for increase and care of the Canfield collection of minerals	49,460.38	2,585.28
Casey, Thomas L., for maintenance of the Casey collection and promotion of researches relating to Coleoptera	16,209.36	847.26
Chamberlain, Francis Lea, for increase and promotion of Isaac Lea collection of gems and mollusks	36,416.63	1,903.53
Dykes, Charles, for support in financial research	55,682.00	2,910.18
Eickemeyer, Florence Brevoort, for preservation and exhibition of the photographic collection of Rudolph Eickemeyer, Jr	14,056.61	734.75
Hanson, Martin Gustav and Caroline Runice, for some scientific work of the Institution, preferably in chemistry or medicine	11,496.22	402.98
Higbee, Harry, Memorial Fund, for general use of the Institution after the period of 10 years from date of gift (1957)	651.53	None
Hillyer, Virgil, for increase and care of Virgil Hillyer collection of lighting objects	8,499.03	44.23
Hitchcock, Albert S., for care of the Hitchcock Agrostological Library	2,040.55	106.66
Hodgkins, specific, for increase and diffusion of more exact knowledge in regard to nature and properties of atmospheric air	100,000.00	6,000.00
Hrdlička, Aleš and Marie, to further researches in physical anthropology and publication in connection therewith	50,539.03	2,510.45
Hughes, Bruce, to found Hughes alcove	24,753.23	1,293.84
Loeb, Morris, for furtherance of knowledge in the exact sciences	112,704.44	5,891.06
Long, Annette and Edith C., for upkeep and preservation of Long collection of embroideries, laces, and textiles	702.18	36.73
Maxwell, Mary E., for care and exhibition of Maxwell collection	25,365.22	1,325.83
Myer, Catherine Walden, for purchase of first-class works of art for use and benefit of the National Collection of Fine Arts	26,121.00	1,365.37
Nelson, Edward W., for support of biological studies	26,349.32	1,251.85
Noyes, Frank B., for use in connection with the collection of dolls placed in the U. S. National Museum through the interest of Mr. and Mrs. Noyes	1,242.43	64.93
Pell, Cornelia Livingston, for maintenance of Alfred Duane Pell collection	9,585.64	501.01
Poore, Lucy T. and George W., for general use of the Institution when principal amounts to $250,000	220,684.42	11,158.09
Rathbun, Richard, for use of division of U. S. National Museum containing Crustacea	13,754.25	718.95
Reid, Addison T., for founding chair in biology, in memory of Asher Tunis	34,319.05	1,868.68
Roebling Collection, for care, improvement, and increase of Roebling collection of minerals	156,071.71	8,157.87
Roebling Solar Research	39,285.46	2,184.11
Rollins, Miriam and William, for investigations in physics and chemistry	135,217.06	6,486.66
Smithsonian employees' retirement	32,573.79	1,733.44
Springer, Frank, for care and increase of the Springer collection and library	23,190.43	1,212.15
Strong, Julia D., for benefit of the National Collection of Fine Arts	12,929.83	675.85
Walcott, Charles D. and Mary Vaux, for development of geological and paleontological studies and publishing results of same	618,547.12	32,433.75
Walcott, Mary Vaux, for publications in botany	74,856.02	3,912.71
Younger, Helen Walcott, held in trust	85,733.85	4,676.71
Zerbee, Frances Brinckle, for endowment of aquaria	1,226.64	64.13
Total	2,341,389.23	122,229.74

FREER GALLERY OF ART FUND

Early in 1906, by deed of gift, Charles L. Freer, of Detroit, gave to the Institution his collection of Chinese and other Oriental objects of art, as well as paintings, etchings, and other works of art by Whistler, Thayer, Dewing, and other artists. Later he also gave funds for construction of a building to house the collection, and finally in his will, probated November 6, 1919, he provided stocks and securities to the estimated value of $1,958,591.42, as an endowment fund for the operation of the Gallery. The fund now amounts to $7,915,270.67.

SUMMARY OF ENDOWMENTS

Invested endowment for general purposes	$1,977,818.58
Invested endowment for specific purposes other than Freer endowment	2,341,389.23
Total invested endowment other than Freer	4,319,207.81
Freer invested endowment for specific purposes	7,915,270.67
Total invested endowment for all purposes	12,234,478.48

CLASSIFICATION OF INVESTMENTS

Deposited in the U. S. Treasury at 6 percent per annum, as authorized in the U. S. Revised Statutes, sec. 5591		$1,000,000.00
Investments other than Freer endowment (cost or market value at date acquired):		
Bonds	$1,270,497.53	
Stocks	2,023,334.66	
Real estate and mortgages	5,846.00	
Uninvested capital	19,529.62	
		3,319,207.81
Total investments other than Freer endowment		4,319,207.81
Investments of Freer endowment (cost or market value at date acquired):		
Bonds	$4,829,318.79	
Stocks	3,085,059.87	
Uninvested capital	892.01	
		7,915,270.67
Total investments		12,234,478.48

ASSETS

Cash:		
United States Treasury current account	$1,541,981.31	
In banks and on hand	362,090.88	
		1,904,072.19

ASSETS—Continued

Less uninvested endowment funds	$20,421.63		
		$1,883,650.56	
Travel and other advances		6,497.00	
Cash invested (U. S. Treasury notes)		939,115.70	
			$2,829,263.26
Investments—at book value:			
Endowment funds:			
Freer Gallery of Art:			
Stocks and bonds	7,914,378.66		
Uninvested cash	892.01		
		7,915,270.67	
Investments at book value other than Freer:			
Stocks and bonds	3,206,697.33		
Uninvested cash	19,529.62		
Special deposit in U. S. Treasury at 6 percent interest	1,000,000.00		
Other stocks and bonds	87,134.86		
Real estate and mortgages	5,846.00		
		4,319,207.81	
			12,234,478.48
Total			15,063,741.74

UNEXPENDED FUNDS AND ENDOWMENTS

Unexpended funds:			
Income from Freer Gallery of Art endowment			$583,498.24
Income from other endowments:			
Restricted		$368,279.95	
General		306,682.34	
			674,962.29
Gifts and contributions			1,570,802.73
			2,829,263.26
Endowment funds:			
Freer Gallery of Art		$7,915,270.67	
Other:			
Restricted		2,341,389.23	
General		1,977,818.58	
			12,234,478.48
Total			15,063,741.74

CASH BALANCES, RECEIPTS AND DISBURSEMENTS DURING FISCAL YEAR 1957[1]

Cash balance on hand June 30, 1956		$1,034,355.59
Receipts, other than Freer funds:		
Income from investments	$254,083.84	
Gifts and contributions[2]	2,324,648.60	
Books and publications	55,825.93	
Miscellaneous	61,719.40	
Employees' payroll withholdings and refund of advances (net)	2,264.22	
Proceeds from real estate	326.72	
Proceeds from sale of securities (net):		
Consolidated fund	569,412.38	
Current fund	490,237.50	
Other funds	15,395.69	
Total receipts other than Freer funds		3,773,914.28
Freer fund receipts:		
Gift	$25,000.00	
Income from investments	365,341.06	
Miscellaneous	71.04	
Books and publications	6,526.39	
Proceeds from sale of securities (net)	1,973,005.86	
		2,369,944.35
Total		7,178,214.22
Disbursements other than Freer funds:		
Administration	$127,479.93	
Publications	65,241.44	
Library	1,192.53	
Custodian fees and servicing securities	4,738.96	
Miscellaneous	22,322.61	
Researches and explorations[3]	1,221,855.67	
Purchase of securities (net):		
Consolidated fund	657,496.23	
Current fund	611,346.82	
Other funds	10,467.19	
S. I. Retirement System	2,323.32	
Total disbursements other than Freer funds		2,724,464.70
Disbursements, Freer funds:		
Salaries	$125,637.86	
Purchases for collection	171,733.34	
Custodian fees and servicing securities	11,246.43	
Purchase of securities (net)	2,178,598.22	
Miscellaneous	62,461.48	
Total Freer disbursements		2,549,677.33
Total disbursements		5,274,142.03
Cash balance June 30, 1957		1,904,072.19
Total		7,178,214.22

[1] This statement does not include Government appropriations under administrative charge of the Institution.

[2] Includes receipts for IGY program.

[3] Includes disbursements for IGY program.

The practice of maintaining savings accounts in several of the Washington banks and trust companies has been continued during the past year, and interest on these deposits amounted to $10,704.92.

Deposits are made in banks for convenience in collection of checks, and later such funds are withdrawn and deposited in the United States Treasury. Disbursement of funds is made by check signed by the Secretary of the Institution and drawn on the United States Treasury.

The Institution gratefully acknowledges gifts and grants from the following:

Mr. Claude C. Adams, gift to establish "The Harry Higbee Memorial Fund."

American Philosophical Society, grant for an eastern Ecuador archeological project of Clifford Evans and Betty J. Meggers.

American Philosophical Society and National Science Foundation, grants-in-aid for archeological research in Shanidar Cave, Northern Iraq.

Atomic Energy Commission, additional grant for the study of specific biological indicators of ionizing radiation and the mechanism of the action of such radiation.

Atomic Energy Commission, additional grant for the purpose of conducting a biochemical investigation of photomorphogenesis in green plants.

Atomic Energy Commission, grant for tritium, helium-3, and meteorite research.

Mrs. Laura D. Barney, additional gift for the Alice Pike Barney Memorial Fund.

Bollingen Foundation, Inc., gift for the purpose of publishing color illustrations for a manuscript by Elsie Clews Parsons.

Mr. and Mrs. J. Bruce Bredin, gifts for the Smithsonian-Bredin Expeditions Fund.

Carter Oil Company, grant for a research project on echinoid spines.

Carter Oil Company and Gulf Oil Corporation, grants for the Planktonic Foraminifera Project.

Colortone Press, grant to be used to defray the pre-press production costs of a booklet, "Adventure in Science at the Smithsonian."

Committee of the Weston United Nations Paintings, gift for the purchase, maintenance, and circulation of the six paintings depicting scenes during the construction of the United Nations buildings.

General Electric Company, gift to purchase the original Röntgen X-ray tube.

Geological Society of America, Inc., grant for the purpose of bringing Dr. Muir-Wood to the United States for collaboration for the revision of the manuscript on "The Morphology, Classification, and Life-Habits of the Productoidea."

John Simon Guggenheim Memorial Foundation, gift to assist the publication of "The Customs and Religion of the Ch'iang," by D. C. Graham.

E. P. Henderson, gift for editorial assistance in preparing notes on studies on meteorites.

Frank Morton Jones, gift to be used to further a project looking toward revisional study of lepidopterous family Psychidae.

Kevorkian Foundation, gift to the Freer Gallery of Art.

Edwin A. Link, additional gift for historical research (marine archeology).

The Link Foundation, grant for the purpose of preparing booklets, filmstrips, slides, and other educational materials.

Malcolm MacGregor, additional gift for the Philatelic Fund.

National Geographic Society, grant for the National Geographic Society-Smithsonian Institution Ecuadorian Anthropological Fund.

National Geographic Society, additional grant to complete the excavations and related work at the archeological site in Jackson County, Alabama.

National Science Foundation, additional grant for study of physical changes in the Indian population of Hacienda Vicos.

National Science Foundation, grants for an optical tracking and scientific analysis program for the U. S. Earth Satellite Program.

National Science Foundation, additional grant to make possible the continuation of work of the Canal Zone Biological Area on Barro Colorado Island.

National Science Foundation, additional grant for taxonomic study of the phanerogams of Colombia.

National Science Foundation, additional grant for the support of research entitled "Monograph of Fresh-water Calanoid Copepods."

National Science Foundation, additional grant for research on recent Foraminifera from Ifaluk Atoll.

National Science Foundation, grant for the support of research entitled "Photoregulation of Growth in Plants."

National Science Foundation, additional grant for research on "Taxonomy of the Bamboos."

National Science Foundation, grant for a research project entitled "Earth Albedo Observations."

National Science Foundation, grant for support of a "Third Symposium on Cosmical Gas Dynamics."

National Science Foundation and U. S. Department of Agriculture, for the support of research entitled "Systematic Studies of Cerambycidae (Wood-boring Beetles)."

National Science Foundation, grant for the support of research entitled "Morphology and Paleoecology of Permian Brachiopods."

Office of Naval Research, additional gift to perform psychological research studies.

Office of Naval Research, additional gift to assist work in progress on the preparation of a synoptic catalog of the mosquitoes of the world.

Office of Naval Research, gift to perform aeronautical research studies.

Office of Naval Research, additional gift for research on mammalian hosts and their parasites.

Nelson and Goldman Orchard Co., additional gift for biological studies.

New York Zoological Society, gift for the Penguin Fund.

W. Daniel Quattlebaum, gift to purchase American blown glass for the U. S. National Museum.

United States Information Agency, grant for an exhibition of "Paintings by John Marin."

United States Information Agency, grant for four copies of an exhibition entitled "This is the American Earth."

For support of the Bio-Sciences Information Exchange:

Atomic Energy Commission.
Department of the Air Force.
Department of the Army.
Department of the Navy.
National Science Foundation.
Public Health Service.
Veterans Administration.

Included in the above list of gifts and contributions are reimbursable contracts.

The foregoing report relates only to the private funds of the Institution.

The following appropriations were made by Congress for the Government bureaus under the administrative charge of the Smithsonian Institution for the fiscal year 1957:

Salaries and expenses	$4,425,000.00
National Zoological Park	720,000.00
Museum of History and Technology	33,712,000.00

The appropriation made to the National Gallery of Art (which is a bureau of the Smithsonian Institution) was $1,505,000.00.

In addition, funds were transferred from other Government agencies for expenditure under the direction of the Smithsonian Institution as follows:

Working funds, transferred from the National Park Service, Interior Department, for archeological investigations in river basins throughout the United States	$108,500.00

The Institution also administers a trust fund for partial support of the Canal Zone Biological Area, located on Barro Colorado Island in the Canal Zone.

AUDIT

The report of the audit of the Smithsonian private funds follows:

WASHINGTON, D. C., *September 19, 1957.*

THE BOARD OF REGENTS,
SMITHSONIAN INSTITUTION,
Washington 25, D. C.

We have examined the financial statements and schedules, as listed in the accompanying index, of the Smithsonian Institution relative to its private endowment funds and gifts (but excluding the National Gallery of Art and other departments, bureaus or operations administered by the Institution under Federal appropriations) for the year ended June 30, 1957. 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.

The Institution maintains its accounts on a cash basis and does not accrue income and expenses. Land, buildings, furniture, equipment, works of art, living and other specimens and certain sundry property are not included in the accounts of the Institution.

In our opinion, the accompanying financial statements present fairly the position of the private funds and the cash and investments thereof of the Smithsonian Institution at June 30, 1957 (excluding the National Gallery of Art and other departments, bureaus or operations administered by the Institution under Federal appropriations) and the cash receipts and disbursements for

the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

PEAT, MARWICK, MITCHELL & CO.

Respectfully submitted.

CLARENCE CANNON,
CARYL P. HASKINS,
ROBERT V. FLEMING,
Executive Committee.

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