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Leonard P. Schultz
U. S. National Museum
Washington 25, D. C.

**REPORT OF THE SECRETARY
OF THE SMITHSONIAN
INSTITUTION**

AND

**FINANCIAL REPORT OF
THE EXECUTIVE COMMITTEE OF
THE BOARD OF REGENTS**

1950

**SMITHSONIAN INSTITUTION
WASHINGTON, D. C.**

REPORT OF THE SECRETARY
OF THE SMITHSONIAN
INSTITUTION

AND

FINANCIAL REPORT OF
THE EXECUTIVE COMMITTEE OF
THE BOARD OF REGENTS

FOR THE

YEAR ENDED JUNE 30

1950



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THE SMITHSONIAN INSTITUTION

June 30, 1950

Presiding Officer ex officio.—HARRY S. TRUMAN, President of the United States.
Chancellor.—FRED M. VINSON, Chief Justice of the United States.

Members of the Institution:

HARRY S. TRUMAN, President of the United States.
ALBEN W. BARKLEY, Vice President of the United States.
FRED M. VINSON, Chief Justice of the United States.
DEAN C. ACHESON, Secretary of State.
JOHN W. SNYDER, Secretary of the Treasury.
LOUIS JOHNSON, Secretary of Defense.
J. HOWARD McGRATH, Attorney General.
JESSE M. DONALDSON, Postmaster General.
OSCAR CHAPMAN, Secretary of the Interior.
CHARLES F. BRANNON, Secretary of Agriculture.
CHARLES SAWYER, Secretary of Commerce.
MAURICE TOBIN, Secretary of Labor.

Regents of the Institution:

FRED M. VINSON, Chief Justice of the United States, Chancellor.
ALBEN W. BARKLEY, Vice President of the United States.
WALTER F. GEORGE, Member of the Senate.
CLINTON P. ANDERSON, Member of the Senate.
LEVERETT SALTONSTALL, Member of the Senate.
CLARENCE CANNON, Member of the House of Representatives.
JOHN M. VORYS, Member of the House of Representatives.
E. E. COX, Member of the House of Representatives.
HARVEY N. DAVIS, citizen of New Jersey.
ARTHUR H. COMPTON, citizen of Missouri.
VANNEVAR BUSH, citizen of Washington, D. C.
ROBERT V. FLEMING, citizen of Washington, D. C.
JEROME C. HUNSAKER, citizen of Massachusetts.

Executive Committee.—ROBERT V. FLEMING, *chairman*, VANNEVAR BUSH,
CLARENCE CANNON.

Secretary.—ALEXANDER WETMORE.

Assistant Secretary.—JOHN E. GRAF.

Assistant Secretary.—J. L. KEDDY.

Administrative assistant to the Secretary.—LOUISE M. PEARSON.

Treasurer.—J. D. HOWARD.

Chief, editorial division.—PAUL H. OEHSER.

Librarian.—LEILA F. CLARK.

Administrative accountant.—THOMAS F. CLARK.

Superintendent of buildings and labor.—L. L. OLIVER.

Assistant Superintendent of buildings and labor.—CHARLES C. SINCLAIR.

Personnel officer.—B. T. CARWITHEN.

Chief, division of publications.—L. E. COMMERFORD.

Property, supply, and purchasing officer.—ANTHONY W. WILDING.

Photographer.—F. B. KESTNER.

UNITED STATES NATIONAL MUSEUM

Director.—A. REMINGTON KELLOGG.

Chief, office of correspondence and records.—HELENA M. WEISS.

Editor.—PAUL H. OEHSER, acting.

Associate librarian.—ELISABETH H. GAZIN.

SCIENTIFIC STAFF

DEPARTMENT OF ANTHROPOLOGY:

Frank M. Setzler, head curator; A. J. Andrews, chief preparator; W. W. Taylor, Jr., collaborator in anthropology.

Division of Archeology: Waldo R. Wedel, curator; M. C. Blaker, museum aide; J. Townsend Russell, Jr., honorary assistant curator of Old World archeology.

Division of Ethnology: H. W. Krieger, curator; J. C. Ewers, associate curator; C. M. Watkins, associate curator; R. A. Elder, Jr., assistant curator.

Division of Physical Anthropology: T. Dale Stewart, curator; M. T. Newman, associate curator.

Associate in Anthropology: Neil M. Judd.

DEPARTMENT OF ZOOLOGY:

Waldo L. Schmitt, head curator; W. L. Brown, chief taxidermist; Aime M. Awl, scientific illustrator.

Associates in Zoology: T. S. Palmer, W. B. Marshall, A. G. Böving, C. R. Shoemaker, W. K. Fisher.

Collaborator in Zoology: R. S. Clark.

Collaborator in Biology: D. C. Graham.

Division of Mammals: D. H. Johnson, associate curator; H. W. Setzer, associate curator; N. M. Miller, museum aide; A. Brazier Howell, collaborator; Gerrit S. Miller, Jr., associate.

Division of Birds: Herbert Friedmann, curator; H. G. Deignan, associate curator; Alexander Wetmore, custodian of alcoholic and skeleton collections; Arthur C. Bent, collaborator.

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

Division of Fishes: Leonard P. Schultz, curator; E. A. Lachner, associate curator; W. T. Leapley, museum aide.

Division of Insects: Edward A. Chapin, curator; R. E. Blackwelder, associate curator; W. D. Field, associate curator; O. L. Cartwright, associate curator; Grace E. Glance, associate curator; W. L. Jellison, collaborator.

Section of Hymenoptera: S. A. Rohwer, custodian; W. M. Mann, assistant custodian; Robert A. Cushman, assistant custodian.

Section of Diptera: Charles T. Greene, assistant custodian.

Section of Coleoptera: L. L. Buchanan, specialist for Casey collection.

Division of Marine Invertebrates: F. A. Chace, Jr., curator; P. L. Illg, associate curator; Frederick M. Bayer, assistant curator; L. W. Peterson, J. T. Willett, museum aides; Mrs. Harriet Richardson Searle, collaborator; Max M. Ellis, collaborator; J. Percy Moore, collaborator; Mrs. M. S. Wilson, collaborator in copepod Crustacea.

Division of Mollusks: Harold A. Rehder, curator; Joseph P. E. Morrison, associate curator; R. Tucker Abbott, associate curator; W. J. Byas, museum aide; Paul Bartsch, associate.

Section of Helminthological Collections: Benjamin Schwartz, collaborator.

Division of Echinoderms: Austin H. Clark, curator.

DEPARTMENT OF BOTANY (NATIONAL HERBARIUM):

E. P. Killip, head curator.

Division of Phanerogams: A. C. Smith, curator; E. C. Leonard, associate curator; E. H. Walker, associate curator; Lyman B. Smith, associate curator; Velva E. Rudd, assistant curator.

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

Division of Grasses: Jason R. Swallen, curator; Agnes Chase, research associate; F. A. McClure, research associate.

Division of Cryptogams: E. P. Killip, acting curator; Paul S. Conger, associate curator; G. A. Llano, associate curator; John A. Stevenson, custodian of C. G. Lloyd mycological collections; W. T. Swingle, custodian of Higher Algae; David Fairchild, custodian of Lower Fungi.

DEPARTMENT OF GEOLOGY:

W. F. Foshag, head curator; J. H. Benn, museum aide; Jessie G. Beach, aid.

Division of Mineralogy and Petrology: W. F. Foshag, acting curator; E. P. Henderson, associate curator; G. S. Switzer, associate curator; F. E. Holden, museum technician; Frank L. Hess, custodian of rare metals and rare earths.

Division of Invertebrate Paleontology and Paleobotany: Gustav A. Cooper, curator; A. R. Loeblich, Jr., associate curator; David Nicol, associate curator; W. T. Allen, museum aide; J. Brookes Knight, research associate in paleontology.

Section of Invertebrate Paleontology: T. W. Stanton, custodian of Mesozoic collection; J. B. Reeside, Jr., custodian of Mesozoic collection.

Division of Vertebrate Paleontology: C. L. Gazin, curator; D. H. Dunkle, associate curator; F. L. Pearce, exhibits preparator; W. D. Crockett, scientific illustrator; A. C. Murray, exhibits preparator.

Associates in Mineralogy: W. T. Schaller, S. H. Perry, J. P. Marble.

Associates in Paleontology: T. W. Vaughan, R. S. Bassler.

DEPARTMENT OF ENGINEERING AND INDUSTRIES:

Frank A. Taylor, head curator.

Division of Engineering: Frank A. Taylor, acting curator.

Section of Civil and Mechanical Engineering: Frank A. Taylor, in charge.

Section of Marine Transportation: Frank A. Taylor, in charge.

Section of Electricity: K. M. Perry, associate curator.

Section of Physical Sciences and Measurement: Frank A. Taylor, in charge.

Section of Land Transportation: S. H. Oliver, associate curator.

Division of Crafts and Industries: W. N. Watkins, curator; F. C. Reed, associate curator; E. A. Avery, museum aide; F. L. Lewton, research associate.

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

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

Section of Manufactures: F. C. Reed, in charge.

Section of Agricultural Industries: F. C. Reed, in charge.

Division of Medicine and Public Health: G. S. Thomas, associate curator.

Division of Graphic Arts: Jacob Kainen, curator; E. J. Fite, museum aide.

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

DEPARTMENT OF HISTORY:

Charles Carey, acting head curator.

Divisions of Military History and Naval History: M. L. Peterson, associate curator; J. R. Sirlouis, assistant curator.

Division of Civil History: M. W. Brown, assistant curator.

Division of Numismatics: S. M. Mosher, associate curator.

Division of Philately: C. L. Manning, assistant curator.

NATIONAL GALLERY OF ART

Trustees:

FRED M. VINSON, Chief Justice of the United States, *Chairman*.

DEAN C. ACHESON, Secretary of State.

JOHN W. SNYDER, Secretary of the Treasury.

ALEXANDER WETMORE, Secretary of the Smithsonian Institution.

SAMUEL H. KRESS.

FERDINAND LAMMOT BELIN.

DUNCAN PHILLIPS.

CHESTER DALE.

PAUL MELLON.

President.—SAMUEL H. KRESS.

Vice President.—FERDINAND LAMMOT BELIN.

Secretary-Treasurer.—HUNTINGTON CAIRNS.

Director.—DAVID E. FINLEY.

Administrator.—HARRY A. MCBRIDE.

General Counsel.—HUNTINGTON CAIRNS.

Chief Curator.—JOHN WALKER.

Assistant Director.—MACGILL JAMES.

NATIONAL COLLECTION OF FINE ARTS

Director.—THOMAS M. BEGGS.

Curator of ceramics.—P. V. GARDNER.

Exhibits preparator.—G. J. MARTIN.

Assistant librarian.—ANNA M. LINK.

FREER GALLERY OF ART

Director.—A. G. WENLEY.

Assistant Director.—JOHN A. POPE.

Associate in Near Eastern art.—RICHARD ETTINGHAUSEN.

Research associate.—GRACE DUNHAM GUEST.

BUREAU OF AMERICAN ETHNOLOGY

Director.—MATTHEW W. STIRLING.

Associate Director.—FRANK H. H. ROBERTS, Jr.

Senior ethnologists.—H. B. COLLINS, Jr., JOHN P. HARRINGTON, W. N. FENTON.

Senior anthropologist.—G. R. WILLEY.

Collaborators.—FRANCES DENSMORE, JOHN R. SWANTON, A. J. WARING, Jr.

Editor.—M. HELEN PALMER.

Assistant librarian.—MIRIAM B. KETCHUM.

Scientific illustrator.—E. G. SCHUMACHER.

Archives assistant.—MAE W. TUCKER.

INSTITUTE OF SOCIAL ANTHROPOLOGY.—G. M. FOSTER, JR., *Director*;¹ GORDON R. WILLEY, *Acting Director*.

RIVER BASIN SURVEYS.—FRANK H. H. ROBERTS, JR., *Director*.

INTERNATIONAL EXCHANGE SERVICE

Chief.—D. G. WILLIAMS.

NATIONAL ZOOLOGICAL PARK

Director.—WILLIAM M. MANN.

Assistant Director.—ERNEST P. WALKER.

Head Keeper.—FRANK O. LOWE.

ASTROPHYSICAL OBSERVATORY

Director.—LOYAL B. ALDRICH.

Assistant librarian.—MARJORIE R. KUNZE.

DIVISION OF ASTROPHYSICAL RESEARCH:

Chief.—WILLIAM H. HOOVER.

Instrument makers.—ANDREW KRAMER, D. G. TALBERT, J. H. HARRISON.

Research associate.—CHARLES G. ABBOT.

DIVISION OF RADIATION AND ORGANISMS:

Chief.—R. B. WITHROW.

Plant physiologist.—LEONARD PRICE.

Biological aid (botany).—V. B. ELSTAD.

NATIONAL AIR MUSEUM

Advisory Board:

ALEXANDER WETMORE, *Chairman*.

LT. GEN. K. B. WOLFE, *U. S. Air Force*.

REAR ADM. A. M. PRIDE, *U. S. Navy*.

GROVER LOENING.

WILLIAM B. STOUT.

Assistant to the Secretary for the National Air Museum.—CARL W. MITMAN.

Curator.—P. E. GARBER.

Associate curators.—S. L. BEERS, R. C. STROBELL, W. M. MALE.

Exhibits preparator.—S. L. POTTER.

CANAL ZONE BIOLOGICAL AREA

Resident Manager.—JAMES ZETEK.

¹ In absentia as of June 30, 1950.



REPORT OF THE SECRETARY OF THE SMITHSONIAN INSTITUTION

ALEXANDER WETMORE

FOR THE YEAR ENDED JUNE 30, 1950

To the Board of Regents of the Smithsonian Institution:

GENTLEMEN: I have the honor to submit herewith my report showing the activities and condition of the Smithsonian Institution and its branches during the fiscal year ended June 30, 1950.

GENERAL STATEMENT

The activities of the Smithsonian Institution, now as when it was established more than a century ago, are geared to the broad purposes stated by the founder, James Smithson. He wanted, he said in his famous will, "to found at Washington an institution for the increase and diffusion of knowledge among men." These words have had a far-reaching effect on American science, for they not only enabled the Institution to operate without excessive restrictions and with freedom of initiative and outlook, but also they became the pattern for other foundations established during the course of the nineteenth century.

In this day of increasing pressures on all sides and definite trends in certain countries toward the regimentation of science, the necessity for this freedom of inquiry under which the Smithsonian has existed cannot be too strongly emphasized.

The Institution has never sought to expand its programs inordinately, or to add functions unjustified by normal demands or necessities. It has been conservative, yet pioneering, and it would not be difficult to cite instances where small and perhaps unpopular projects, modestly aided by Smithsonian encouragement or financial grants, developed into enterprises of considerable scope and importance. When the Institution began its operations in 1846, it carried on its research programs largely by subsidizing the work of scientists not on its own staff and by publishing the results of their work. As these pioneer researches expanded and became somewhat stabilized, bureaus gradually grew up around the Institution, each with its own staff specializing in the work of that particular field. The value of the various activities gradually became known to the Nation, and eventually one by one they were recognized as public necessities by

the Congress. Most of them are now supported largely by Government funds although remaining under Smithsonian direction. At present, nearly all the research and exploration of the Institution is done through these bureaus, notably the United States National Museum, the Bureau of American Ethnology, and the Astrophysical Observatory.

Unfortunately, the governmental support of the branches of the Institution, now ten in number, has not kept pace with even the normal exigencies of modern times. The greatest deficiency at the present time is in the physical plant and facilities. As I have pointed out in previous reports, the problem of housing the constantly increasing collections of the National Museum is so critical that important material must be refused because there is no space to store it, to say nothing of exhibiting it. The Natural History Building at Constitution Avenue and Tenth Street and the 80-year-old Arts and Industries Building to the south are so crowded that the task of accommodating new accessions becomes a juggling game. Alleviation of these conditions awaits the time when Congress appropriates funds for the new buildings we have under consideration.

Throughout the period of the two world wars and the intervening "depression," many of our museum exhibits, though adequate enough in their day, became badly out of date and in need of drastic renovation. During the past 2 or 3 years it has been possible to begin the job of modernizing these exhibits, and the work will go forward as rapidly as funds for the purpose become available. This is a large and time-consuming undertaking, but one that is vital to the Institution's educational program. During the past year more than 2,600,000 persons visited the Smithsonian group of buildings. It is our obligation, so far as our funds and facilities permit, to extend to this large cross section of the public (many of whom are students) all possible courtesies and assistance and to make their visits stimulating and rewarding.

For the most part the year saw few major changes in the Institution's staff. In many departments shortages of personnel continue to exist, a situation that can be remedied only as rapidly as new positions are provided for by budgetary and congressional authorization. On May 31, 1950, Webster Prentiss True retired as chief of the editorial division after nearly 36 years with the Institution and was succeeded in that position on June 1 by Paul H. Oehser, assistant chief of the division and editor of the National Museum. Dr. Leland O. Howard, veteran entomologist and honorary curator of insects of the National Museum, died on May 1, 1950; Dr. Henri Pittier, associate in botany, on January 27, 1950.

THE ESTABLISHMENT

The Smithsonian Institution was created by act of Congress in 1846, according to 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

No changes occurred in the personnel of the Board of Regents during the year. There still exists one vacancy in the class of citizen regents.

The roll of regents at the close of the fiscal year, June 30, 1950, was as follows: Chief Justice Fred M. Vinson, Chancellor; Vice President Alben W. Barkley; members from the Senate: Walter F. George, Clinton P. Anderson, Leverett Saltonstall; members from the House of Representatives: Clarence Cannon, John M. Vorys, E. E. Cox; citizen members: Harvey N. Davis, Arthur H. Compton, Vannevar Bush, Robert V. Fleming, and Jerome C. Hunsaker.

Proceedings.—The annual meeting of the Board of Regents was held on January 13, 1950. Present: Chief Justice Fred M. Vinson, Chancellor; Representative Clarence Cannon, Representative John M. Vorys; Senator Clinton P. Anderson; Dr. Robert V. Fleming, Dr. Vannevar Bush, Dr. Jerome C. Hunsaker, Secretary Alexander Wetmore, and Assistant Secretary John E. Graf.

The Secretary presented his annual report covering the activities of the Institution and its bureaus, including the financial report of the Executive Committee, for the fiscal year ended June 30, 1949, which was accepted by the Board. The usual resolution authorized the expenditure by the Secretary of the income of the Institution for the fiscal year ending June 30, 1951.

The Secretary reported that in connection with surveys for construction of Government dams throughout the country there has been much interest in the salvage of scientific materials that would be covered by impounded waters. In connection with this, Congressman Curtis of Nebraska introduced in the House a bill, H. R. 2290, to provide for cooperation by the Smithsonian Institution with State, educational, and scientific organizations for fossil studies in areas to be flooded by the construction of Government dams. This bill,

including an authorization for an appropriation of \$65,000, passed the House and the Senate and was approved by the President on August 15, 1949.

The Board was advised that Congress had recently requested the Bureau of the Budget to contact all Federal agencies that were carrying on activities with the aid of Federal appropriations without having clear-cut basic authority therefor to advise them to submit drafts of bills proposing the requisite authorizations. In accordance with this, a draft of legislation was prepared to cover the activities of the Bureau of American Ethnology, the Astrophysical Observatory, and certain miscellaneous housekeeping functions that had been carried on for many years but had not been clearly authorized by basic legislation. The Bureau of American Ethnology was established in 1879 "for the purpose of continuing ethnological researches among the North American Indians under the direction of the Smithsonian Institution," with annual appropriation for this purpose, but without formal authorization other than that of the appropriation acts. The Astrophysical Observatory was founded, in similar manner, in 1890, for the measurement and analysis of solar radiation, and since 1891 has received annual appropriations. Further, Congress has appropriated funds since 1886 for the maintenance of Smithsonian buildings and grounds, and since 1896 for the preparation of manuscripts, drawings, and illustrations for publication. The Honorable Clarence Cannon, regent, introduced H. R. 3417 on March 10, 1949, containing the authorizations needed. This duly passed the House of Representatives, and in the Senate the matter received the attention of Senator Clinton P. Anderson, regent, and the friendly consideration of Senator Carl Hayden, chairman of the Committee on Rules and Administration, to the end that the act passed the Senate and on August 22, 1949, was signed by the President. This places these activities, some of which have been in operation for over 70 years, on firm legal basis.

Developments concerning the Gellatly art collection since the previous meeting of the Board were reported as follows by the Secretary: At the annual meeting last year, it was reported that the action of Mrs. Charlayne Whiteley Gellatly against the Secretary, in an attempt to recover the Gellatly collection from the Secretary in his status as a private individual though acting as custodian under the Smithsonian Institution, had been carried to the United States Court of Appeals for the District of Columbia Circuit, following decision in favor of the Secretary in the District Court of the United States for the District of Columbia. Under date of September 28, 1949, the United States Court of Appeals issued an order stating that the court, having duly considered a petition for a rehearing, had denied the

rehearing. The Institution was represented in this action by the Department of Justice through Marvin C. Taylor, special attorney.

On the evening of January 12, 1950, an informal dinner meeting of the Board was held in the Main Hall of the Smithsonian Institution, with the Chancellor, Chief Justice Fred M. Vinson, presiding. This occasion gave opportunity for members of the Smithsonian staff to make a fuller presentation of the scientific work of the Institution than was practicable at the regular meeting the next day.

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 156.

APPROPRIATIONS

Funds appropriated to the Institution for the fiscal year ended June 30, 1950, totaled \$2,346,000, allotted as follows:

Management.....	\$52, 574
United States National Museum.....	715, 484
Bureau of American Ethnology.....	61, 897
Astrophysical Observatory.....	109, 666
National Collection of Fine Arts.....	38, 857
National Air Museum.....	200, 864
Canal Zone Biological Area.....	5, 000
International Exchange Service.....	69, 180
Maintenance and operation of buildings.....	786, 714
General services.....	304, 655
Estimated savings.....	1, 109
	<hr/>
Total.....	2, 346, 000

In addition \$1,114,700 was appropriated to the National Gallery of Art, a bureau of the Institution but administered by a separate board of trustees; and \$544,700 was provided in the District of Columbia appropriation act for the operation of the National Zoological Park.

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

From the State Department, from the appropriation Cooperation with the American Republics, 1950, a total of \$82,510 for the operation of the Institute of Social Anthropology, including the issuance of publications resulting from its work.

From the National Park Service, Department of the Interior, \$215,886 for archeological projects in connection with River Basin Surveys.

VISITORS

Visitors to the Smithsonian buildings during the year totaled 2,600,758, only slightly less than last year's all-time record of attendance. March 1950 was the month of largest attendance, with 371,811 visitors; August 1949 was the next largest, with 349,318. A summary of attendance records for the five buildings is given in table 1:

TABLE 1.—Visitors to the Smithsonian buildings during the year ended June 30, 1950

Year and month	Smithsonian Building	Arts and Industries Building	Natural History Building	Aircraft Building	Freer Gallery of Art	Total
<i>1949</i>						
July.....	65,007	149,084	75,627	22,763	7,954	320,435
August.....	72,446	158,653	86,490	23,179	8,550	349,318
September.....	43,497	97,510	56,072	13,540	7,932	218,551
October.....	31,946	73,702	55,248	11,979	4,835	177,710
November.....	24,818	51,729	38,732	9,933	3,261	128,473
December.....	16,512	32,125	27,628	6,559	1,951	84,775
<i>1950</i>						
January.....	19,929	40,461	35,166	8,125	2,772	106,453
February.....	19,800	39,770	34,968	8,214	2,687	105,439
March.....	22,660	48,608	41,311	8,698	2,976	124,253
April.....	66,915	172,514	105,430	19,308	7,644	371,811
May.....	54,660	143,966	91,717	17,603	5,653	313,599
June.....	57,729	141,897	76,559	17,170	6,586	299,941
Total.....	495,919	1,150,019	724,948	167,071	62,801	2,600,758

SEVENTEENTH ANNUAL JAMES ARTHUR LECTURE ON THE SUN

In 1931 the Institution received a bequest from James Arthur, of New York, 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 seventeenth Arthur lecture was delivered in the auditorium of the Natural History Building on April 6, 1950, by Dr. Bertil Lindblad, Director of the Stockholm Observatory, Stockholm, Sweden. The subject of Dr. Lindblad's address was "The Luminous Surface and Atmosphere of the Sun." His lecture will be published in full in the General Appendix of the Annual Report of the Board of Regents of the Smithsonian Institution for 1950.

SUMMARY OF THE YEAR'S ACTIVITIES OF THE BRANCHES OF THE INSTITUTION

National Museum.—The national collections were increased during the year by approximately 793,300 specimens, a large increase over the previous year, bringing the total number of catalog entries in all six departments to 32,375,597. Noteworthy accessions for the year included: In anthropology, nearly a thousand pottery, stone, and other objects from the Neolithic period of northern Honshu, Japan, and a further lot of ethnological specimens obtained in northern Australia by the 1948 expedition to Arnhem Land sponsored by the

Commonwealth of Australia, the National Geographic Society, and the Smithsonian Institution; in zoology, about 10,000 skins and over 400 skeletons of North American birds from one donor, 4,500 fishes from the Gulf of Mexico, a collection of 15,000 British Microlepidoptera, a bequest of 10,500 beetles, and sizable lots of marine invertebrates from Arctic America; in botany, large collections of plants from Perú, New Zealand, Colombia, and Africa; in geology, 24 kinds of minerals hitherto unrepresented in the national collections, several new meteorites, many thousand invertebrate fossils (including the large and important Cushman and Vaughan collections of Foraminifera and the Renfro fossil-invertebrate collection of 250,000 specimens), and skeletal remains of the giant ground sloth *Megatherium* from western Panamá; in engineering and industries, exhibition material illustrating the operation of a textile-finishing mill and 51 examples of the work of the pioneering photographer Victor Prevest; and in history, a silver-filigree basket reputed to have belonged to Napoleon, two outstanding models of historic ships, and several interesting philatelic and numismatic acquisitions.

Field work by members of the Museum staff or by collaborators was conducted in Colombia, Guatemala, Panamá, Alaska and the Arctic, Africa, the West Indies, and many sections of the United States. The Museum issued 29 publications.

National Gallery of Art.—Visitors to the Gallery during the year reached a total of 2,187,293, a daily average attendance of 6,025 persons. This represented a daily increase of 1,800 over the previous year's record. Accessions as gifts, loans, or deposits numbered 2,354. Ten special exhibitions were held at the Gallery, including a 2-month showing of the celebrated "Art Treasures from the Vienna Collections," lent by the Austrian Government, and "Makers of History in Washington, 1800-1950," an exhibit that opened on June 29, 1950, celebrating the sesquicentennial of the establishment of the Federal Government in Washington. Special exhibitions of prints from the Rosenwald collection were circulated to seven galleries and museums in this country and Canada, and exhibitions from the "Index of American Design" were shown at 34 institutions in 17 States, the District of Columbia, and London, England. Over 20,000 photographs were acquired from European museums and are being cataloged and filed. The staff continued to answer hundreds of inquiries and to give opinion on works of art brought to the Gallery and advice on research problems in art. The volume "Masterpieces of Sculpture from the National Gallery of Art," by Charles Seymour, Jr., was placed on sale during the year, and a second volume of "Masterpieces of Painting," by Huntington Cairns and John Walker, was in process. More than 28,000 persons attended the special tours of the Gallery,

26,000 the "Picture of the Week" talks, and 17,000 the 13 Sunday-afternoon lectures in the auditorium. Forty-five Sunday-evening concerts were given in the East Garden Court. The work of construction of new galleries and offices for expanding activities continued, and 12 new galleries were opened, 8 just prior to and 4 just after the end of the fiscal year.

National Collection of Fine Arts.—The Smithsonian Art Commission met on December 6, 1949, and accepted two paintings for the National Collection. One miniature was acquired through the Catherine Walden Myer fund. Thirteen special art exhibitions were held during the year, especially noteworthy being a 4½-month showing of paintings by Abbott Handerson Thayer (1849–1921) in commemoration of the centennial of this artist's birth and featuring his studies on camouflage and on protective coloration in the Animal Kingdom; and an exhibit of paintings of ancient Egyptian monuments by Joseph Lindon Smith. Members of the staff lectured on art topics to several organizations and as usual furnished information to several hundred visitors and identified many art works submitted.

Freer Gallery of Art.—Accessions to the Freer collections included Egyptian brasswork and crystal; Chinese bronzes, jade, lacquer, and pottery; Persian painting, pottery, and wood carving; Indian painting and sculpture; Japanese sculpture; and Armenian manuscript. The work of the professional staff was devoted to the study of new accessions and objects submitted for purchase and to general research on Oriental and Near East materials. Reports were made on 2,236 objects. The renovation of Whistler's Peacock Room, mentioned in last year's report, was well along toward completion by the end of the year. Visitors to the Gallery totaled 62,801, and 1,626 came to the Gallery offices for special purposes. During the year the Gallery entered into an agreement with the University of Michigan in furtherance of the principles concerning Oriental art contemplated by the will of the late Charles L. Freer.

Bureau of American Ethnology.—The Director of the Bureau, Dr. M. W. Stirling, continued his studies of archeological collections he had made in Panamá. As for the past 4 years, the Associate Director, Dr. F. H. H. Roberts, Jr., directed the operations of the River Basin Surveys, in cooperation with the National Park Service, the Bureau of Reclamation, and the Army Corps of Engineers, and made several field inspection trips. Since the beginning of the program in July 1946, 2,260 archeological sites have been located and recorded, and 484 of these have been recommended for testing or excavation. This year's survey work covered 26 reservoirs located in 8 States and in 5 river basins. At the end of the year excavations were completed or under way in 13 reservoir areas in 9 States. Dr. John P. Harring-

ton continued his study of the grammar of the Abnaki language at Old Town, Maine, and also spent 2 months in Yucatán studying the Maya language. In cooperation with the Canadian Government, Dr. Henry B. Collins, Jr., conducted archeological investigations on Cornwallis Island in the Canadian Arctic, which yielded a large collection of artifacts that throw considerable light on the prehistoric inhabitants of the region. Dr. W. N. Fenton made further studies of the Iroquois, especially at the Tonawanda and Allegany Seneca reservations in western New York, and surveyed considerable pertinent archival material in various libraries.

The Institute of Social Anthropology, an autonomous unit of the Bureau financed by State Department funds, conducted its anthropological teaching and research programs in the following Latin American countries: Brazil, Colombia, México, and Perú. Dr. George M. Foster, Director of the Institute, conducted private investigations in Spain during most of the year. Dr. Gordon R. Willey, senior anthropologist of the Bureau, served as acting director during his absence.

The Bureau issued its annual report, volume 5 of the "Handbook of South American Indians," and one publication of the Institute of Social Anthropology. Ten publications were in press at the close of the year.

International Exchange Service.—The Smithsonian International Exchange Service is the official United States agency for the interchange of governmental, literary, and scientific publications between this country and the other nations of the world. During the past year the Exchange Service handled 1,009,675 packages of such publications, weighing 832,087 pounds, a considerable increase over the previous year. Consignments are now made to all countries except Rumania and China. The number of sets of United States official publications sent abroad in exchange for similar publications of other countries is now 99 (59 full and 40 partial sets). Eighty-three copies of the Federal Register and 87 copies of the Congressional Record are also sent abroad through the Exchange Service.

National Zoological Park.—The zoo collection was enhanced during the year by the addition of a number of animals never before exhibited here. At the end of the fiscal year there were 2,821 specimens in the collection, a decrease of 126 from the previous year. Among the more spectacular accessions were a pair of baby elephants presented by the Government of India, through Prime Minister Nehru and the Indian Embassy in Washington; 3 grizzly bears removed from the Yellowstone National Park and presented by the National Park Service; 2 rare pencil-tailed tree mice from Malaya; and an American black-bear cub, "Smoky," rescued by the Forest Service from a forest fire

in New Mexico. In all, 123 creatures were born or hatched at the Zoo—60 mammals, 17 birds, and 46 reptiles. Both pairs of the Zoo's hybrid bears (female Alaska brown \times male polar) produced cubs. The number of visitors to the Zoo reached the all-time record of 3,437,669, which was 91,619 more than last year. Groups from schools numbered 1,973, aggregating 102,553 individuals, and came from 31 States, some as far away as Maine, Florida, Washington, California, and New Mexico.

Astrophysical Observatory.—Late in the year the Director, L. B. Aldrich, made an inspection trip to the two solar-radiation field stations now operated by the Astrophysical Observatory, one at Table Mountain, Calif., and the other at Montezuma, Chile, and was able to make valuable intercomparisons of methods and results of the research. A significant increase of one-fourth of 1 percent in the radiation emitted by the sun in the two decades from 1925 to 1944 has been calculated from the solar-constant determinations at the Chilean station. The Observatory's work at the temporary observing station at Miami, Fla., for the office of the Quartermaster General, in connection with studies of fabric resistance to solar radiation, were terminated there, and the special equipment was moved to the Table Mountain, Calif., station. Three silver-disk pyrheliometers were constructed under the supervision of W. H. Hoover and furnished at cost to institutions in New Zealand, Venezuela, and Rumania, and two modified Ångstrom pyrheliometers and one special water-vapor spectroscope were furnished to a meteorological institute in Belgium. The Division of Radiation and Organisms concluded its reorganization and reconstruction of the facilities of its laboratories, which are now equipped with four constant-temperature rooms and with new types of modern instruments and are in first-class condition for photochemical research on plants. Several new lines of research are being inaugurated. The sixth edition of the Smithsonian Meteorological Tables, compiled by Robert J. List, of the United States Weather Bureau, was in press at the close of the year; and the manuscript of the ninth edition of the Physical Tables was nearly completed under the direction of Dr. William E. Forsythe, physicist, of Cleveland, Ohio.

National Air Museum.—The report to Congress on the National Air Museum, required by law, was submitted on March 17, 1950, making recommendations for the acquisition of suitable lands and buildings for the museum. The Advisory Board met on May 24 and gave considerable attention to this report and to the problems involved in advancing the Air Museum's site-procurement and building programs. Several outstanding accessions to the collections were received, including the B-29 superfort *Enola Gay*, the first aircraft to

drop an atomic bomb in warfare; the Stinson SR-10F airplane used by All American Aviation in airmail pick-up service; the *City of Washington*, the Piper Super Cruiser flown around the world in 1947 by Clifford Evans, Jr.; a collection of memorabilia relating to Amelia Earhart; the original Whittle W-1-X turbojet engine; a bust of Wilbur Wright by Oskar J. W. Hansen; and a large collection of aeronautical memorabilia assembled by Mrs. ("Mother") C. A. Tusch, of Berkeley, Calif. The 34 new accessions totaled 465 objects from 31 different sources. Much of the material is being kept at the Museum's storage facility maintained at Park Ridge, Ill., until such time as the projected National Air Museum building is provided.

Canal Zone Biological Area.—Twenty-one scientists, representing a variety of organizations and localities, visited Barro Colorado Island during the year and worked at the laboratory on an equal variety of research projects, and the contributions have added materially to our knowledge of tropical life. High cost of transportation deters many from visiting the island. Since the laboratory was started in 1923, about 660 separate papers have appeared in print dealing with researches made on the area. A recent checklist shows 173 species of vertebrate animals (exclusive of birds) now inhabiting the island. Improvements in facilities completed during the year included the construction of an 11,720-gallon concrete water tank, which has improved the water-supply situation at the station as well as fire protection. Some new building construction is under way. One of the most urgent needs is a dependable electric-power supply. The resident manager continued his long-term termite-resistance tests and studies of host relationships of the fruit-fly population.

PUBLICATIONS

In carrying out the second of the two main functions of the Smithsonian Institution, the diffusion of knowledge, as prescribed by its founder, James Smithson, the Institution issues eight regular series of publications and six others that appear less frequently. All these series, embodying the results of researches of the Smithsonian staff and collaborators, are distributed free to more than a thousand libraries, both here and abroad, as well as to a large list of educational and scientific organizations. The findings of Smithsonian scientists, chiefly in the fields of anthropology, biology, geology, and astrophysics, are therefore made readily available to all through this wide free distribution.

In all, 72 publications appeared under the Smithsonian imprint during the year. Outstanding among these were T. E. Snyder's "Catalog of the Termites of the World," Gordon R. Willey's "Archeology of the Florida Gulf Coast," the eighteenth part of A. C. Bent's

"Life Histories of North American Birds," volume 5 of the "Handbook of South American Indians," Allan R. Holmberg's "Nomads of the Long Bow: The Siriono of Eastern Bolivia," S. H. Oliver's "Catalog of the Automobile and Motorcycle Collection of the Division of Engineering, United States National Museum," and Grace Dunham Guest's "Shiraz Painting in the Sixteenth Century."

The total number of copies of publications in all series distributed during the year was 150,612. A complete list of the year's publications will be found in the report of the chief of the editorial division, appendix 12.

LIBRARY

The Smithsonian library received 53,035 publications during the year, 7,392 of these being gifts from many different donors. Outstanding among the gifts was the fine collection of about 4,000 books and pamphlets on Foraminifera assembled by the late Joseph A. Cushman and bequeathed by him to the Institution. Neil M. Judd donated his personal collection of about 500 books and papers on archeological subjects.

Currently entered were 16,961 periodicals, most of them received in exchange for Smithsonian publications from research institutions and educational organizations throughout the world. The library arranged 344 new exchanges during the year, cataloged 6,822 volumes and pamphlets, added 30,006 cards to catalogs and shelflists, sent 18,719 publications to the Library of Congress, prepared 1,511 volumes for binding, and repaired 1,023 volumes in the Museum.

At the close of the year, the library's holdings totaled 927,037 volumes, more than half of which are housed in the Library of Congress as the Smithsonian Deposit.

Respectfully submitted.

ALEXANDER WETMORE, *Secretary.*

APPENDIX 1

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, 1950:

COLLECTIONS

Slightly more than 793,300 specimens (approximately 400,000 more than last year) were incorporated into the national collections during the year and were distributed among the six departments as follows: Anthropology, 4,982; zoology, 186,855; botany, 61,983; geology, 530,758; engineering and industries, 2,047; and history, 6,701. Most of the accessions were acquired as gifts from individuals or as transfers from Government departments and agencies. The complete report on the Museum, published as a separate document, includes a detailed list of the year's acquisitions, of which the more important are summarized below. Catalog entries in all departments now total 32,375,597.

Anthropology.—President Harry S. Truman deposited on loan the sacred Scrolls of the Law, hand-lettered in Hebrew on parchment, and a copper Ark finely decorated with biblical inscriptions in silver by skilled craftsmen of the Bezalel School of Arts and Crafts of Jerusalem. These were presented by Chaim Weizmann, first President of Israel, to the President of the United States. Two camel saddles, bridles, and elaborately woven and decorated saddlebags presented by His Majesty, King Ibn Sa'ud of Saudi Arabia, as tokens of friendship to Maj. Gen. C. V. Haynes and Rear Adm. John P. Whitney, were donated to the Museum by the recipients.

Woven fabrics and costumes acquired by the late Gen. John J. Pershing from the Moro, Mandaya, and Bagobo during his tours of duty in the Philippine Islands between 1899 and 1913, and from Peruvian and Bolivian Indians during his visit to South America in 1924-25, were presented by his son, Francis Warren Pershing. Other noteworthy additions were 464 ethnological specimens obtained in northern Australia by Frank M. Setzler, deputy leader of the Commonwealth of Australia-National Geographic Society-Smithsonian Institution Expedition to Arnhem Land; an outfit utilized by the Piaroa Indians of the Río Paria area for snuffing *yopo* (*Piptadenia peregrina*),

presented by Señor José M. Cruxent, Director of the Museo de Ciencias Naturales, Caracas, Venezuela; materials representing the work of Cree Indians living near Hudson Bay and on the plains of Saskatchewan, donated by Copley Amory; 4 carved and painted wooden ancestral figurines from Ngulu Atoll and the island of Woleai in the western Carolines, the gift of N. J. Cummings; and the bequest of Miss Mary W. Maxwell of 235 examples of Oriental and European furniture, textiles, ceramics, and metalwork.

Additions to the archeological collections comprised, among others, a collection of 991 pottery, stone, and other objects from the Neolithic period of northern Honshu, Japan, presented by Maj. Howard A. MacCord, United States Army; 16 gold fishhooks fashioned by the Indians of Columbia, from F. M. Estes; a series of sherds from shell heaps of Panamá, believed to represent the earliest ceramic horizon recognized at present in that region, and excavated by Drs. M. W. Stirling and Gordon R. Willey during the Smithsonian Institution-National Geographic Society Expedition of 1948; and a Basketmaker III pitcher from La Plata County, Colo., donated by E. H. Morris.

Forty-eight more or less complete skeletons from a protohistoric Indian site near Lewes, Del., were presented to the division of physical anthropology by the Sussex Archeological Association.

Zoology.—Zoological specimens from North America, South America, Europe, and Asia, as well as from oceanic areas, were incorporated into the national collections. About 300 monkeys and other arboreal mammals collected by Dr. H. C. Clark and associates in Panamá in the course of yellow-fever investigations carried on by the Gorgas Memorial Laboratory were donated to the division of mammals. Other accessions of importance were 98 mammals from Kuala Lumpur, Selangor, obtained during scrub-typhus investigations by the United States Army Medical Research Unit; 197 mammals from the Brooks Range, northern Alaska, collected by Dr. Robert Rausch, United States Public Health Service; 32 Bolivian mammals received from the Pan American Sanitary Bureau; 295 Costa Rican mammals collected in 1949 by Dr. Henry W. Setzer; 100 mammals from Prince Patrick Island, collected by Charles O. Handley, Jr.; and 36 Japanese mammals, including a series of porpoise skulls from Ford Wilke.

The generous gift of approximately 10,000 skins and 424 skeletons of North American birds by J. A. Weber, of Miami, Fla., represents the largest single accession received by the division of birds in recent years. Income from the W. L. Abbott bequest financed field work in Panamá and Colombia. In Panamá Dr. A. Wetmore and W. M. Perrygo obtained 956 bird skins, 11 skeletons, 3 sets of eggs, and 1 nest; and in Colombia, M. A. Carriker, Jr., collected 2,546 bird skins and 3 sets of eggs. The E. J. Brown bequest provided funds for the purchase of

74 skins of Hungarian birds, and with other private funds 344 bird skins from British Columbia were purchased. From Herbert L. Stoddard, the division of birds received 158 skins of birds taken in Georgia.

By exchange, the division of reptiles and amphibians received from the Museum of Comparative Zoology 94 amphibians from the state of São Paulo, Brazil. As a gift from Cornell University, the division acquired 141 specimens from Venezuela. Other accessions worthy of note were the gift of 148 reptiles, including a series of water snakes from Ohio, by John T. Wood, and 24 blind cave salamanders (*Typhlotriton spelaeus*) from Smellin's Cave near Ozark, Mo., presented by Dr. C. G. Goodchild.

The Fish and Wildlife Service transferred approximately 4,500 fishes taken in the course of shrimp investigations in the Gulf of Mexico by the crew of the *Pelican*. Other gifts received during the year included a specimen of a rare ribbonfish (*Lophotus lacepedei*) taken at Clearwater, Fla., donated by Dr. Coleman J. Goin; 517 Mexican fishes given by Gen. T. D. White, United States Air Forces, accompanied by color sketches made by Mrs. White; and 80 fishes from Spencer Tinker, of the Waikiki Aquarium, Hawaii. Types and paratypes of a number of fishes were acquired by exchange or donation from several institutions.

Several outstanding gifts came to the division of insects. Among these were a collection of 5,000 British tortricid moths presented by the British Museum (Natural History); about 15,000 British Microlepidoptera, a gift from Norman D. Riley, head keeper of insects, British Museum (Natural History); and an extensive collection of 2-winged flies donated by John R. Malloch. About 10,500 beetles, mostly representing the families Carabidae and Pselaphidae, were received as a bequest from Alan S. Nicolay.

As a transfer from the Office of Naval Research the Museum acquired a collection of 2,571 marine invertebrates made by Prof. and Mrs. G. E. MacGinitie at the Arctic Research Laboratory, Point Barrow, Alaska. Nearly 4,000 miscellaneous invertebrates, obtained off the coast of Labrador by David C. Nutt during the cruise of the schooner *Blue Dolphin* under the auspices of the Arctic Institute of North America, were presented to the division of marine invertebrates. Among other noteworthy gifts of collections, including types, were: 541 shrimps and other marine invertebrates obtained during the "Crossroads" Expedition to the Marshall Islands, from Dr. Martin W. Johnson, Scripps Institution of Oceanography; more than 100 isopods from Pacific Marine Station, College of the Pacific and the University of California, through Robert J. Menzies; about 700 marine arthropods, taken off the coasts of North and South Carolina, from

Prof. A. S. Pearse, Duke University; 137 echiuroid and sipunculoid worms and 10 flatworms from Dr. W. K. Fisher; and more than 100 Indian amphipods from Dr. K. Nagappan Nayar, of Madras, India.

As gifts, the division of mollusks received a collection approximating 4,000 specimens, largely North American Sphaeriidae, from Leslie Hubricht; 300 marine mollusks from Biak Island, Netherlands East Indies; and holotypes, paratypes, and topotypes from a number of specialists. By transfer, about 500 mollusks collected by Dr. Preston E. Cloud, Jr., on Saipan came to the Museum from the Geological Survey; approximately 5,000 marine shells from Panamá were received from the Fish and Wildlife Service through Dr. Paul S. Galtsoff; and from the Smithsonian Institution 621 land and fresh-water mollusks from Perú purchased through the income of the Frances Lea Chamberlain fund.

The most noteworthy accession acquired by the division of echinoderms comprised 400 specimens dredged from the deep waters of the North Atlantic Ocean by the Woods Hole Oceanographic Institution's vessel *Atlantis*.

Botany.—H. A. Allard collected 5,577 plants for the National Herbarium in northeastern Perú, and Associate Curator E. H. Walker obtained 2,282 plants in New Zealand. As exchanges, the National Herbarium received 19,276 specimens, of which 4,175 were transmitted by the University of California, 1,027 from Eritrea were shipped by the University of Florence, and 762 from islands in the Pacific Ocean were forwarded by the Bernice P. Bishop Museum. Dr. John Gossweiler, of Angola, presented through the Department of State 645 plant specimens from Portuguese West Africa, and Dr. C. M. Rogers, of Wayne University, Detroit, donated 980 specimens from the Mesa de Maya region of the southwestern United States. The Escuela Agrícola Panamericana, Tegucigalpa, Honduras, forwarded 965 plants, partly on an exchange basis and the remainder as a gift. By purchase, 1,596 plant specimens from Colombia were acquired from Kjell von Sneidern, and by transfer from the Division of Rubber Plant Investigations, Department of Agriculture, 2,098 plants, collected for the most part by Dr. Richard E. Schultes in the eastern lowlands of Colombia, were added to the collections.

Geology.—Twenty-four minerals hitherto unrepresented were added to the mineralogical collections, of which seven were received as gifts, eight were acquired as exchanges, and nine came as transfers from the Geological Survey. The Kegel collection of fine crystallized secondary copper and lead minerals from Tsumeb, Southwest Africa, comprising approximately 900 specimens and including many of the best-known examples of azurite, malachite, cerussite, anglesite, vanadinite, and mimetite, is considered to be the most important acces-

sion ever purchased under the Roebling fund. Included among the additions to the Canfield collection were a very fine columbite crystal from North Carolina, a large specimen of native lead with pyrochroite from Sweden, a striking example of rutilated quartz from Brazil, and a group of large wulfenite crystals from Arizona. An outstanding addition to the gem collection consists of 41 pieces made up largely of strands of beads of a variety of gem materials, as well as some very fine cut amethysts, a bequest of Mrs. Edna Ward Capps. In addition to a number of gems received as gifts, an unusual tourmaline cat's-eye weighing 53.20 carats was purchased under the Chamberlain fund for the gem collection. Dr. Stuart H. Perry continued his interest in the meteorite collection by donating two stony meteorites weighing 8.4 kilograms and 502 grams, recently found at Kearney, Nebr. Sections of other meteorites were received from the Georgia Department of Mines, Mining, and Geology and from the Institute for Nuclear Studies of the University of Chicago through Dr. Harrison Brown. By exchange, portions of five Spanish meteorites were acquired from the Museo Nacional de Ciencias Naturales of Madrid, Spain.

Gifts, exchanges, transfers, and purchases added many genera and species not previously represented in the collections of fossil invertebrates. As gifts, the Museum received 500 fresh-water invertebrate fossils of the Pliocene Truckee formation from Daniel I. Axelrod; approximately 2,600 Ordovician fossils from O. C. Cole; 45 Turkish Jurassic fossils from G. H. Cornelius; 150 invertebrate fossils from Wales, collected by Dr. John P. Marble; 150 Italian Triassic invertebrates from Dr. Franco Rasetti; and 500 Paleozoic, Mesozoic, and Cenozoic invertebrates from Tunisia, Algeria, and the Sahara Desert from Maurice H. Wallace. Types of corals, Foraminifera, and Carboniferous fossils were included in the accessions.

Several hundred Ordovician, Mississippian, and Pennsylvanian crinoids were purchased under the Springer fund from Harrell L. Strimple.

By the bequest of the late Dr. Joseph A. Cushman, the Museum acquired his library and collection of Foraminifera comprising at least 150,000 slides and including about 13,000 type and figured specimens. The Vaughan collection of larger Foraminifera, aggregating about 25,000 specimens, as well as the smaller Foraminifera formerly housed in the Cushman laboratory at Sharon, Mass., 1,275 type and figured Jurassic Foraminifera from Montana, Wyoming, and South Dakota, 147 type specimens of Mesozoic and Cenozoic Foraminifera from Naval Petroleum Reserve No. 4 in northern Alaska, and 653 Silurian brachiopods from southeastern Alaska were received as transfers from the Geological Survey. Through funds provided by the Walcott bequest, the Museum purchased the Renfro fossil invertebrate collec-

tion comprising about 250,000 specimens from the Pennsylvanian of Jack County, Tex., and the Cretaceous in the vicinity of Fort Worth, Tex. Field work financed by the same fund resulted in the collection of about 15,000 Paleozoic invertebrates by Dr. G. A. Cooper and W. T. Allen in the Midwest, 500 Ordovician fossils by Dr. Cooper in New York and Pennsylvania, and approximately 3,000 Lower Cretaceous fossils by Dr. A. R. Loeblich, Jr., and W. T. Allen in southern Oklahoma and northern Texas.

An excellent series of fossil mammals from the Paleocene of the San Juan Basin, New Mexico, and the lower Eocene of western Wyoming, including the condylarth *Meniscotherium* and the earliest titanotherium, *Lambdotherium*, were obtained by Dr. C. Lewis Gazin. Skeletal remains of the giant ground sloth *Megatherium* and associated elements of the Pleistocene fauna were excavated by Dr. Gazin in Herrera Province, western Panamá. Dr. David H. Dunkle assembled an unusual collection of Jurassic fossil fishes in the Pinar del Río region of western Cuba. Skulls of two distinct types of mosasaurs, collected by Dr. T. E. White in the Cretaceous of Texas, were transferred by the Smithsonian River Basin Surveys.

Engineering and industries.—The Dan River Mills, Inc., presented exhibition units illustrating the operation of a textile-finishing mill, the development of a fabric design, and the production of a wrinkle-shed finish. A hydraulic duplex pump, the first pumping engine of the Washington (D. C.) aqueduct system, was transferred by the District of Columbia through the Board of Commissioners.

Two prints by Stanley William Hayter, one titled "Cronos," an engraving and soft-ground etching, and the other titled "Palimpsest," a soft-ground etching printed in three colors, as well as a lift-ground aquatint named "La Faute," by Jacques Villan, were purchased for graphic arts under the Dahlgreen fund. Fifty-one examples of the work of the photographer Victor Prevost, who pioneered in the use of waxed-paper negatives in the United States, were presented by Melville Rosch. A Renfax synchronizer, early sound equipment used prior to the invention of sound on film, was received from Ralph S. Koser. A graphic portrayal of the development and use of sutures in early times is shown in the exhibit "Sutures in Ancient Surgery" donated by Davis & Geck, Inc.

History.—A silver-filigree basket reputed to have belonged to Napoleon and received as a bequest from Miss Bessie J. Kibbey is worthy of notice.

Two outstanding ship models, one of them a small-scale reproduction of the U. S. S. *Yorktown* (CV-5) with a squadron of planes on the flight deck, and the other a remarkably fine scale model of the U. S. S. *Washington* (later *Seattle*), were transferred by the Department of the

Navy. A series of military uniforms of the period of World War II were received as a transfer from the Department of the Army. The Bureau of Engraving and Printing deposited two specimen sets of current United States paper money and Federal Reserve notes in denominations from \$1 to \$10,000.

A portfolio of 107 de-luxe proofs and stamps of the Principality of Monaco, presented by Prince Rainier III to the Economic Cooperation Administration, were received as a transfer, and the same agency also forwarded a collection of Italian stamps issued in commemoration of the European Recovery Program, a gift of the Government of Italy. Recently issued foreign stamps totaling 2,964 in number were transferred by the Universal Postal Union.

EXPLORATION AND FIELD WORK

During the first half of the fiscal year, Dr. Waldo R. Wedel, at that time associate curator of archeology, was detailed to the River Basin Surveys, Bureau of American Ethnology, to supervise field and laboratory operations in the Missouri Valley.

Under the W. L. Abbott fund, M. A. Carriker, Jr., during the present season continued investigations of the bird life of northern Colombia, making collections in the lower Atrato Basin. He entered the area from Medellín, proceeding by air to Turbo, then moving by boat to stations on each side of the Gulf of Urabá. His investigations continued along the lower Atrato, in part near the Panamanian frontier, extending finally into more elevated regions above Frontino. Examples of more than 500 species of birds were obtained in this interesting region where there is union between the forms of life found in eastern Panamá and those of northwestern South America.

Dr. Alexander Wetmore, with Watson M. Perrygo as assistant, was again in the field in eastern Panamá from the middle of February to the beginning of April, their work being concerned with the collection and distribution of birds. Through the friendly assistance of Brig. Gen. R. Beam, commanding officer, Albrook Air Base, and of Lt. Col. M. E. Potter, director of personnel services, in providing transportation by water and other facilities, a base was established in Chimán on the Pacific coast about 90 miles east of Panamá City. The party worked first on the lower portion of the Río Chimán and then moved in cayucos to the head of tidewater on the Río Majé. From here the naturalists proceeded on foot with porters to the lower elevations of Cerro Chucantí in the Serranía de Majé. The region covered was in an extensive area of virgin forest without human inhabitants, beyond the limit of navigation by canoe. An excellent collection of birds was obtained in a region that so far as known has not been visited previously by naturalists.

Under a cooperative arrangement with the United States Weather Bureau, Charles O. Handley, Jr., was detailed to make natural-history collections on Prince Patrick Island in the Canadian Arctic Archipelago. As the year closed, the curator of birds, Dr. Herbert Friedmann, was en route to South Africa and southern Rhodesia to study the habits of the parasitic honey-guides and weaverbirds, having received grants for the purpose from the American Philosophical Society and the John Simon Guggenheim Memorial Foundation.

Associate Curator Paul L. Illg assembled data on the life histories and ecology of commensal copepods at the University of Washington oceanographic laboratories at Friday Harbor. Dr. J. P. E. Morrison, associate curator of mollusks, made a short field study of mollusks inhabiting the salt marshes on the eastern shore of Maryland. Assistant Curator R. Tucker Abbott was detailed, at the request of the Pacific Science Board, National Research Council, to conduct field studies in Kenya and Tanganyika, East Africa, for the purpose of obtaining carnivorous snails and transporting them to the Trust Territories of the Pacific, a part of the program planned for the control of the destructive giant snail in that area.

W. L. Brown, chief exhibits preparator, visited South Carolina and Wyoming to procure background materials required for the completion and installation of the Virginia-deer and pronghorn-antelope exhibition groups in the North American mammal hall.

Head Curator E. P. Killip and Curator Jason R. Swallen were engaged for 3 weeks in botanical field studies on Big Pine Key, Fla., collecting specimens and making observations on the distribution of plant life. At the request of the Department of Agriculture, Mr. Swallen was detailed to the Great Plains Field Station at Mandan, N. Dak., to review experimental work now being conducted there on the crested wheatgrass, and to the Texas Research Foundation at Kingsville, Tex., to complete a survey of the grasses of that region. Dr. George A. Llano, associate curator of cryptogams, made extensive collections of lichens under the auspices of the Arctic Institute of North America after proceeding to the Arctic Research Laboratory at Point Barrow, Alaska, where he was provided with transportation to Wainwright, Umiat on the Colville River, Anaktuvuk Pass in the Brooks Range, and Anchorage. On the return trip Dr. Llano made collections on several islands in the Aleutian Chain. Associate Curator Paul S. Conger, division of cryptogams, was engaged in studying marine diatoms for 2 months at the Chesapeake Biological Laboratory, Solomons Island, Md. Dr. F. A. McClure, research associate in grasses, continued with his studies of the bamboos in the West Indies, Central America, and South America.

At the request of the Instituto de Antropología e Historia, Dr. W. F. Foshag, head curator of geology, on detail from the National Museum, traveled to Guatemala and devoted 3 months to a study of the mineralogical composition of Meso-American archeological jade objects in the Museo de Antropología at Guatemala City, the well-known Rossbach collection in the Municipal Museum at Chichecastango, the Robles collection at Quetzaltenango, and the Nottlebahn collections. As part of a project relating to the mineralogy and geochemistry of saline mineral deposits, Dr. George S. Switzer spent 3 months investigating the origin and occurrence of rare sulfate minerals at The Geysers and Island Mountain, Calif.

Paleontological field work financed from the income of the Walcott bequest brought new materials from Panamá, Cuba, and the United States to the collections. The four field parties studying problems in invertebrate paleontology in the United States comprised the following: Dr. G. A. Cooper, W. T. Allen, and Alwyn Williams, visiting Commonwealth Fellow from Wales, collected lower Middle Ordovician brachiopods at various localities in Michigan, Minnesota, Wisconsin, Tennessee, Iowa, Missouri, Oklahoma, Texas, and New Mexico; Dr. A. R. Loeblich and W. T. Allen carried on field investigations in the Lower Cretaceous of Oklahoma and Texas; lower Middle Ordovician strata in Pennsylvania and New York were examined by Dr. Cooper and Mr. Williams; and David Nicol visited Upper Cretaceous and Tertiary beds in North Carolina and Virginia. Dr. C. L. Gazin, curator of vertebrate paleontology, assisted by F. L. Pearce, searched for Paleocene mammals in the Puerco and Torrejon horizons in the San Juan Basin of New Mexico, and later in the season transferred the field work to the Lower Eocene Knight formation in the vicinity of Big Piney and LaBarge in western Wyoming. At the invitation of the Museo Nacional de Panamá and with the cooperation of the Panamanian Government, Dr. Gazin, with Dr. T. E. White as assistant, proceeded to Herrera Province where they achieved considerable success in the excavation of remains of the giant ground sloth *Megatherium*. A part of this collection will eventually be returned to Panamá for display. Associate Curator David H. Dunkle was highly successful in obtaining an excellent series of fossil fish and ammonites from the Jurassic Jagua formation in the Piñar del Río region of western Cuba.

PUBLICATIONS

During the fiscal year 1949-50, 29 publications were issued: 1 Annual Report, 2 in the Bulletin series, 22 in the Proceedings, and 4 numbers of the Contributions from the United States National Herbarium. A list of these is given in the complete report on Smithsonian publications,

appendix 12. Special mention is made of the eighteenth volume of A. C. Bent's Life Histories of North American Birds entitled "Life Histories of North American Wagtails, Shrikes, Vireos, and Their Allies," and a "Catalog of the Automobile and Motorcycle Collection of the Division of Engineering, United States National Museum," by S. H. Oliver.

The distribution of volumes and separates to libraries and other institutions and to individuals aggregated 57,938 copies.

CHANGES IN ORGANIZATION

After almost 38 years of continuous service, Neil M. Judd retired from active duty as curator of the division of archeology on December 31, 1949, and to this vacancy, Dr. Waldo R. Wedel, who had served as associate curator in the same division, was promoted on January 1, 1950.

Dr. Preston E. Cloud, Jr., chief of paleontology and stratigraphy branch, United States Geological Survey, and Dr. Roland W. Brown, geologist in the same service, were given honorary appointments on November 9, 1949, as custodians of Paleozoic fossils and of Mesozoic and Cenozoic plants, respectively.

Respectfully submitted.

REMINGTON KELLOGG, *Director.*

Dr. A. WETMORE,

Secretary, Smithsonian Institution.

APPENDIX 2

REPORT ON THE NATIONAL GALLERY OF ART

SIR: I have the honor to submit, on behalf of the Board of Trustees, the thirteenth annual report of the National Gallery of Art, for the fiscal year ended June 30, 1950. This report is made pursuant to the provisions of section 5 (d) of Public Resolution No. 14, Seventy-fifth 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*. The five general trustees continuing in office during the fiscal year ended June 30, 1950, were Samuel H. Kress, Ferdinand Lammot Belin, Duncan Phillips, Chester Dale, and Paul Mellon. The Board of Trustees held its annual meeting on May 4, 1950. Samuel H. Kress was reelected President and Ferdinand Lammot Belin, Vice President, to serve for the ensuing year. Donald D. Shepard continued to serve during the year as Adviser to the Board. All the executive officers of the Gallery continued in office during the year.

The three standing committees of the Board, as constituted at the annual meeting May 4, 1950, were as follows:

EXECUTIVE COMMITTEE

Chief Justice of the United States, *ex officio*, Fred M. Vinson, Chairman.
Samuel H. Kress, Vice Chairman.
Ferdinand Lammot Belin.
Secretary of the Smithsonian Institution, Dr. Alexander Wetmore.
Paul Mellon.

FINANCE COMMITTEE

Secretary of the Treasury, *ex officio*, John W. Snyder, Chairman.
Samuel H. Kress, Vice Chairman.
Ferdinand Lammot Belin.
Chester Dale.
Paul Mellon.

ACQUISITIONS COMMITTEE

Samuel H. Kress, Chairman.
 Ferdinand Lammot Belin, Vice Chairman.
 Duncan Phillips.
 Chester Dale.
 David E. Finley, ex officio.

Perry B. Cott was appointed Assistant Chief Curator on September 1, 1949, to fill the vacancy created by the resignation of Charles Seymour, Jr., which was effective as of August 15, 1949. Mr. Seymour resigned to become associated with Yale University.

APPROPRIATIONS

For the fiscal year ended June 30, 1950, the Congress of the United States appropriated for the National Gallery of Art the sum of \$1,114,700 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 section 4 (a) of Public Resolution No. 14, Seventy-fifth Congress, first session, approved March 24, 1937 (50 Stat. 51). This sum includes the regular appropriation of \$1,087,700 and a supplemental appropriation of \$27,000. The supplemental appropriation was necessitated by the Classification Act of 1949, Public Law 429, Eighty-first Congress, effective October 30, 1949, which gave salary advancement to Government employees.

From these appropriations the following expenditures and encumbrances were incurred:

Personal services.....	\$989, 600. 00
Printing and reproduction.....	5, 535. 98
Supplies, equipment, etc.....	119, 498. 07
Unobligated balance.....	65. 95
Total.....	1, 114, 700. 00

In addition to these appropriations the Gallery received from the National Capital Sesquicentennial Commission the sum of \$25,000 for expenses in connection with the exhibition called "Makers of History in Washington, 1800-1950." The period of the exhibition was from June 29, 1950, to November 19, 1950. As of June 30, 1950, the sum of \$13,237.19 had been spent or obligated, leaving a balance of \$11,762.81 for operations during the fiscal year 1951.

ATTENDANCE

During the fiscal year 1950 there were 2,187,293 visitors to the Gallery, an increase of 657,725 over the attendance for 1949. The

average daily number of visitors was 6,025. From March 17, 1941, the day the National Gallery of Art was opened to the public, to June 30, 1950, the number of visitors totaled 17,258,269.

ACCESSIONS

There were 2,354 accessions by the National Gallery of Art, as gifts, loans, or deposits, during the fiscal year. Most of the paintings and a number of the prints were placed on exhibition.

PAINTINGS

On December 6, 1949, the Board of Trustees approved the purchase of the painting "The Skater," by Gilbert Stuart, with funds of the Gallery.

The Board of Trustees on October 18, 1949, accepted four paintings: Self-portrait of Judith Leyster from Mr. and Mrs. Robert Woods Bliss; "Colonel Pocklington and his Sisters," by Stubbs, from Mrs. Charles S. Carstairs; "Enthroned Madonna and Child," Byzantine thirteenth century, from Mrs. Otto Kahn; and "Young Woman in White," by Robert Henri, from Miss Violet Organ.

DECORATIVE ARTS

The Board of Trustees accepted from Lewis Einstein on December 6, 1949, a seventeenth-century Brussels tapestry entitled "America."

PRINTS AND DRAWINGS

On October 18, 1949, the Board of Trustees accepted from Miss Margaret McCormick a drawing, "Head of an Old Man," attributed to Legros. The Board on December 6, 1949, accepted a woodcut, "Men with Boat on Shore of Ocean," by A. Lepère, from George Matthew Adams. At the same time the Board approved the addition of four Legros drawings and four Legros etchings to the gift by George Matthew Adams of prints and drawings by Legros, and other works of art. On May 4, 1950, the Board accepted 3 prints, "Wet" and "Seaward Skerries," by Zorn, and "Limeburner," by Whistler, from Walter L. Bogert; 142 prints and drawings from Lessing J. Rosenwald, to be added to his gift to the Gallery; and 51 seventeenth-century Dutch prints from John Thacher in memory of Charles Hoyt. On the same date the Board also approved the addition of three Legros drawings and five Legros etchings to the gift by George Matthew Adams of prints and drawings by Legros, and other works of art.

EXCHANGE OF WORKS OF ART

The Board of Trustees on October 18, 1949, accepted the offer of Lessing J. Rosenwald to exchange the engraving "The Madonna on the Half-Moon," by Hans Sebald Beham, for a superior impression of the same work; and on December 6, 1949, the Board also accepted Mr. Rosenwald's offer to exchange nine prints from the Rosenwald Collection for superior impressions of like prints.

WORKS OF ART ON LOAN

During the fiscal year 1950 the following works of art were received on loan by the National Gallery of Art:

<i>From</i>	<i>Artist</i>
Copley Amory, Washington, D. C.:	
Elizabeth Copley (Mrs. Gardiner Greene)-----	Copley.
Self-portrait-----	Copley.
Mrs. Albert J. Beveridge, Beverly Farms, Mass.:	
Madame Dietz-Monin-----	Degas.
C. S. Gulbenkian, Lisbon, Portugal:	
Cupid and the Graces-----	Boucher.
The Annunciation-----	Dierick Bouts.
The Virgin and Two Donors Adoring the Child-----	Carpaccio.
A Sacra Conversazione (The Rest on the Flight)-----	Cima.
A Road at Ville-d'Avray-----	Corot.
The Bridge at Mantes-----	Corot.
Venice from the Dogana-----	Corot.
L'Homme et le Printin-----	Degas.
Self-portrait-----	Degas.
A Fete at Rambouillet-----	Fragonard.
Baptism of Christ-----	Francia.
Mrs. Lowndes-Stone-----	Gainsborough.
Portrait of a Young Woman-----	Ghirlandaio.
View of Mira on the Brenta-----	Guardi.
S. Pietro di Castello, Venice-----	Guardi.
A Regatta on the Grand Canal-----	Guardi.
A Fete on the Piazza di San Marco-----	Guardi.
Portrait of Sara Andriesdr. Hessix-----	Hals.
Frances Beresford-----	Hoppner.
A Fete Galante-----	Lancret.
Mademoiselle Sallé-----	La Tour.
Portrait of Baron Duval d'Espinoy (Man with a Snuff Box)-----	La Tour.
Lady Conyngham-----	Lawrence.
The Astronomer-----	L'Epicie.
Portrait of a Man-----	L'Epicie.
The Presentation in the Temple (Reverse: Stigma- tization of St. Francis)-----	Stefan Lochner
The Boy with the Cherries-----	Manet.
The Boy Blowing Bubbles-----	Manet.
The Break-Up of the Ice-----	Monet.

<i>From</i>	<i>Artist</i>
C. S. Gulbenkian, Lisbon, Portugal—Continued	
Still Life.....	Monet.
Portrait of Tocqué.....	Nattier.
Portrait of Madame de la Porte.....	Nattier.
Pallas Athene.....	Rembrandt.
An Old Man Seated.....	Rembrandt.
Madame Claude Monet Lying on a Sofa.....	Renoir.
Felling the Trees at Versailles, 1774/5.....	Hubert Robert.
Felling the Trees at Versailles, 1774/5.....	Hubert Robert.
Portrait of Miss Constable.....	Romney.
Portrait of a Young Woman.....	Rubens.
Flight into Egypt.....	Rubens.
Portrait of a Man.....	Van Dyck.
Two Ming vases, black.	
One lapis-lazuli ewer.	
William H. Jeffreys, Bethesda, Md.:	
The Jeffreys Family.....	Hogarth.
Samuel H. Kress Foundation, New York, N. Y.:	
1,289 bronzes from the Dreyfus Collection.	
Robert Woods Bliss, Washington, D. C.:	
22 objects of Pre-Columbian art.	

LOANED WORKS OF ART RETURNED

The following works of art on loan were returned during the fiscal year 1950:

<i>To</i>	<i>Artist</i>
The Italian Government:	
A marble statue of David.....	Michelangelo.
Stanley Mortimer, Jr., New York, N. Y.:	
Madonna and Child.....	School of Ghiberti.
Paul Mellon, Upperville, Va.:	
Six books of drawings and prints.....	Blake.
James Hazen Hyde, New York, N. Y.:	
Louis XVI tapestry-covered sofa.	
Robert Woods Bliss, Washington, D. C.:	
One object of Pre-Columbian art.	

WORKS OF ART LENT

During the fiscal year 1950 the Gallery lent the following works of art for exhibition purposes:

<i>To</i>	<i>Artist</i>
Amherst College, Department of Fine Arts, Amherst, Mass.:	
Self-portrait.....	Benjamin West.
Columbia Museum of Art, Columbia, S. C.:	
George Washington (Vaughan-Sinclair).....	Gilbert Stuart.
Self-portrait.....	Benjamin West.
Ann Biddle Hopkinson.....	Thomas Sully.

<i>To</i>	<i>Artist</i>
Columbia Museum of Art, Columbia, S. C.—Continued	
Francis Hopkinson.....	Thomas Sully.
Alexander Hamilton.....	John Trumbull.
William Rickart.....	Gilbert Stuart.
Henry Laurens.....	J. S. Copley.
Pocahontas.....	British School.
Andrew Jackson.....	Ralph E. W. Earl.
John Philip de Haas.....	Charles Willson Peale.
Henry Clay.....	John James Audubon.
General William Moultrie.....	Charles Willson Peale.
Williamina Moore.....	Robert Feke.
Mary Walton Morris.....	John Wollaston.
Jane Browne.....	J. S. Copley.
William S. Mount.....	Charles Loring Elliott.
Josias Allston.....	Jeremiah Theus.
Matilda Caroline Cruger.....	Gilbert Stuart.
George Pollock.....	Gilbert Stuart.
Mrs. George Pollock.....	Gilbert Stuart.
Robert Thew.....	Gilbert Stuart.
Luke White.....	Gilbert Stuart.
Corcoran Gallery of Art, Washington, D. C.:	
Pocahontas.....	British School.
Abraham Lincoln.....	Healy.
The Lackawanna Valley.....	Inness.
Four Arts Gallery, Palm Beach, Fla.:	
George Washington (Vaughan-Sinclair).....	Gilbert Stuart.
Self-portrait.....	Benjamin West.
Alexander Hamilton.....	John Trumbull.
Ann Biddle Hopkinson.....	Thomas Sully.
Francis Hopkinson.....	Thomas Sully.
Los Angeles County Museum, Los Angeles, Calif.:	
Indian hunting rug.	
Montreal Museum of Fine Arts, Montreal, Canada:	
Two drawings:	
La Petite Loge.....	Moreau le Jeune.
Tête-à-tête.....	Boucher.
Art Gallery of Toronto, Toronto, Canada:	
Mrs. Richard Yates.....	Gilbert Stuart.
Virginia Museum of Fine Arts, Richmond, Va.:	
James Buchanan.....	Healy.
Abraham Lincoln.....	Healy.
The White House, Washington, D. C.:	
Andrew Jackson.....	Sully.

EXHIBITIONS

During the fiscal year 1950 the following exhibitions were held at the National Gallery of Art:

Indigenous Art of the Americas. Lent by Robert Woods Bliss for an indefinite period to the National Gallery of Art for exhibition. Reopened with changes May 23, 1948.

Gulbenkian Collection of Egyptian Sculpture. Lent by C. S. Gulbenkian for an indefinite period to the National Gallery of Art for exhibition. Opened January 30, 1949.

Gulbenkian Collection of Eighteenth Century French Objects. Lent by C. S. Gulbenkian for an indefinite period to the National Gallery of Art for exhibition. Opened February 20, 1949.

R. Horace Gallatin Collection. Exhibition of prints bequeathed to the National Gallery of Art by Mr. Gallatin. Continued from previous fiscal year through July 25, 1949.

South African Art. Exhibition of contemporary South African paintings, drawings, and sculptures sponsored by the Government of the Union of South Africa. July 31 to September 5, 1949.

R. Horace Gallatin Collection. Exhibition of the same prints mentioned above. September 10 to October 17, 1949.

Art Treasures from the Vienna Collections. Exhibition, lent by the Austrian Government, of paintings, sculptures, miniatures, Greek and Roman antiquities, ivories, works of goldsmiths and silversmiths, rock crystal and precious stones, jewels, arms and armor, a clock, and tapestries. November 20, 1949, to January 22, 1950.

American Paintings from the Collection of the National Gallery of Art. February 5 to April 2, 1950.

Rosenwald Collection. Exhibition of recent accessions of prints and drawings. Opened April 9, 1950.

Makers of History in Washington, 1800-1950. Exhibition celebrating the sesquicentennial of the establishment of the Federal Government in the City of Washington. Opened June 29, 1950.

The following exhibitions were displayed in the cafeteria corridor of the Gallery during the fiscal year 1950:

Prints by Adriaen van Ostade. Rosenwald and Addie Burr Clark Collections. Continued from previous fiscal year through August 21, 1949.

Nineteenth-century French Prints. Rosenwald and George Matthew Adams Collections. August 23 to November 27, 1949.

Exhibition of Rowlandson Prints. Rosenwald Collection. November 28, 1949, to February 27, 1950.

Prints by Muirhead Bone, David Y. Cameron, and James McBey. Rosenwald Collection and gift of Miss Elisabeth Achelis. February 28 to May 14, 1950.

Index of American Design. Water-color renderings. Opened May 15, 1950.

TRAVELING EXHIBITIONS

Rosenwald Collection.—Special exhibitions of prints from the Rosenwald Collection were circulated to the following places during the fiscal year:

- Kenneth Taylor Galleries, Nantucket, Mass.:
 35 Rowlandson prints.
 July–September 1949.
- Milwaukee Art Institute, Milwaukee, Wis.:
 42 prints.
 November–December 1949.
- Smith College Museum of Art, Northampton, Mass.:
 10 prints.
 December 1949.
- Minneapolis Institute of Fine Arts, Minneapolis, Minn.:
 8 Gauguin prints.
 April 1950.
- The Royal Ontario Museum of Archaeology, Toronto, Canada:
 4 miniatures.
 April–May 1950.
- Montreal Museum of Fine Arts, Montreal, Canada:
 1 Fragonard drawing.
 April–May 1950.
- Philadelphia Museum of Art, Philadelphia, Pa.:
 23 prints.
 September–December 1949.

Index of American Design.—During the fiscal year 1950 exhibitions from this collection were shown at the following places:

- Arnot Art Gallery, Elmira, N. Y.
 Society of Fine Arts, Wilmington, Del.
 Wustum Museum of Fine Arts, Racine, Wis.
 Spelman College, Atlanta, Ga.
 Kenneth Taylor Galleries, Nantucket, Mass.
 St. Paul Public Library, St. Paul, Minn.
 Public Schools of Springfield, Springfield, Mass.
 Museum of Art, University of Oklahoma, Norman, Okla.
 Dickinson College, Carlisle, Pa.
 Worcester Art Museum, Worcester, Mass.
 Montgomery Blair High School and Leland Junior High School, Maryland
 (adult classes).
 New York State Historical Association, Cooperstown, N. Y.
 Manchester Historic Association, Manchester, N. H.
 University of Oklahoma, Norman, Okla.
 Cooper Union Museum, New York, N. Y.
 Brooklyn Museum, Brooklyn, N. Y.
 Wm. Rockhill Nelson Gallery, Kansas City, Mo.
 Congressional Women's Club, Washington, D. C.
 Chicago Historical Society, Chicago, Ill.
 Manchester Historic Association, Manchester, N. H.
 University of Maine, Orono, Maine.

Wiscasset Library, Wiscasset, Maine.
 Sweat Memorial Art Museum, Portland, Maine.
 Brick Store Museum, Kennebunk, Maine.
 John Herron Art Institute, Indianapolis, Ind.
 Library of Congress, Washington, D. C.
 Wilmington College, Wilmington, Ohio.
 Edinburg Regional College, Edinburg, Tex.
 Western Reserve Historical Society, Cleveland, Ohio
 Tate Gallery, London, England.
 Old Sturbridge Village, Sturbridge, Mass.
 The Downtown Gallery, New York, N. Y.
 State Exposition Building, Los Angeles, Calif.
 State Capitol, Sacramento, Calif.

CURATORIAL ACTIVITIES

The Curatorial Department accessioned 218 new gifts to the Gallery during the fiscal year. Advice was given in the case of 265 works of art brought to the Gallery for opinion, and 34 visits to other collections were made by members of the staff in connection with proffered works of art. About 300 paintings were studied and considered for possible acquisition. About 1,000 inquiries requiring research were answered. During the year, 11 individual lectures were given by members of the curatorial staff, both at the Gallery and elsewhere. In addition, Miss Elizabeth Mongan conducted special weekly classes at Alverthorpe, Jenkintown, Pa., for students from Beaver College; Perry B. Cott participated in the oral examination of a candidate for a master's degree in art from Indiana University and prepared an examination for two students at American University for their master's degrees in art; and Charles M. Richards gave two courses in art history under the auspices of the Department of Agriculture. Mr. Cott also represented the National Gallery at a conference at the Peabody Museum, Salem, Mass., and at a conference at the National Academy of Design in New York; and Mr. Richards presented a paper and a report to the American Association of Museums meeting at Colorado Springs, Colo.

Special installations were prepared for the Art Treasures from the Vienna Collections, lent by the Austrian Government, and for the Sesquicentennial exhibition, "Makers of History in Washington, 1800-1950."

Over 20,000 photographs were acquired this year from European museums and other sources, and these are being cataloged and filed in the George Martin Richter Archives.

RESTORATION AND REPAIR OF WORKS OF ART

Necessary restoration and repair of works of art in the Gallery's collections were made by Francis Sullivan, who was appointed assist-

ant restorer to the Gallery on December 1, 1949. All work was completed in the restorer's studio in the Gallery with the exception of the restoration of two paintings begun before the death of Mr. Pichetto in January 1949 and completed in the New York studio by Mr. Pichetto's residual staff. Both paintings have been returned to the Gallery in good condition.

PUBLICATIONS

During the year Huntington Cairns contributed articles and reviews to the *Yale Law Journal*, the *Harvard Law Review*, the *Virginia Quarterly Review*, and the *Baltimore Evening Sun*. He also delivered four lectures at the Johns Hopkins University on the theory of criticism.

The series of 12 articles on "Masterpieces in the Gallery" by John Walker, published in the *Ladies' Home Journal*, was completed in December 1949, making a total of 36 articles by Mr. Walker, principally on the Gallery's collection, published in that periodical since 1946. An article by Mr. Walker on "The Vienna Treasures and Their Collectors" appeared in the *National Geographic Magazine* for June 1950. Erwin O. Christensen contributed two articles to *Antiques Magazine*: "Justice," published in January 1950, and "What Is American Folk Art?" published in May 1950. James W. Lane contributed four book reviews to the *Catholic World*, on "John Singleton Copley," by James T. Flexner, "Cream Hill," by Lewis Gannett, "The Twelve Seasons," by Joseph Wood Krutch, and "The Virgin and Child," with introduction by Thomas Bodkin; he also wrote a review of "Martin Johnson Heade," by Robert G. McIntyre, for the summer, 1949, issue of the *College Art Journal*. An article by Charles M. Richards, "Standard Procedure for Intermuseum Loans," was published in *Museum News*.

An illustrated catalog of recent acquisitions to the Rosenwald Collection was compiled by Miss Elizabeth Mongan and was issued for the opening of the Rosenwald exhibition on April 9, 1950. An illustrated catalog of the "Makers of History in Washington, 1800-1950," was prepared by Perry B. Cott and James W. Lane for the opening of the "Makers of History in Washington, 1800-1950" exhibition.

A second volume of "Masterpieces of Painting from the National Gallery of Art," by Huntington Cairns and John Walker, is in process, and Perry B. Cott has begun the preparation of a catalog on Renaissance bronzes.

During the past fiscal year the publications fund supplemented the group of color reproductions offered to the public with four new color postcard subjects and a new 11-by-14-inch reproduction; 12 more of the latter are on order, to be utilized in a forthcoming

portfolio of religious subjects. Four large collotype reproductions were added to the long list of this type of print available.

A companion volume to "Masterpieces of Painting," namely, "Masterpieces of Sculpture from the National Gallery of Art," an illustrated catalog of the Mellon Collection, and "Popular Art in the United States," by Erwin O. Christensen, were placed on sale during the fiscal year 1951. The third large printing of the illustrated Kress catalog was completed during the year.

The publication date of "The Index of American Design" (formerly entitled "Made in America"), by Erwin O. Christensen, has been set at October 15, 1950, and "Pictures from America," by John Walker, is also to be published soon.

While the exhibition of Art Treasures from the Vienna Collections was on view, the Publications Fund distributed over 53,000 catalogs and more than 36,000 color postcards; and made available other publications dealing with the Austrian exhibition.

EDUCATIONAL PROGRAM

More than 28,000 persons attended the General, Congressional, and Special Tours during the fiscal year, with the attendance for the "Picture of the Week" talks reaching a total of over 26,000. Lectures on special subjects, with lantern slides, were given in the auditorium on Sunday afternoons; 13 of these were by visiting lecturers, and the total attendance was 17,000. A black-and-white strip-film of 300 representative paintings from the Gallery's collections has been very much in demand. The slide collection and the film "The National Gallery of Art" have been widely distributed during the year.

The Educational Office has continued the publication of a monthly Calendar of Events announcing all the Gallery activities, including notices of exhibitions, new publications, lectures, gallery talks, tours, and concerts. Approximately 4,600 copies of the calendar are mailed each month.

LIBRARY

A very important contribution to the Library this year was the purchase of 997 books, 3,395 pamphlets, 15,518 photographs, 418 periodicals, and 9 subscriptions from funds presented to the Gallery by Paul Mellon. Other gifts included 153 books, 103 of them presented by Lessing J. Rosenwald, 42 pamphlets, and 1 periodical. Fifteen books and subscriptions to 30 periodicals were purchased from other funds. Five hundred and ninety books, pamphlets, periodicals, and bulletins were received on exchange from other institutions. During the year 535 persons other than the Gallery staff used the Library for purposes of art research either in person or by phone.

INDEX OF AMERICAN DESIGN

During the fiscal year, 108 examples from the Index were reproduced in publications, and 719 examples were borrowed for use in forthcoming publications. More than 1,100 photographs of the Index were sent out for use by designers, for research and study, and for publicity. The Index material was studied by 468 persons, 399 of whom were new users. Three hundred and thirty-nine slides were circulated for use in lectures. A total of 2,057 Index plates were sent out for exhibition and publication purposes during the fiscal year 1950.

CONSTRUCTION OF NEW GALLERIES AND OFFICES

In keeping with the recommendation of the Committee on the Building and the Board of Trustees, a contract was entered into on June 19, 1949, for the completion of 12 galleries in the east end of the building. Eight of these galleries were completed in time to be used for the Sesquicentennial exhibition, "Makers of History in Washington, 1800-1950." The remaining four were completed by July 15, 1950. A similar contract was entered into on March 10, 1950, for the completion of five offices and a slide storage room in the west wing on the ground floor. Work is progressing satisfactorily, and it is contemplated that this project will be completed by early fall.

CARE AND MAINTENANCE OF THE BUILDING

The Gallery building and grounds, and the mechanical equipment, were maintained throughout the year at the high standard established in the past. Among the nonrecurring and unusual items were the construction of a 48-foot cold frame to increase facilities for growing plants for the garden courts; the construction of bases and pedestals for exhibition material of the Austrian exhibition; construction of additional exhibition facilities for the Bliss exhibit; complete overhauling and realigning of air-conditioning refrigeration machine No. 3; and the construction of storage facilities on the 81-foot level.

COMMITTEE OF EXPERT EXAMINERS

The United States Civil Service Commission's Committee of Expert Examiners, composed of staff members of the Gallery, graded the Museum Art Specialist examination papers. Registers of eligibles were established, and appointments made therefrom.

OTHER ACTIVITIES

Forty-five Sunday evening concerts were given in the East Garden Court during the fiscal year. Two Saturday afternoon concerts were given in the lecture hall, thus making a total of 47 musical performances at the Gallery this year. The Seventh Annual Music Festival

was held in May, with 41 works by American composers included in the programs.

The Photographic Laboratory of the Gallery produced 11,000 prints, 1,029 black-and-white slides, 903 color slides, and 2,418 negatives in the fiscal year 1950, in addition to infrared and ultra-violet photographs, X-rays, and color separations.

A total of 2,890 press releases, 171 permits to copy paintings in the Gallery, and 182 special permits to photograph in the Gallery were issued during the fiscal year 1950.

OTHER GIFTS

Gifts of books on works of art and related material were made to the Gallery by Paul Mellon and others. Gifts of money during the fiscal year 1950 were made by The A. W. Mellon Educational and Charitable Trust, Lessing J. Rosenwald, and Mrs. C. B. Myhre. An additional cash bequest was received from the Estate of the late William Nelson Cromwell.

AUDIT OF PRIVATE FUNDS OF THE GALLERY

An audit of the private funds of the Gallery has been made for the fiscal year ended June 30, 1950, 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.*

THE SECRETARY,
Smithsonian Institution.

APPENDIX 3

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, 1950:

THE SMITHSONIAN ART COMMISSION

The twenty-seventh annual meeting of the Smithsonian Art Commission was held in the Regents' Room of the Smithsonian Building on Tuesday, December 6, 1949. The members present were: Paul Manship, chairman; Alexander Wetmore, secretary (member, ex officio); John Nicholas Brown, Eugene Speicher, George Hewitt Myers, George H. Edgell, Robert Woods Bliss, Archibald G. Wenley, and David E. Finley. Thomas M. Beggs, Director of the National Collection of Fine Arts, was also present.

The Commission recommended the reelection of John Nicholas Brown, George Hewitt Myers, Robert Woods Bliss, and Mahonri M. Young for the usual 4-year period. The following officers were re-elected for the ensuing year: Paul Manship, chairman; Robert Woods Bliss, vice chairman, and Dr. Alexander Wetmore, secretary. The following were elected 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 Dr. Alexander Wetmore, as secretary of the Commission, are ex-officio members of the executive committee.

The secretary reviewed briefly the legal status of the John Gellatly collection, suit for the possession of which had been decided in favor of the Smithsonian Institution in the District of Columbia Court of Appeals. The Director of the National Collection of Fine Arts reported upon progress in the reorganization of sections of the permanent exhibition and outlined further plans for its improvement in appearance and usefulness. A research project on the spectrochemical analysis of ancient glass, inspired by the Archeological Institute of America and to be sponsored by the National Collection of Fine Arts with technical aid from the National Bureau of Standards, was briefly described.

The following works of art were accepted for the National Collection of Fine Arts:

Oil painting, Gold Mining, Cripple Creek, by Ernest Lawson, N. A. Henry Ward Ranger bequest.

Portrait in oil of Chief Justice Salmon P. Chase, by James Reid Lambdin. Offered anonymously.

DEPOSITS

The following deposits for the Collection were made during the year:

Bronze bust of Orville Wright, by Oskar J. W. Hansen, presented by Mr. and Mrs. Robert Frackelton, in memory of Lt. Rollin N. Conwell, Jr., U.S.M.C.R., was accepted by the Smithsonian Institution for the National Air Museum, and deposited January 10, 1950. (Withdrawn by the National Air Museum February 3, 1950.)

Oil, on wood panel, Reclining Tiger, by Charles R. Knight, bequest of Vernon Bailey, was accepted by the Smithsonian Institution for the U. S. National Museum (division of mammals), and deposited January 10, 1950.

Ninety-six drawings and paintings, by Abbott H. Thayer, N. A. (1849-1921), made during his study of protective coloration in the Animal Kingdom, were accepted by the Smithsonian Institution for the United States National Museum (division of birds), as a loan from the heirs of the artist, through David Reasoner, and deposited February 17, 1950.

TRANSFERS

Two oils, Beach of Bass Rocks, Gloucester, Mass., by Frank Knox Morton Rehn, N. A. (1848-1914), and Fog, by James Craig Nicoll, N. A. (1847-1918), bequest of Martha L. Loomis to the United States National Museum in 1935, were transferred from the division of graphic arts on August 26, 1949.

THE CATHERINE WALDEN MYER FUND

One miniature, water color on ivory, was acquired from the fund established through the bequest of the late Catherine Walden Myer, as follows:

70. Robert A. B. S. Sparrow, attributed to Benjamin Trott; from Edmund Bury, Philadelphia, Pa.

LOANS ACCEPTED

Orrefors crystal vase, signed Edvard Hald, was lent by Mr. and Mrs. Hugh Smith on December 1, 1949.

Fifty miniatures from the Pepita Milmore collection were lent by Mrs. Henry L. Milmore on April 24 and 26, 1950.

WITHDRAWALS BY OWNERS

Two miniatures, Roswell Shurtleff and Anna Pope Shurtleff, by Frank Barbour, lent in 1941, were withdrawn on October 13, 1949, by order of the owner, Mrs. O. A. Mechlin.

Three oils, Portraits of Joseph Turner and Elizabeth Oswald Chew, by John Wollaston, lent in 1932, and Portrait of John Eager Howard, attributed to Charles Willson Peale or Robert Edge Pine, lent in 1934, were withdrawn on November 7, 1949, by order of the owner, Mrs. H. H. Norton.

A miniature, Mrs. Robert Means, by Edward G. Malbone, lent in 1939, was withdrawn on December 9, 1949, by the owner, John J. Pringle, Jr.

An oil painting, Landscape, attributed to Richard Wilson, lent in 1931, was withdrawn on June 28, 1950, by the owner, Mrs. Mabel Perkins Ruggles.

LOANS TO OTHER MUSEUMS AND ORGANIZATIONS

Oil, portrait of Andrew Jackson, by Ralph E. W. Earl, was lent to the Department of State September 20, 1949, to be hung in the office of the Under Secretary of State for a period not to exceed 4 years.

Oil, Thomas A. Edison Listening to His First Perfected Phonograph, by Col. Abraham Archibald Anderson, was lent to the Morse Exhibition of Arts and Science, sponsored by the National Academy of Design, for the one hundred and twenty-fifth anniversary of its founding, held at the American Museum of Natural History, January 18 to February 28, 1950. (Returned March 7, 1950.)

Seven portraits by G. P. A. Healy, Gen. W. T. Sherman, Mrs. W. T. Sherman, William G. Preston, F. P. G. Guizot, President John Tyler, Col. A. G. Brackett, and Gen. A. J. Myer, were lent to the Virginia Museum of Fine Arts for an exhibition entitled "Healy's Sitters or a Portrait Panorama of the Victorian Age," from January 24 through March 5, 1950. (Returned March 16, 1950.)

Fifty-two items from the exhibition of Abbott H. Thayer's studies on the protective coloration in the Animal Kingdom were lent, with the consent of the owners, for exhibition in the American Academy of Arts and Sciences from January 12 through February 8, 1950. (Returned February 15, 1950.)

Oil, portrait of John Muir, by Orlando Rouland, was lent to the Bureau of the Budget on February 13, 1950, for a period not to exceed 4 years.

Oil, portrait of Capt. John Ericsson, by Arvid Nyholm, was lent to the House Judiciary Committee on March 3, 1950, for a period not to exceed 4 years.

Oil, portrait of Commodore Stephen Decatur, by Gilbert Stuart, was lent to the Truxtun-Decatur Naval Museum on April 27, 1950, for a period not to exceed 1 year.

Oil, portrait of Samuel P. Langley, by Robert Gordon Hardie, was lent to the Langley Aeronautical Laboratory of the National Advisory Committee for Aeronautics, Langley Field, Va., May 1, 1950, for an indefinite period.

Three oil paintings, Gen. John J. Pershing, by Douglas Volk; Admiral William S. Sims, by Irving R. Wiles; and Gen. William T.

Sherman, by George P. A. Healy; and one marble bust of Alexander Graham Bell, by Moses W. Dykaar, were lent to the National Gallery of Art, to be included in the Sesquicentennial celebration, "Makers of History in Washington, 1800-1950," from June 28 through November 19, 1950.

Oil, December Uplands, by Bruce Crane, was lent to the executive office, Council of Economic Advisers, on June 27, 1950, to be hung in room 372A, Old State Building, for a period not to exceed 4 years.

LOANS RETURNED

Four oil paintings lent to the Public Library of the District of Columbia in April 1940 were returned on November 22, 1949: Portrait of Thomas McKean, by Charles Willson Peale, and Portrait of Mary Abigail Willing Coale, by Thomas Sully, from the Georgetown Branch; Madonna with Halo of Stars, by an unknown artist, from the Southeastern Branch; and Musa Regina, by Henry Oliver Walker, from the Northeastern Branch.

THE HENRY WARD RANGER FUND

Since it is a provision of the Ranger bequest that the 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 by the National Collection of Fine Arts during the 5-year period beginning 10 years after the death of the artist represented, two paintings were recalled for action of the Smithsonian Art Commission at its meeting December 6, 1950:

Oil painting, Gold Mining, Cripple Creek, by Ernest Lawson, listed earlier in this report, was accepted by the Commission to become a permanent accession.

Frances, by Frederick Carl Frieseke, N. A., was returned to the Washington County Museum of Fine Arts, Hagerstown, Md., where it was originally assigned in 1932.

THE NATIONAL COLLECTION OF FINE ARTS REFERENCE LIBRARY

Three hundred and eighty-four publications (260 volumes and 124 pamphlets) were accessioned during the year, bringing the total in the National Collection of Fine Arts Library to 11,746.

INFORMATION SERVICE

The requests of 1,255 visitors for information received special attention, as did many similar requests by mail and phone; 706 art works were submitted for identification.

The Director and Paul V. Gardner, curator of ceramics, gave lectures on art topics during the year to a number of groups, including the art section of the University Women's Club; the Arts Club and officers of art societies in the Metropolitan area; the Kiln Club; the District of Columbia Chapter of the Daughters of the American Revolution; the Alexandria Association at Gadsby's Tavern; and the American Federation of Jewish Women. They also served as judges or as members of juries of selection and award for a number of exhibitions held in Washington.

SPECIAL EXHIBITIONS

Thirteen special exhibitions were held during the year, as follows:

July 1 through 31, 1949.—An exhibition of 60 water colors and sketches of Greenland, painted between 1899 and 1911 by Christine Deichmann (1869–1945), was shown on screens in the lobby. A list was mimeographed.

August 12 through December 31, 1949.—Centennial Exhibition of Paintings by Abbott Handerson Thayer, N. A. (1849–1921), in the Gellatly Collection and the Freer Gallery of Art, with the cooperation of the latter. Supplementary exhibits in the lobby consisted of (1) Thayer's studies on the protective coloration in the Animal Kingdom, (2) camouflage, and (3) works by his former students, consisting of 155 oils, water colors, pastels, models, and photographs. A catalog was printed.

September 8 through 28, 1949.—Exhibition of 262 oils, water colors, and prints, by Madame Henriette Reuchlin, held under the patronage of His Excellency, E. N. Van Kleffens, Ambassador of the Netherlands to the United States. A list was mimeographed.

November 6 through 29, 1949.—The Twelfth Metropolitan State Art Contest, held under the auspices of the District of Columbia Chapter, American Artists Professional League assisted by the Entre Nous Club, consisting of 324 paintings, sculpture, prints, ceramics, and metalcraft. A catalog was privately printed.

December 10 through 30, 1949.—The Fifty-eighth Annual Exhibition of the Society of Washington Artists, consisting of 71 paintings and 11 pieces of sculpture. A catalog was privately printed.

January 16 through 29, 1950.—Eighty-two drawings in pencil, pen, charcoal, chalk, crayon, and water color, by contemporary French artists, from the permanent collection.

February 4 through 27, 1950.—Exhibition of 335 drawings and paintings of Indo-China, by Jean Despujols. A catalog was provided.

March 4 through 26, 1950.—A selection of 34 oil paintings and 1 bronze bust, from the William T. Evans collection.

March 30 through April 2, 1950.—A gros point carpet (10' 2" by 6' 9½"), made by Queen Mary, and the specially constructed oak casket in which it came. A catalog was provided by the British Information Service.

April 2 through 27, 1950.—Biennial Exhibition of the National League of American Pen Women, consisting of 356 paintings, sculpture, prints, ceramics, and metalcraft. A catalog was privately printed.

April 6 through May 8, 1950.—Exhibition of 50 miniature paintings commemorating the Fiftieth Anniversary of the American Society of Miniature Painters.

June 4 through 30, 1950.—The Seventeenth Annual Exhibition of the Miniature Painters, Sculptors, and Gravers Society of Washington, D. C., consisting of 203 examples.

June 8 through 30, 1950.—Exhibition of 56 paintings of Ancient Egyptian Monuments, by Joseph Lindon Smith, held under the patronage of His Excellency Mohamed Kamil Abdul Rahim Bey, Ambassador of Egypt. A catalog was provided.

Respectfully submitted.

THOMAS M. BEGGS, *Director.*

Dr. A. WETMORE,

Secretary, Smithsonian Institution.

APPENDIX 4

REPORT ON THE FREER GALLERY OF ART

SIR: I have the honor to submit the thirtieth annual report on the Freer Gallery of Art for the year ended June 30, 1950.

THE COLLECTIONS

Additions to the collections by purchase were as follows:

BRASS

- 49.11. Egyptian (middle of 13th century). Brass bowl with gold and silver inlay. In center band six cartouches with *thulth* writing alternating with roundels with horsemen. Bottom and inside engraved. 0.072 x 0.166.

BRONZE

- 49.10. Chinese, Chou dynasty (1122-256 B. C., early). A covered ceremonial vessel of the type *kuang*. Design cast in low and high relief representing mainly feline and bird forms. Smooth gray-green patina. Eight-character inscription inside cover and bottom. (Illustrated.) 0.229 x 0.246 x 0.107.
- 49.15. Chinese, Chou dynasty (1122-256 B. C., early). A monster mask. Casting in hollow relief with linear intaglio decoration. Blue-gray patina with incrustations of malachite and azurite. 0.174 x 0.234.
- 49.17. Chinese, T'ang dynasty (A. D. 618-906). Square mirror with lacquered reverse surface decorated with birds, phoenixes, butterflies, plants, etc., in gold and silver, inlaid into the lacquer. Incrustations of earth and malachite. 0.141 x 0.145.
- 49.24. Chinese, Chou dynasty (1122-256 B. C., late). Garment hook (*kou*). Gilded with all-over incised pattern. Areas of green patination. Length: 0.103.
- 49.25. Chinese, Chou dynasty (1122-256 B. C., late). Garment hook (*kou*). Mounted with gold designs placed like cloisons and inlaid with turquoise. Areas of green patination. Length: 0.197.

CRYSTAL

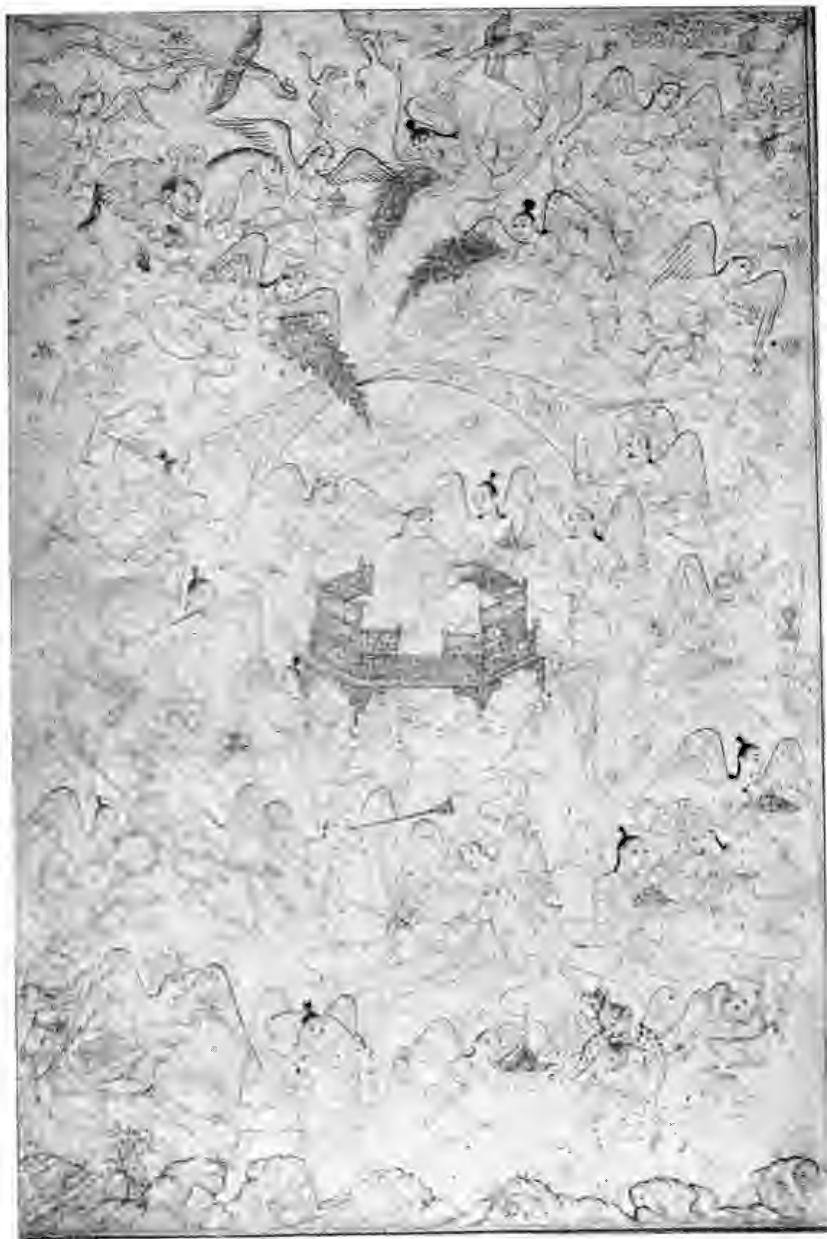
- 49.14. Egyptian, *Ikhshidid* or early *Fāṭimid* period (middle of 10th century). Flat, oval-shaped vessel with two low excrescences on the narrow sides. Arabesque decorations forming a stylized tree on the front and back are executed in low, sharp-edged relief. Austrian enameled gold mount of about 1600. 0.152 x 0.068 x 0.035.

JADE

- 49.16. Chinese, Chou dynasty (1122-256 B. C., late). Flat carving of dragon, carved on both sides. 0.046 x 0.075.

LACQUER

- 49.22. Chinese, Chou dynasty (1122-256 B. C., late). Ewer of brownish lacquer over wood, representing a crouching animal. Decorations carved in relief. Handle detached; occasional cracks through wood and lacquer. 0.156 x 0.307 x 0.153.



50.1

RECENT ADDITION TO THE COLLECTION OF THE FREER GALLERY OF ART



49.27



49.10

MANUSCRIPT

- 50.3. Armenian, 12th-13th century. A volume in a tooled-leather binding with a *fourchée*-like cross tooled on the front cover: The *Gospel* according to the four Evangelists. Two hundred and seventy parchment leaves written in angular *erkat'agir* (uncial). Initials, paragraphs, titles, arcades, and six miniatures in color and gold. 0.332 x 0.246.

PAINTING

- 49.18. Indian, Mughal, school of Akbar (third quarter of the 16th century). "The Taking of Prisoners at the Prince's Court," from the *Hamza-nāma*, executed for the Emperors Humāyūn and Akbar. Painted in gold and color on cotton cloth. 0.671 x 0.512.
- 50.1. Persian (first half of the 16th century). Solomon (?) and his Flying Throne, Borne by Angels. Drawing on paper, tinted with gold and color. (Illustrated.) 0.308 x 0.198.
- 50.2. Persian (first half of the 16th century). The Garden of the Fairies. Drawing on paper, slightly tinted with color and gold. 0.279 x 0.172.

POTTERY

- 49.12. Chinese, Sung dynasty (A. D. 960-1280). Chün ware. Vase with pear-shaped body and tall, slender, slightly flaring neck, flaring foot; reddish-buff stoneware, fired hard; thick opaque glaze, shades of bluish gray with dark flecks; scattered greenish-gray patches with red flecks. Glaze ends unevenly at foot. 0.344 x 0.143.
- 49.13. Chinese, T'ang dynasty (A. D. 618-906). Three-color ware. Dish with low, sloping sides and everted rim, three spreading feet; fine-grained soft white clay; soft lead glaze in green, white, and yellowish brown; considerable iridescence and flaking; bottom unglazed; decorated with floral patterns deeply impressed in clay. 0.060 x 0.290.
- 49.23. Chinese, Sung dynasty (A. D. 960-1280). Ting yao. Dish with six-lobed rim bound in brass; thin, sharply cut foot. Wooden stand. Fine-grained porcelain fired hard; high-fired glossy, transparent, ivory-colored glaze; "tear drops" on outside; covers footrim; decoration of ducks, waves, and water plants painted in slip under glaze inside. 0.040 x 0.188.
- 49.26. Chinese, T'ang dynasty (A. D. 618-906). Mortuary figurine of water buffalo and rider. Made of soft white clay covered with transparent glaze in blue, white, brown, and green; finely crazed. Horns and ears slightly chipped. 0.158 x 0.163 x 0.102.
- 49.27. Chinese, T'ang dynasty (A. D. 618-906). Mortuary figurine of a female dancer. Made of hard, close-grained clay in buff white with minute black specks; transparent glaze in green and brown, finely crazed; head unglazed with traces of pigment on lips and eyes. (Illustrated.) 0.282 x 0.103.
- 50.4. Chinese, Chin dynasty (A. D. 265-420). Tripodal vessel of the type *lien*, with cover; hard gray pottery with decorations incised and in relief; the three feet in the form of crouching bears; inscription of seven characters written in cinnabar around body of vessel. 0.280 x 0.332.

- 49.19. Persian, Kāshān (*circa* A. D. 1200). Double-shell ewer with rooster-head neck and tail-shaped handle. Ajouré work with black design and cobalt spots under turquoise glaze. Slight iridescence in spots. 0.291 x 0.181.

SCULPTURE

- 49.9. Indian, Gandhara (*circa* A. D. 2d century). Frieze showing four scenes from the life of the Buddha: Birth, Enlightenment, First Preaching, Nirvana. Carved in high relief on seven pieces of dark gray-blue slate. 0.670 x 2.898 x 0.098.
- 49.20. Japanese, Kamakura period (A. D. 1185-1333). Guardian figure in an attitude of violent tension: skirt swinging to proper left, remains of jeweled pendant on bare torso; cleaned and repaired; inscription on tennon below left foot. Wood. Pair with 49.21. Height: 2.264.
- 49.21. Japanese, Kamakura period (A. D. 1185-1333). Guardian figure in an attitude of violent tension: skirt swinging to proper right, remains of jeweled pendant on bare torso; cleaned and repaired. Wood. Pair with 49.20. Height: 2.335.

WOOD CARVING

- 49.7 A-B. Persian, Seljuq (A. D. 1148 [543 H.]). A pair of doors. Arabesques and inscription in *kūfic* and decorative *nashk̄h̄* in various compartments; on back, frames with incised geometric designs and undecorated boards. A: 2.278 x 0.625; B: 2.280 x 0.610.
- 49.8 A-B. Persian, Mongol period (A. D. 1285 [684 H.]). A pair of doors. Arabesque designs on one side, geometrical strapwork with decorated polygonal inserts and framing *nashk̄h̄* inscriptions on the other. Many of the polygonal inserts lost and substituted by plain modern ones. A: 2.147 x 0.555; B: 2.172 x 0.550.

The work of the staff members has been devoted to the study of new accessions and objects submitted for purchase and to general research within the collections of Chinese, Japanese, Persian, Arabic, and Indian materials. Reports, oral or written, were made upon 2,236 objects, as follows: From individuals, 1,075; from dealers, 837; at other museums, 324. There were 505 photographs of objects submitted for examination, and 295 Oriental-language inscriptions were translated. Docent service and other lectures given by staff members are listed below.

REPAIRS TO THE COLLECTIONS

A total of 20 objects were cleaned, resurfaced, remounted, or repaired as follows:

American paintings cleaned and resurfaced.....	6
Chinese paintings remounted.....	2
Chinese paintings repaired.....	1
Japanese paintings remounted.....	5
Japanese paintings repaired.....	1
Arabic manuscript pages repaired.....	1
Persian manuscript pages repaired.....	2
Japanese sculptures repaired.....	2

The repair and restoration of the ceiling of the Whistler Peacock Room, mentioned in last year's report, has been completed. The final work of cleaning and restoring the wainscoting, shutters, and doors, now in progress, is being carried on as before by John and Richard Finlayson, of the Museum of Fine Arts, Boston.

CHANGES IN EXHIBITIONS

Changes in exhibitions totaled 149, as follows:

American paintings.....	82
Chinese bronzes.....	10
Chinese gold.....	2
Chinese silver gilt.....	2
Indian paintings.....	29
Indian stone sculpture.....	4
Japanese lacquer.....	12
Japanese paintings.....	4
Japanese wood sculpture.....	2
Persian wood carving.....	2

LIBRARY

During the year the following work was accomplished in the library: Accessions, including books, pamphlets, periodicals, rubbings, study material, and photographs, 826; cataloging of all kinds, including cards typed and filed, 5,518; binding, repairing, and mounting, 762. The Japanese publication *Bijutsu Kenkyu* was analyzed, and work on the analyzing of the Japanese periodical *Kokka* was started.

PUBLICATIONS

Two publications of the Gallery were issued during the year:

Guest, Grace Dunham: Shiraz Painting in the Sixteenth Century (Oriental Studies No. 4). S. I. Publ. 3978. October 1949.

Stubbs, Burns A.: James McNeill Whistler, A Biographical Outline Illustrated from the Collections of the Freer Gallery of Art (Occasional Papers, vol. 1, No. 4). S. I. Publ. 3994. February 1950.

One article by a staff member appeared in an outside publication:

Wenley, A. G.: The Question of the Po-Shan-Hsiang-Lu. Archives of the Chinese Art Society of America, vol. 3, p. 5, 1948-1949.

REPRODUCTIONS

During the year the photographic laboratory made 3,631 prints, 434 glass negatives, and 19 lantern slides.

BUILDING

The cabinet shop has been constantly occupied in the usual work of making necessary equipment, certain repairs to the collections, the

Peacock Room, and minor repairs to the building. Lack of a painter, however, has badly handicapped operations, so that work of this nature is far behind schedule. At least half of the exhibition galleries need redecorating, while many other parts of the building are in crying need of attention.

An important project was the construction of a counter for the display and sale of publications and photographs in the entrance lobby. This relieved the understaffed administration office of considerable work.

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 62,801. The highest monthly attendance was in August with 8,550, and the lowest was in December with 1,951.

There were 1,626 visitors to the main office during the year.

COLLABORATION WITH THE UNIVERSITY OF MICHIGAN

Under the provisions of the will of the late Charles L. Freer, there was created at the University of Michigan a fund, the income from which is to be used to add to the knowledge and appreciation of Oriental art, primarily in aid of research to be conducted by experts regarding the art objects embraced in a collection of Oriental art transferred by the testator to the Smithsonian Institution, and for the publication of the results of such research. Therefore, the University of Michigan and the Freer Gallery of Art have entered into a collaborative arrangement to carry out the broad general principles concerning the program in Oriental art contemplated by the will of Charles L. Freer. Briefly, to implement this arrangement the following actions have been or will be taken:

1. Mr. Wenley has been appointed research professor of Oriental art in the Department of Fine Arts of the University of Michigan without salary and on an annual basis.
2. Dr. Ettinghausen has been appointed research professor of Islamic art in the Department of Fine Arts of the University of Michigan without salary and on an annual basis.
3. The university shall appoint a professor of Oriental art in the Department of Fine Arts of the University of Michigan as soon as practicable. It is the purpose of the university to appoint to this position a scholar to whom the Gallery will also be prepared to offer a joint appointment, without salary and on an annual basis, as research associate in the Gallery.
4. The university has appointed a committee of the Freer fund consisting of the dean of the Horace H. Rackham School of Graduate Studies, the chairman of the Department of Fine Arts, the chairman of the General Committee of the Division of Fine Arts, and the research professor of Oriental art in the Department of Fine Arts (Director of the Freer Gallery). This committee is authorized to determine the program of research

and publication to be carried on with funds derived from the income of the Freer fund, and to prepare an annual budget for presentation to the provost of the university for the expenditure of such funds.

5. The University of Michigan and the Freer Gallery of Art are collaborating in the publication of a series to be known as *Ars Orientalis*. This will succeed the university's Freer fund publication *Ars Islamica*, which has been edited at the Freer Gallery since 1944. In its greater breadth of treatment *Ars Orientalis* will supplement other Gallery publications.
6. The Freer Fund Committee has established a Charles L. Freer fellowship in Oriental art, which may be given to candidates for the doctoral degree and entitles the holder to a year of advanced work at the Freer Gallery of Art. In this connection the Director of the Freer Gallery is serving on the standing committee on graduate work in Oriental art of the Department of Fine Arts, University of Michigan.

Either party to the above-mentioned arrangement may terminate this by the giving of a year's notice to the other party of its intention to terminate.

DOCENT SERVICE AND OTHER STAFF ACTIVITIES

By request 19 groups met in the exhibition galleries for instruction by staff members. Total attendance was 369.

On invitation the following lectures were given outside the Gallery by staff members:

- ¹⁹⁵⁰
- Jan. 9. Mr. Pope lectured at the University Women's Club on "Beginnings of Glaze and Porcelain and Their Development through the Ming Dynasty." (Illustrated.) Attendance, 90.
 - Feb. 2. Mr. Pope lectured at the Chevy Chase Women's Club on "Chinese Paintings." (Illustrated.) Attendance, 60.
 - Mar. 10. Mr. Pope lectured at the Cleveland Museum, Cleveland, Ohio, on "Introduction of Chinese Porcelain to Europe." (Illustrated.) Attendance, 150.

HONORARY DUTIES

During the year, members of the staff undertook honorary duties outside the Institution as follows:

Mr. Wenley appointed a member of the Nominating Committee of the Far Eastern Association.

Mr. Pope appointed art editor of the Far Eastern Quarterly.

Respectfully submitted.

A. G. WENLEY, *Director*.

Dr. A. WETMORE,
Secretary, Smithsonian Institution.

APPENDIX 5

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, 1950, conducted in accordance with the Act of Congress of April 10, 1928, as amended August 22, 1949, which provides for continuing "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, devoted most of his time during the fiscal year to administrative affairs of the Bureau. He also continued studies on the archeological collections made in Panamá during the winter of 1948-49, particularly on the ceramic collection from the site of Utivé in the Province of Panamá. With the exception of a few brief trips for the purpose of attending scientific meetings or giving lectures, the entire year was spent in Washington.

Dr. Frank H. H. Roberts, Jr., Associate Director of the Bureau and Director of the River Basin Surveys, spent most of the fiscal year in administering and directing the River Basin Surveys. In September he attended the Twenty-ninth International Congress of Americanists where he gave an illustrated talk on the program and work of the River Basin Surveys. Early in October he participated in the annual meeting of the National Council for Historic Sites and Buildings at Williamsburg, Va. From Williamsburg he went to the Joshua S. and John E. Williamson farm near Dinwiddie to examine an archeological site where considerable material attributable to the eastern variant of the Folsom culture had been found. That particular site is one of the most extensive of its kind thus far noted in the East, and, if excavated, should provide valuable information.

Later in October Dr. Roberts visited the Missouri Basin headquarters at Lincoln, Nebr., and, accompanied by Paul L. Cooper, proceeded to the Angostura Reservoir in South Dakota where a series of excavations was under way. After spending several days with the field party, they went to Wyoming to examine the site for

the proposed Edgemont Reservoir on the Cheyenne River. From there they went to Fort Collins, Colo., where the Horsetooth Reservoir is under construction, and examined paleontological and archeological specimens uncovered in the process of the work. Returning to Washington early in November, Dr. Roberts went to Richmond, Va., and gave the principal address before the annual meeting of the Eastern States Archeological Federation. The subject of his talk was the progress and results of the River Basin program.

Late in November and early in December Dr. Roberts was again in Lincoln, Nebr., where he assisted in making plans for reorganizing the laboratory and field headquarters. While there he took part in the Seventh Conference for Plains Archeology and presided over one of the symposia dealing with the problems of Plains archeology.

In February and March Dr. Roberts visited the Departments of Anthropology at the University of Utah, Salt Lake City; the University of Washington, Seattle; the University of Oregon, Eugene; and the University of California, Berkeley. He discussed the plans for field work during the coming season and made arrangements for student help and field assistants for the River Basin Surveys parties. While at Eugene he also inspected the field headquarters and laboratory for the Columbia Basin project and assisted Joel L. Shiner, the acting field director, in making plans for the summer season. En route back to Washington, Dr. Roberts visited the Department of Anthropology at the University of Denver, where he talked with Arnold M. Withers about the cooperation of that institution in the program in Colorado. From there he proceeded to Lincoln to plan for the summer's work in that area. At that time he also spoke on the River Basin program before the annual meeting of the Nebraska State Press Association at Omaha.

In May Dr. Roberts visited the Fort Gibson Reservoir in Oklahoma and discussed plans for additional projects with the District Engineer at Tulsa. At Norman, Okla., he examined materials which had been salvaged from sites at the Fort Gibson Reservoir by a field party from the University of Oklahoma and also attended sessions of the annual meeting of the Society for American Archaeology. From Oklahoma Dr. Roberts went to Texas, visiting the Garza-Little Elm, Lavon, and Belton Reservoir projects. He also spent several days at the Whitney Reservoir where one of the River Basin Surveys parties under Robert L. Stephenson was excavating a series of Indian sites. From the Whitney Reservoir he went to Austin to inspect the field headquarters and laboratory located at the University of Texas.

During the period July 1 through October 24, 1949, Dr. John P. Harrington continued the study of the grammar of the Abnaki language at Old Town, Maine. The Abnaki language is the only one of

the Indian languages of New England that is still spoken. Abnaki forms throw considerable light on the closely related, extinct Massachusetts language in which the famous Eliot Indian Bible is written. The earliest vocabulary, or vocabularies, of the Abnaki language resulted from the work of French missionaries in the Kennebec Valley, but the work has been lost. The maps and writings of Capt. John Smith, Champlain, and Lescarbot carry a number of Abnaki place names. The earliest extensive Abnaki vocabulary is that attributed to Capt. George Weymouth and was probably taken down by him in 1605 from Abnaki Indians whom he captured near the St. George Islands, off the eastern end of Penobscot Bay, and took to England. This vocabulary was first printed in 1625. In 1691, 86 years after the Weymouth Abnaki vocabulary had been made, a young French missionary priest named Sebastian Rasles arrived in Canada and compiled his vast French-Abnaki dictionary. This dictionary was captured by the English at the battle of Norridgewock in 1724 and was first printed in 1833.

On February 9, 1950, Dr. Harrington proceeded to Mérida, Yucatán, for the purpose of studying the Maya language. A tape recorder was taken along and 10 half-hour recordings of stories told in the Maya language were obtained. Dr. Harrington returned to Washington on April 11, bringing with him a large quantity of linguistic material.

At the invitation of the Canadian Government, Dr. Henry B. Collins, Jr., conducted archeological investigations on Cornwallis Island in the northern part of the Canadian Arctic Archipelago. Excavations were made at four prehistoric Eskimo village sites at Resolute Bay on the south side of the Island. Dr. Collins and his assistant, Jean P. Míchea, reached Resolute by plane on May 27 after brief stops at Frobisher Bay on Baffin Island, and at Thule in northwest Greenland. The work continued until August 23, 1949. The numerous house ruins on Cornwallis and neighboring islands show that this now uninhabited region once supported a sizable Eskimo population. The Cornwallis Island structures—built of stones, whalebones, and turf—proved to have been made by the Thule Eskimos, a prehistoric group that originated in Alaska and later spread eastward to Canada and Greenland. A large collection of artifacts was obtained which, after study, will be divided between the Smithsonian and the National Museum of Canada, joint sponsors of the work. As the natural history of Cornwallis Island is so little known, an attempt was made to collect representative samples of fossils, minerals, vascular plants, mosses and lichens, insects, and fresh-water invertebrates.

Dr. Collins organized a symposium on Arctic anthropology as part of the program for the Twenty-ninth International Congress of Americanists held in New York in September 1949, the participants being anthropologists, archeologists, and linguists from the United States, Canada, and Denmark who have specialized in Eskimo research.

Dr. Collins continued to serve as chairman of the directing committee of the Bibliography of Arctic Literature and the Roster of Arctic Specialists, two projects that the Arctic Institute of North America is carrying out under contract with the Office of Naval Research for the Departments of the Army, Navy, and Air Force, and the Defense Research Board of Canada. He also participated in organizing the forthcoming Alaska Science Conference to be held under the auspices of the National Research Council in November 1950, serving as a member of the steering committee and chairman of the social sciences division.

During August Dr. William N. Fenton spent 2 weeks studying the archives of the Ontario County Historical Society at Canandaigua, N. Y. In August and September he made tape recordings in the field at Tonawanda and Allegany Seneca reservations. In October he completed a survey of Iroquois materials in the Massachusetts Archives at the State House, in Boston, and found additional Pickering letters in Salem. In December, 34 volumes of the printed journals of the Continental Congress (1774-89) were surveyed and extracted for Iroquois material. During March-May Dr. Fenton was detailed to assist the Department of Justice in the preparation of a case for the Court of Claims concerning Indian lands. In June he was detailed to the Office of Indian Affairs on problems of tribal organization among the Pueblos, the Klamath Indians of California, and the Blackfeet of Montana. Dr. Fenton was in the field on this assignment at the close of the fiscal year.

In September Dr. Gordon R. Willey, anthropologist of the Bureau of American Ethnology, assumed the temporary duties of Acting Director of the Institute of Social Anthropology for the remainder of the fiscal year. However, research under Bureau auspices continued, and preparation of various manuscripts was carried forward. He continued the preparation of the manuscript "Prehistoric Settlement Patterns in the Virú Valley of Northern Peru." Subsequently he began studies on collections from the Canaveral and Ormond Beach Mounds in east Florida, completing these studies in May. The month of June was then devoted to rewriting and revising a manuscript, "Early Ancon and Early Supé: Chavin Horizon Sites of the Central Coast of Perú." This report, approximating 125,000 words,

was written in collaboration with Dr. John M. Corbett and will be released by the Department of Anthropology, Columbia University.

RIVER BASIN SURVEYS

(Report prepared by FRANK H. H. ROBERTS, Jr.)

The River Basin Surveys were organized as a unit of the Bureau of American Ethnology in the fall of 1945. Their purpose was to carry into effect a memorandum of understanding between the National Park Service and the Smithsonian Institution, which provides for the salvage of archeological and paleontological remains occurring in areas to be flooded or otherwise disturbed by the program of the Federal Government for flood-control, irrigation, hydroelectric, and navigation projects. The first actual field work was started in July 1946 and has continued since that date. Throughout the period of operations, the investigations have been conducted in cooperation with the National Park Service and the Bureau of Reclamation of the Department of the Interior, the Corps of Engineers, Department of the Army, and a number of nongovernmental institutions scattered throughout various States. During the past fiscal year the work was financed by a transfer of \$215,886 to the Smithsonian Institution by the National Park Service, derived in part from the National Park Service and in part from the Bureau of Reclamation. The money from the National Park Service was for use in areas outside of the Missouri Basin, while that from the Bureau of Reclamation was for work in the latter area. Because of the fact that the appropriations for fiscal 1950 were made available so late in the summer, the necessary funds could not be transferred to the Smithsonian Institution until the period for field work had passed in many areas. Consequently, less was accomplished than in previous years.

Activities during the year included reconnaissance or surveys for the purpose of locating archeological sites or paleontological deposits that will be involved in construction work or are in locations that eventually will be flooded, and in the excavation of sites located by previous surveys. The survey work covered 26 reservoirs located in 8 States and scattered over 5 river basins. Excavations were completed or under way at the end of the fiscal year in 13 reservoir areas in 9 States. Three of the excavation projects were in areas where digging had been done in previous years, while the remainder were new undertakings. At the close of the fiscal year, the total of the reservoir areas, where surveys had been made or excavations carried on since the beginning of the program in July 1946, was 180 located in 23 States. Archeological sites located and recorded have reached a total of 2,260, of which 484 have been recommended for excavation or additional testing. During

the year preliminary appraisal reports were completed for all the reservoirs surveyed, and 23 reports were mimeographed for limited distribution to the cooperating agencies. This makes a total of 120 such reports issued since the start of the program. The excavations made during fiscal 1950 bring the total for areas where such work has been done to 21. Technical reports on the results of some of that work have appeared in scientific journals, while the completed manuscripts on others are now awaiting publication. Paleontological surveys have been made in 100 reservoirs, 56 being those where archeological work has also been done. The remaining 44 will eventually be visited by archeological parties. Including the reservoir areas where archeological work remains to be done, the over-all total of reservoirs visited is 224.

The distribution by States of all the reservoirs investigated for archeological remains as of June 30, 1950, is as follows: California, 20; Colorado, 23; Georgia, 3; Idaho, 10; Illinois, 2; Iowa, 3; Kansas, 6; Louisiana, 1; Minnesota, 1; Montana, 5; Nebraska, 16; New Mexico, 1; North Dakota, 13; Ohio, 2; Oklahoma, 5; Oregon, 24; South Dakota, 9; Tennessee, 1; Texas, 13; Virginia, 1; Washington, 9; West Virginia, 2; Wyoming, 11. Excavations have thus far been made in: California, 1; Colorado, 1; Georgia, 1; Kansas, 1; Montana, 1; Nebraska, 1; New Mexico, 1; North Dakota, 2; Oklahoma, 1; Oregon, 1; South Dakota, 2; Texas, 3; Virginia, 1; Washington, 3; and Wyoming, 1.

Throughout the fiscal year the River Basin Surveys received full cooperation from the National Park Service, the Bureau of Reclamation, and the Corps of Engineers, as well as various State agencies. At some of the projects guides and transportation were furnished to staff men in the field. At others, office and laboratory space was provided, and in a number of cases labor and mechanical equipment were made available by the construction agency. The assistance provided made possible a greater accomplishment than would otherwise have been possible had it been necessary for the River Basin Surveys men to rely on their own resources. The National Park Service was primarily responsible for procuring the funds necessary for carrying on the program and also served as the liaison between the Smithsonian Institution and the other governmental agencies, not only in Washington but through its several regional offices as well.

General supervision and direction of the work in California, Texas, Louisiana, Georgia, Ohio, and Virginia were from the main office in Washington. The Missouri Basin program was carried on under the direction of a field headquarters and laboratory at Lincoln, Nebr., and the activities in the Columbia Basin were supervised by a field office located at Eugene, Oreg.

Washington office.—The main headquarters of the River Basin Surveys continued under the direction of Dr. Frank H. H. Roberts, Jr., throughout the year. Joseph R. Caldwell, Carl F. Miller, and Ralph S. Solecki, archeologists, were based at that office, although Mr. Solecki did not work full time for the Surveys.

Mr. Caldwell and Mr. Miller left Washington on July 7 for Cartersville, Ga., where they started an excavation program within the area to be flooded by the Allatoona Reservoir. Mr. Miller completed part of the project early in December and returned to Washington, while Mr. Caldwell continued digging until early in February, when he went to Athens, Ga., to establish a field laboratory and study the material obtained during the excavations. Facilities for the laboratory at Athens were provided by the University of Georgia. During the first week in August Mr. Miller was temporarily detached from the Allatoona investigations and sent to Louisiana to make a preliminary reconnaissance at the Bayou Bodcau Reservoir. Except for a week in May when he visited archeological sites at Chester's Island and Floyd's Island in the Okefenokee Swamp, Mr. Caldwell spent the remainder of the fiscal year at Athens preparing his report, "A Preliminary Report on Excavations in the Allatoona Reservoir," which was published in *Early Georgia*, vol. 1, No. 1, and a manuscript pertaining to the Rembert Mounds on the Savannah River, which will be published in the first volume of the River Basin Surveys Papers.

After his return to Washington Mr. Miller devoted most of his time to a study of the material and information he had obtained at the Allatoona Reservoir and in the preparation of his portion of the report on the project. He also served as assistant to the Director, and during such times as the latter was absent from the office took charge of the operations. In June he went to the Buggs Island Reservoir, on the Roanoke River in southern Virginia, to excavate a large village and burial site that was being destroyed by construction within the area. During the year Mr. Miller completed and published five manuscripts on his work in the Southeast.

Mr. Solecki, who had been transferred to the Smithsonian Institution's staff the previous May to conduct an archeological reconnaissance in northern Alaska, returned to duty with the River Basin Surveys on September 11. In November he proceeded to Ohio, where he made a brief reconnaissance of the proposed Deer Creek and Paint Creek Reservoirs in the Scioto Reservoir basin near Chillicothe. During the remainder of the fiscal year he prepared a detailed report on the excavation of the Natrium Mound, 10 miles north of New Martinsville, W. Va., which he had dug during the winter of 1948-49.

California.—In May, Albert Mohr and J. Arthur Freed, field as-

sistants, made surveys of the Burns, Bear, and Owens Reservoirs of the Merced group, in the San Joaquin Valley. Nineteen sites were located in the three projects, but as all of them are of little significance no additional work has been recommended for them. In June, Mohr and Freed made a survey at the Cachuma Reservoir on the Santa Ynez River, near Santa Barbara. They located 18 sites and at the end of the fiscal year Mohr was making preparations to dig a series of test trenches in two of them.

Franklin Fenenga joined the River Basin Surveys as archeologist on June 19 and initiated a series of excavations at the Terminus Reservoir on the Kaweah River in the Central Valley. That area is particularly important because it was at the boundary of the territories of the Wikhamni division of the Yokuts of the San Joaquin Valley and of the Balwisha group of the Mono Indians. The archeological materials from the sites should provide important information on the problem of cultural contact and diffusion between the different tribes.

Columbia Basin.—Work in the Columbia Basin was continued under the direction of the field headquarters at Eugene, Oreg., where the University of Oregon provided laboratory and office space. Douglas Osborne, acting field director, was in charge of the program in that area until he resigned on September 3 to accept a position with the University of Washington. Joel L. Shiner was appointed to succeed him and continued as acting field director throughout the remainder of the year.

During August excavations were carried on in the McNary Reservoir area, with Washington State College cooperating in the project. Eight sites were tested or excavated on the south side of the Columbia River between Umatilla Rapids and Techumtas Island, and in addition further work was done at one of the sites excavated during the previous fiscal year. Survey reports had indicated that at two of the locations there probably were remains beneath a layer of volcanic ash. Digging there, however, failed to produce any evidence for such an occupation. Information from other sites investigated demonstrated that there were at least two cultural horizons along that portion of the river. The data seem to indicate that the older inhabitants made most of their implements of basalt while the later ones used chalcedony for the most part. The economy of the two groups appears to have been basically the same, although the earlier was less complex than the later. This is indicated by greater dependency on shellfish and a tendency toward sporadic occupation and a wandering life.

During September Charles C. Case, Jr., and Robert C. Salisbury, field assistants, surveyed 11 proposed reservoirs in the Willamette

Valley, viz, Dexter, Hills Creek, Cougar, Blue River, Gate Creek, Green Peter, Cascadia, Wiley Creek, Holly, Falls Creek, and White Bridge. The Big Cliff, which had been surveyed by Osborne the previous spring, was revisited. Probably because of the extreme steepness of the terrain and the dense cover of timber, nothing of archeological interest was found. It seems likely that the small tributary canyons in which those reservoirs will be located were never used by Indians except for temporary hunting and fishing grounds.

From the Willamette area, Case and Salisbury proceeded to the Heise-Roberts project on the Snake River in southeastern Idaho. That project consists mainly of bank-control work and when completed will not flood any of the adjacent area. Careful examination of the terrain to be disturbed by the construction work failed to reveal any archeological remains, and so further work at that location will not be necessary. From there the survey team went to the Crow Creek Reservoir near the Idaho-Wyoming border. Careful search of the area to be flooded by that project failed to reveal any archeological sites, and no further investigations will be required. From Crow Creek, Case and Salisbury returned to the Post Reservoir, which will be on the Crooked River, 10 miles east of the town of Post, Oreg. That district was occupied at one time by small bands of the northern Paiute, and since their economy was based on hunting and gathering, they spent little time in any one spot. Consequently, only three small camp sites were found in the area that will be flooded. At all three the archeological materials were found to occur only on the surface, and no further work has been recommended for that reservoir.

During the fall and winter months Shiner processed the materials from the McNary excavations and prepared the preliminary appraisal reports on the results of the surveys. In collaboration with Douglas Osborne, a preliminary report was written, giving the results of the excavation program in the McNary Reservoir. In February, Mr. Shiner, with a party of students from the University of Oregon, excavated a small cave east of The Dalles where the relocation of a highway was destroying archeological material. This project was in cooperation with the University of Oregon, which provided the student labor and assumed all the expenses of the project. An interesting series of artifacts was obtained, showing a sequence of types for the area.

In the early part of June Mr. Shiner made an inspection trip to the Cascade Reservoir on the Payette River, Idaho, to determine the condition of an archeological site where excavations were planned. On his arrival there he found that the water in the reservoir had risen

much more rapidly than contemplated and that there was no possibility for archeological work. From the Cascade Reservoir he returned to the McNary Reservoir to inspect the sites where work was to be done during the summer field season.

Richard Daugherty joined the River Basin Surveys staff as archeologist on June 12 and proceeded to the O'Sullivan Reservoir, near Moses Lake, Wash. Excavations were carried on at the O'Sullivan Reservoir in the summer of 1948 by Mr. Daugherty and the investigations this year were a continuation of the previous program. Daugherty began work in a village site and at the close of the fiscal year had excavated the remains of several pit houses and accompanying midden deposits.

Douglas Osborne rejoined the River Basin Surveys on June 15 as a consulting archeologist and took charge of the general excavation program in the Columbia Basin. He proceeded with George Cheney and S. J. Tobin, who joined the Surveys on June 16 as archeologists, and their parties to the Chief Joseph and Equalizing Reservoirs in Washington. Cheney began work at the Chief Joseph Reservoir on June 19 and from then until the close of the fiscal year was occupied in the excavation of village sites. Tobin's party at the Equalizing Reservoir began the excavation of a large cave on the same date. The cave, although its floor was littered with huge blocks that had fallen from the ceiling, gave evidence of considerable occupation, and numerous specimens of netting, cordage, basketry, and other perishable material were found there. Osborne returned to Eugene, and then proceeded with a party to the McNary Reservoir, where he began a series of excavations in sites lying farther upstream from those investigated during previous seasons. At the close of the fiscal year his party was busy digging house pits and midden deposits.

A survey party consisting of George Coale, Stewart Peck, and Charles Farrell began a reconnaissance of the John Day Reservoir on the Columbia River June 27 and at the close of the fiscal year had located a number of important sites.

Georgia.—The bulk of the work done in Georgia was at the Allatoona Reservoir on the Etowah River, near Cartersville. During the period from July to February, Joseph R. Caldwell excavated 6 sites and tested 10 others. From July to December, Carl F. Miller excavated 5 sites and tested 9 others. As a result of the investigations, it is now possible to outline a new sequence of cultural stages in the Etowah River area. At least 10, and probably 11, different periods were identified, extending from the historic Cherokee of about 1755 back to a pre-pottery period when the people depended for the most part on hunting and food gathering for their sustenance. The various periods as outlined on the basis of the investigations have been named

Galt, which is that of the historic Cherokee; Brewster and Lamar, which probably represent Creek occupation; Savannah and Etowah, which pertain to the same basic Muskogean stock but have not been identified as to the specific tribes; and the Woodstock period, which has not yet been correlated with any specific peoples but which is significant because it was characterized by a fortified village having circular palisades with towers and is the first where there is evidence for the growing of corn. The preceding period has been designated the Cartersville and is identified by a distinctive type of stamped pottery decoration and indications that the people had become at least semisedentary. The next preceding period was one represented by a site excavated by Mr. Miller but was not found by Mr. Caldwell, who did not include it in his sequence. Mr. Miller has tentatively designated the period as the Acworth. It was represented by the remains of a village containing some 60 round structures of varying sizes. Definite indications of Hopewellian influences were found in this horizon. The pottery was a plain, well-polished ware that preceded the introduction of stamped wares in the area. The next period recognized by both Caldwell and Miller is one designated the Kellogg. It was characterized by a semisedentary hunting and gathering culture. There was great use of storage pits, and a variety of acorns and nuts were recovered from them. Apparently it was during this period that the bow and arrow appeared in the Allatoona region. Antedating the Kellogg was a period called Stallings, which is represented only by scattered finds of potsherds from a fiber-tempered pottery. The oldest of the sequence, which tentatively has been designated pre-pottery, preceded the Stallings. The pre-pottery stage may represent several periods and cover a long duration of time. During that stage of the occupation of the area, the people had no pottery, no pipes, no agriculture, and possibly no houses. At least no evidence was found indicating any type of structure. The economy was basically hunting and gathering, and the chief weapon probably was a javelin hurled with a spear thrower.

Louisiana.—The only work done in Louisiana during the fiscal year consisted of the reconnaissance made by Carl F. Miller at the Bayou Bodcau project on the Red River, northeast of Shreveport. He found that although there are archeological remains in that district, none of them occur in the area to be involved by the work of the Corps of Engineers.

Missouri Basin.—As in previous years, the program in the Missouri Basin was supervised and directed from the field headquarters at the University of Nebraska, in Lincoln. From July 1 until the end of December, Dr. Waldo R. Wedel was in charge of the program. His promotion to the position of curator of the division of archeology,

United States National Museum, made it necessary for him to withdraw from the River Basin Surveys activities, and on January 23 Paul L. Cooper was designated as acting field director.

Delay in the passage of the 1950 appropriation bill greatly reduced field work in the Missouri Basin during the summer of 1949 and prevented completion of the program originally set up for the fiscal year. However, it was possible to make surveys at the Onion Flat, Soral Creek, and Raft Lake Reservoirs in the Big Horn River basin in Wyoming during July, and to initiate an excavation program in the Angostura Reservoir in South Dakota. Nothing of archeological significance was noted in the three reservoirs, and no further work is recommended for them.

The investigations at the Angostura Reservoir continued from early in July until November and were resumed in May. Though the final results of the excavations will not be known until it is possible to study all the materials obtained, it may be said that the sites where digging was done represent a number of different cultures, most of them indicating pre-pottery-making peoples. At two of them, however, evidence was obtained of two different pottery-making groups. At one of the sites the occupation level was so deeply buried that it was necessary to use a bulldozer to remove the sterile overburden. Material from that particular site indicates a period of considerable antiquity. Tentative correlations suggest that it probably is comparable in age to some of the so-called Yuma remains in other parts of the Plains area.

Other field work accomplished during the 1949 season was an 18-day reconnaissance in the Oahe Reservoir area in South Dakota. Preliminary surveys had been made there in previous years, but during the reconnaissance in November more than 50 sites, many of them previously unrecorded, were visited.

Active field work was resumed in June when a paleontological party proceeded to the Angostura Reservoir, the Boysen and Anchor Reservoirs in Wyoming, and the Canyon Ferry project in Montana. Important fossils were recovered from the latter area. On June 7 excavations were started in the Garrison Reservoir in North Dakota, in the Tiber Reservoir in Montana, and later in the month at the Oahe project in South Dakota. All those activities were proceeding satisfactorily at the end of the fiscal year.

During the fall and winter months considerable work was done in the laboratory. Eight preliminary reports were written and mimeographed for distribution to the cooperating agencies. In all, 16,938 specimens collected from 146 sites in 16 reservoir areas were cleaned and cataloged. Fifty-six maps were drawn and 1,318 negatives processed. The negatives include field photographs, black-and-white

negatives of color transparencies, and laboratory photographs. Two hundred and six transparencies were cataloged and filed; 78 enlargements were printed and mounted; and 1,782 black-and-white contact prints were made, cataloged, and filed. More than 4,000 photographic copies of archeological records were made to bring the basic record file up to date. A considerable number of animal bones taken from archeological sites were identified and there was some restoration of fragmentary pottery.

G. Ellis Burcaw joined the staff as an archeologist on May 31 and left Lincoln on June 7 for the Garrison Reservoir in North Dakota, where he began a series of excavations at the so-called Rock Village. That site, one of the farthest upstream of the known fortified earth-lodge villages, was yielding considerable quantities of artifacts, including some European trade material, as work progressed at the close of the fiscal year.

Early in the fiscal year Paul L. Cooper devoted his time to studying materials pertaining to the archeological remains in the Oahe and Fort Randall Reservoirs. During September he made two brief trips to the Angostura and Oahe Reservoirs and late in October accompanied Dr. Frank H. H. Roberts, Jr., Director of the River Basin Surveys, on a visit to the excavation projects at the Angostura Reservoir and to inspect sites in other areas. During November he made a reconnaissance along the east side of the Missouri River in the Oahe Reservoir area. In December he accompanied Dr. Gordon Baldwin, of the National Park Service, Dr. Carlyle Smith, of the University of Kansas, and Wesley Hurt, of the University of South Dakota, on a trip to the Fort Randall and Oahe Reservoirs in South Dakota for the purpose of selecting sites for excavation by the Universities of Kansas and South Dakota during the summer of 1950. On January 23, 1950, he was designated acting field director of the River Basin Surveys, and thereafter his activities were mainly concerned with planning and supervising the headquarters and field activities of the organization.

Robert B. Cumming, Jr., archeologist, served throughout the year as laboratory supervisor at the Lincoln headquarters. During such time as the acting director was absent from the office, he assumed administrative responsibility for continuing its operations. In addition he carried on research work on the skeletal material from the Medicine Creek and Harlan County Reservoirs and prepared an appendix on the skeletal remains from the Woodruff ossuary for the technical report on the ossuary. He also did some work on the human remains from ossuaries in Nebraska.

Walter D. Enger, Jr., archeologist, joined the River Basin Surveys staff on May 31 and left Lincoln on June 9 to begin the excavation of

sites to be flooded by the proposed Tiber Reservoir on the Marias River in Montana. Previous surveys in that area had shown three types of sites, consisting of buried occupational levels exposed along the edges of the river terraces, surface sites on the river terraces, and tipi-ring sites on top of the plateau surrounding the reservoir. Because of the nature of the cultures represented, the artifact yield and the work accomplished before the end of the fiscal year was small; but considerable information was being obtained about the sequence of cultures and the general aboriginal characteristics of the area.

Jack T. Hughes, archeologist, left Lincoln on July 7 and proceeded to the Angostura Reservoir in South Dakota, where he initiated a series of excavations. Hughes continued in charge of that project until September when he resigned from the River Basin Surveys to return to Columbia University for further academic work. Mr. Hughes prepared a report on the results of the Angostura work obtained while he was in charge of the field party.

Donald J. Lehmer, Jr., archeologist, joined the Missouri Basin staff on June 1. He left Lincoln on June 9 with G. Ellis Burcaw and proceeded with him to the Tiber project where he assisted in establishing headquarters. From there he returned to Pierre, S. Dak., and on June 19 began the excavation of a stratified earth-lodge village in the area of the Oahe Dam approach channel. By the end of the fiscal year his party had identified house remains attributable to both the Arikara and the Mandan.

George Metcalf, field and laboratory assistant, spent the period from July 22, 1949, to November 7, 1949, with the field party at the Angostura Reservoir. During the fall and winter months he assisted in the analysis of the material from the Medicine Creek Reservoir and in the preparation of the report for the excavations made there during the previous fiscal year. He also made a study of ceramic materials from Upper Republican sites which are in the collections of the Nebraska State Historical Society at Lincoln. Metcalf left Lincoln on May 19 with the Wheeler party and at the close of the fiscal year was working at the Angostura Reservoir.

Robert L. Shalkop joined the staff as an archeologist on June 28, and at the end of the fiscal year was preparing to leave with a reconnaissance party to survey a number of reservoir projects in Montana and Wyoming.

James M. Shippee, field and laboratory assistant, was a member of the field party at the Angostura Reservoir from early in July until early in November. During the fall and winter months he devoted considerable time to the restoration of pottery vessels and the processing of other specimens from the Angostura excavations. During the spring months most of his time was occupied in the preparation of

field equipment to be used by the various parties during the summer months.

At the beginning of the fiscal year Richard P. Wheeler, archeologist, was engaged in preliminary archeological surveys of the Onion Flat, Soral Creek, and Raft Lake Reservoirs, in the Big Horn River basin, Fremont County, Wyo. He returned to the Lincoln headquarters on July 11 and spent the time from then until the middle of August preparing reports on the reservoir areas examined over the period in which his party had been in the field. In August he joined the Angostura field party and after the departure of Mr. Hughes took full charge of the operations. From September 4 to November 7, Wheeler and his crew partially excavated or tested and mapped 11 sites. He returned to Lincoln in November and devoted the time from then until the middle of April in analyzing artifacts, supervising the drawing of site maps and profiles, and preparing an outline and notes for the final report on the Angostura investigations. On April 19 he made a 5-day trip to the Angostura Reservoir to make plans for the excavations for the coming season. One month later he returned to the Angostura Reservoir with a field party and from then until the end of the fiscal year he excavated and tested two sites and supervised the removal of overburden with a bulldozer at two areas at a third site. The use of mechanized equipment in this particular instance was made necessary by the fact that the occupation level occurs beneath from 9 to 10 feet of sterile deposits, and there was not sufficient time to remove them by the usual hand methods. The materials found in the deeply buried level indicate an early hunting culture.

Dr. Theodore E. White, paleontologist, spent the early months of the fiscal year in the laboratory at Lincoln identifying osteological material obtained from archeological sites and in preparing a report on the physiography of the Angostura Reservoir. He worked in Texas in November and December. In January he was transferred to the Smithsonian Institution staff and was sent to Panamá. He returned to duty with the River Basin Surveys in May. He left the Lincoln headquarters on June 15 and proceeded to the Boysen Reservoir area in Wyoming, where he prospected for vertebrate fossils until June 15. He then moved on to the Anchor Reservoir area where he prospected the Upper Permian and Lower Triassic deposits. On June 21 he moved to the Canyon Ferry Reservoir area in Montana, and spent the time prospecting the Oligocene and Miocene deposits. Two of the Oligocene localities produced abundant specimens, mostly small mammals, while three new localities were discovered in the Miocene deposits. Material obtained from two of the new localities definitely establishes the presence of both Lower and Middle Miocene

deposits in the area. During the course of this work, Dr. White was assisted by Prentiss Shepherd, Jr., a student at Harvard University, and William C. Harrup, Jr., a student at Columbia University.

Ohio.—Field work in Ohio was restricted to brief visits to the proposed Deer Creek and Paint Creek Reservoirs on two tributaries of the Scioto River, near Chillicothe. Mr. Solecki, of the River Basin Surveys, went to Ohio in November and, in company with Clyde B. King, superintendent of Mound City National Monument, and Raymond Baby, archeologist of the Ohio State Archeological and Historical Society, Columbus, determined that no sites of archeological significance would be inundated by the proposed reservoirs. During the course of the reconnaissance, Mr. Solecki examined three features on Deer Creek and two nearby on Spruce Hill, which were purported to be Norse iron furnaces, but was unable to find anything that could be construed as conclusive proof that the remains represented ancient iron furnaces. The opinion was that the features probably had been lime kilns dating from the early Colonial period in the area.

Texas.—The River Basin Surveys in Texas continued to operate from the base and headquarters furnished by the Department of Anthropology of the University of Texas at Austin. Surveys were begun and completed at the Belton Reservoir on the Leon River, at the Canyon Reservoir on the Guadalupe River, and at the Texarkana Reservoir on the Sulphur River, near the town of Texarkana. The work at the Belton Reservoir resulted in the location of 43 archeological sites. Five of them were found to lie outside the reservoir area. Twelve of the remaining are rock-shelter sites, 12 are open occupational areas, and 4 are a combination of the two forms. The remainder consist either of burned rock middens or deeply buried middens. Testing was done in five sites, and a number of interesting artifacts were recovered. However, it was discovered that during the course of the years most of the sites in the area had been looted by commercial collectors and so little remains that further investigations are not warranted. Such evidence as was found during the reconnaissance and testing indicated that the Belton district probably was occupied by people of the Round Rock focus over a period of many centuries.

At the Canyon Reservoir, 20 archeological sites were located and recorded. Five of them are large open sites, 3 are small rock shelters, 1 is a deeply buried occupation level, 1 is a subterranean cavern, and the remaining 10 are small open sites containing a single burned rock midden in each. The area is one from which only meager archeological information is available and for that reason 8 of the sites have been recommended for excavation and complete analysis.

The Texarkana reconnaissance resulted in the location of 50 archeological sites, all of which are open occupational areas. At three of them there are small artificial mounds of the variety which has been called "Capped Ridge." Ten of the sites appear to belong to a non-pottery horizon, probably the Balcones phase. Seventeen are large village areas characterized by potsherds and appear to range in time from Early Gibson Aspect to Middle Fulton Aspect. At least two sites are related to the Coles Creek culture. The remainder are small sites of indeterminate affiliation. Of the total, 16 sites have been recommended for extensive excavation and analysis.

Excavations were carried on at the Whitney Reservoir from March 6 to June 18. During that period five Indian sites—three rock-shelter and two open sites—were extensively excavated and two historic sites were studied and recorded. One shelter called Pictograph Cave contained material from two different periods, the first probably dating before A. D. 1200 and the second sometime subsequent to that date but pre-Columbian. The early occupation is comparable in many respects to the Round Rock focus in Texas, while the second has not yet been correlated with other remains. The data obtained from the shelter give interesting information pertaining to changes in diet and population density during the two periods of occupation. The second, known as Buzzard Shelter, is not far from the first, and also gave evidence of an early occupation in the lower depths of the fill. The later occupation in the shelter suggests certain similarities to that of the Toyah focus. While there is considerable similarity between the cultural sequence found in the two shelters, there are specific differences in artifact types and stratigraphic proportions. The third shelter, known locally as Sheep Cave, is the largest of the three, and the material from it agrees in the main with that from the other two. Five flexed burials were found there, however, and study of the physical type represented should throw some light on the relationships of the people.

Three weeks were spent in the excavation of a small occupational area on the second terrace of the Brazos River at the Steele site. The evidence of occupation on the surface covers about an acre in extent and it is underlain by an unknown number of occupational levels of considerably greater extent. Traces of occupation extend to a depth of at least 15 feet, and it will be necessary to use mechanical equipment to excavate a deep trench in order to make stratigraphic studies. The site appears to be a significant one in that the most recent occupation was prior to the advent of pottery and the bow and arrow in that area.

The Stansbury site, the location of a historic Indian village, was the fifth area excavated. Material from it includes trade items of French,

English, and American origin. The occupation probably began in the mid-eighteenth century, or perhaps somewhat earlier, and lasted until 1869. House patterns with compact floor, post holes, central fire hearth, and bell-shaped cache pits were found. In general, it may be said that the site shows relationship with Taovayas site of Spanish Fort. It is located near the site of Towash Village, one of the historic sites studied. This village was an early white settlement dating from the 1840's to the present time. The first dam and bridge on the Brazos River were located there, and their remains, as well as those of the old stone store and church, are still to be seen. Measurements and photographs were taken in order to make scale drawings of the buildings.

The other historic site studied was that of Fort Graham, a frontier post dating 1849-54. The outlines of one of the buildings, as well as several other features, were located. It also was determined that the "Village of the Caddoes," visited by Ferdinand Roemer in 1846, was situated at the site of Fort Graham.

Excavations got under way at the Lavon Reservoir on June 19 in the Hogge Bridge site, one of 11 situated along the east fork of the Trinity River. Each of the sites contains a large circular pit, which is a feature peculiar to the area. Digging was started in one of the large pits in order to determine what their purpose may have been. By the end of the fiscal year, the southwestern quarter of the pit in the Hogge Bridge site had been cleared and the original surface uncovered. The pit was 10 feet deep, 65 feet in diameter on the inside, and had a rim of dirt from the original excavation piled around the periphery measuring 90 feet from crest to crest. The floor proved to be concave, and no post holes or evidences of a structure had been found by the end of the year. Along the east rim of the pit was a burial area, and on the inner slope of the south side of the pit a bear burial was uncovered. Potsherds indicate that the site probably dates between A. D. 1200 and 1500, but its cultural affiliations had not yet been determined.

During November and December Dr. Theodore E. White prospected the Upper Cretaceous deposits in the Lavon Reservoir for vertebrate fossils. A number of specimens were located, but time permitted the removal of only two. One consisted of a small mosasaur (unident) skull and the skull of a large mosasaur (*Tylosaurus?*).

During the time when he was not in the field, Robert L. Stephenson, archeologist, prepared reports on the various surveys which he had made and processed the specimens in the laboratory at Austin. In November he attended the Seventh Conference for Plains Archeology and presented a paper on the work he had been doing in Texas. In May he attended the meetings of the Society for American Archaeology

at Norman, Okla., and took part in the discussions held there. At the close of the fiscal year he was occupied with the excavations at the Lavon Reservoir.

Edward B. Jelks was appointed temporary assistant at the laboratory in October and in February was made assistant field archeologist. He helped Mr. Stephenson in the processing of specimens until March 6, when he proceeded with the party to the Whitney Reservoir and assisted in the excavation program throughout the course of the work. During such times as Mr. Stephenson was not with the party, Mr. Jelks was in full charge. On June 12 he was appointed archeologist and proceeded to the Lavon Reservoir, where he was at work at the end of the fiscal year.

Cooperating institutions.—As in previous years, numerous State and local institutions cooperated with the River Basin Surveys. Space for field offices and laboratories for units of the Surveys were provided by the Universities of Georgia, Nebraska, Oregon, and Texas. The Universities of Oregon and Washington and Washington State College joined forces with the Surveys both in reconnaissance work and in excavations at the McNary, O'Sullivan, Equalizing, and Chief Joseph Reservoirs in the Columbia Basin, while the University of Georgia took over the responsibility for the excavation of one large site in the Allatoona Reservoir in Georgia, and for a series of surveys as well as excavations along the Flint River in the southern part of that State. The University of Missouri and the Missouri Archeological Society continued their cooperation in making surveys in a number of proposed reservoir areas and in conducting some excavations. During the early months of the fiscal year, the Museum of Natural History of the University of Kansas, the Laboratory of Anthropology of the University of Nebraska, the State Museum of the University of Nebraska, and the Nebraska State Historical Society continued excavation projects that had been started toward the close of the preceding year. The University of Oklahoma continued work in the Fort Gibson Reservoir in the summer of 1949, and in June of 1950 returned to the area for further work.

Late in the fiscal year a program developed by the National Park Service, whereby various scientific agencies would carry on salvage work in proposed reservoir areas, got under way. On the basis of agreements between the National Park Service and the agencies concerned, certain funds were made available to the latter to help cover the expense of the investigations. The River Basin Surveys participated in that program in a consultative capacity only. The final results of the work accomplished, however, will be correlated with those of the Surveys.

INSTITUTE OF SOCIAL ANTHROPOLOGY

(Report prepared by GORDON R. WILLEY)

General statement.—The objectives of the Institute of Social Anthropology are anthropological research on the community life of rural peoples of Latin America and the training of Latin American nationals in the methods and principles of modern social anthropology. The aim is to inform both the social scientist and layman in the United States concerning little-known peoples of other parts of the world and to build up in various Latin American countries a corps of professionally trained scientists and friends.

During the past year the Institute was financed by transfers of funds from the Department of State, totaling \$82,510, from the appropriation "International Information and Education Activities, 1950." As in the previous year, long-term planning has been done on a very tentative basis because of budget uncertainties for the future. Early in the fiscal year reorganizations in Department of State technical-aid-type programs called for a reappraisal of the Institute's goals and programs. With the Point IV foreign aid scheduled to take the place of many of the projects of the former Committee for Scientific and Cultural Cooperation, the question was raised as to whether the work of the Institute should come within this new organizational framework. The decision of the Institute, in keeping with the general policy of the Smithsonian Institution, was that the Institute should continue with basic research and teaching and not enter directly into the field of applied social science. Nevertheless, the Institute, through the office of the Director, served in an informal consultative capacity to the Program Analysis and Reports Branch of the Interdepartmental Committee and to the Point IV successor of this committee. Such consultation has included recommendations for anthropological aid and personnel for Point IV work, conferences with the representatives of other governmental agencies considering technical assistance programs, and informal memoranda from our field representatives on features of local native life that provide a background for economic development programs.

The regular assignments and program of the Institute continued as formerly in the Washington office, and in the field stations in Brazil, Colombia, México, and Perú.

Washington office.—Dr. George M. Foster, Director, served from July 1 until September 3, assuming leave status at the end of this period to conduct privately sponsored research in Spain. Although these investigations in Spain are not officially connected with the Institute of Social Anthropology program, they bear directly upon it scientifically in view of the close historical relationships between Spain

and Latin America. Dr. Gordon R. Willey, on loan from the Bureau of American Ethnology, was Acting Director for the remainder of the year. Miss Lois C. Northcott, formerly secretary to the Director, became administrative assistant in November 1949.

Upon the recommendation of the Director, Dr. José M. Cruzent, Director of the Museo de Ciencias Naturales, Caracas, Venezuela, visited the United States on a Department of State grant-in-aid. He remained during August and September, traveling within this country to various museums and universities.

In February, Dr. Willey began an extended tour of Institute field posts and, en route, visited other Latin-American countries to renew professional contacts and to discuss scientific and local academic problems with Latin-American colleagues. Mexico City, Guatemala City, Panamá, Bogotá, Quito, Lima, Santiago, Buenos Aires, São Paulo, Rio de Janeiro, and Caracas were included on this trip.

Brazil.—Drs. Donald Pierson, sociologist, and Kalervo Oberg, social anthropologist, continued their research and teaching activities in cooperation with the Escola Livre de Sociologia e Política in São Paulo. Dr. Pierson, after a 2-months' consultation in the United States, assumed duties in the Escola Livre de Sociologia e Política as dean of the graduate section. In connection with these duties he trained graduate students in problems of academic administration. In addition he taught courses in sociology and social anthropology, supervised masters theses in social anthropology, and was engaged in writing and preparing manuscripts in social anthropology and sociology. In April Dr. Pierson represented the Smithsonian Institution at Brazil's National Indian Week celebrations in Rio de Janeiro. at the request of the Brazilian Embassy. During May and June, Dr. Pierson, accompanied by graduate students, undertook an intensive social anthropological survey of the large and important São Francisco River Valley. This field work was sponsored by the federal government of Brazil as well as by the Institute of Social Anthropology. A survey report is anticipated that will be of particular interest for the Brazilian Government's economic development plans for the São Francisco Valley.

Dr. Kalervo Oberg, accompanied by a student assistant, spent the months of July and August in the northwestern Mato Grosso among the Nambicuara, Iranxe, and other Indian groups. These tribes, some of the most primitive in the world, lead a completely isolated life, and there is very little scientific literature on them. He returned to São Paulo late in August and resumed teaching, devoting his research time to the preparation of a manuscript on the Mato Grosso field work. Dr. Oberg delivered the address at the Escola Livre de

Sociología e Política for the commencement exercises held in March. He spent May and June in the United States on consultation.

Colombia.—In Colombia, Dr. Raymond E. Crist, cultural geographer on leave from the University of Maryland, represented the Institute at the Universidad del Cauca, Popayan. For the past year Dr. Crist was in Colombia only for the months of July through August, returning to the United States in September. During this stay, which was a continuation of an appointment made in 1949, Dr. Crist and a group of Colombian scientists and graduate students made a survey trip into the western section of the Department of Cauca for the purpose of studying land utilization and agricultural and animal-husbandry techniques. In August he accompanied Dr. A. C. Whiteford of Beloit University on a field trip among the Guambiano Indians, and shortly thereafter he visited the lower Eastern Cordillera on a geographic survey. Dr. Crist was especially cited to the Secretary of State by the assistant public affairs officer in Bogotá for the professional and personal success of his stay in Colombia.

México.—Dr. Isabel T. Kelly, Institute representative assigned to the Escuela Nacional de Antropología in Mexico City, divided her time between teaching and the writing of the first volume of an ethnography of the Totonac Indians. This work was completed in March, and since then Dr. Kelly has continued with preparation of the second volume. She also carried on a research seminar for Mexican graduate students in the writing and general preparation of scientific monographs.

The United States-sponsored Benjamin Franklin Library in Mexico City exhibited some 80 photographs taken by Dr. Kelly during her work among the Totonac Indians, and these photographs were later borrowed by the Mexican Government for displays in Jalapa, Monterrey, Morelia, and Oaxaca. Dr. Kelly's activities have been favorably publicized by a feature article released in the Mexican popular weekly magazine *Nosotros*.

In connection with the Washington office's attempt to demonstrate the utility of anthropology for the Point IV type of economic development program, Dr. Kelly prepared an analysis of possibilities for public housing in the tropical coastal area of the Gulf of Mexico. This was written from the point of view of the native cultures involved, with which Dr. Kelly is expertly familiar, and points up the conflicts and difficulties to be overcome in implanting technological ideas on alien societies. During September Dr. Kelly was in the United States for consultation.

Perú.—The 1950 year opened with Dr. George A. Kubler, on leave from Yale University, as the Institute's representative attached to the Peruvian Instituto de Estudios Etnológicos in Lima. Dr. Kubler, an

authority on the Colonial Period in Perú, continued with his research on archival material in the Department of La Libertad, Trujillo, as well as in the Lima archives. Consultation with students in anthropology and history was also maintained. Dr. Kubler returned to the United States in September. A manuscript covering a part of Dr. Kubler's work in Perú, "The Indian Caste of Perú, 1795-1950," an analysis of population and racial attitudes, was submitted for publication in April.

Ozzie G. Simmons, current representative in Perú, arrived in Lima in November. Mr. Simmons offered a course on American ethnic groups and acculturation in the Peruvian Instituto de Estudios Etnológicos and began field investigations at the town of Lunahuaná. Studies at this community, initiated in February with the aid of a student assistant, have run throughout the year and will extend into 1951. Coincident with this research Mr. Simmons is collaborating in a seminar on social anthropological field methods. He has also aided in a questionnaire project conducted by the Peruvian National School of Social Work among groups of highland Indians who have recently moved to the vicinity of Lima in response to industrial opportunities. Quite importantly, he has been instrumental in advising the Peruvian Ministry of Public Health to add a Peruvian social anthropologist to their staff for work in the Department of Ica. This has created an excellent job opportunity for a Peruvian trained by us and has shown the way for further employment of our trainees in governmental departments.

EDITORIAL WORK AND PUBLICATIONS

There were issued one Annual Report and one Bulletin volume (Handbook of South American Indians), and one Publication of the Institute of Social Anthropology as listed below:

Sixty-sixth Annual Report of the Bureau of American Ethnology, 1948-1949. 34 pp.

Bulletin 143. Handbook of South American Indians. Julian H. Steward, editor. Volume 5, The comparative ethnology of South American Indians. xxvi+818 pp., 56 pls., 190 figs., 22 maps. 1949.

Institute of Social Anthropology Publ. No. 10. Nomads of the Long Bow: The Siriono of eastern Bolivia, by Allan R. Holmberg. 104 pp., 7 pls., 4 charts, 1 map. 1950.

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

Bulletin 143. Handbook of South American Indians. Julian H. Steward, editor. Volume 6, Physical anthropology, linguistics, and cultural geography of South American Indians.

Bulletin 144. The northern and central Nootkan tribes, by Philip Drucker.

Bulletin 145. The Indian tribes of North America, by John R. Swanton.

Bulletin 146. Chippewa child life and its cultural background, by Sister M. Inez Hilger.

Bulletin 147. Journal of an expedition to the Mauvais Terres and the Upper Missouri in 1850, by Thaddeus B. Culbertson. Edited by John Francis McDermott.

Bulletin 148. Arapaho child life and its cultural background, by Sister M. Inez Hilger.

Institute of Social Anthropology Publ. No. 11. Quiroga: A Mexican Municipio, by Donald D. Brand.

Institute of Social Anthropology Publ. No. 12. Cruz das Almas: A Brazilian village, by Donald Pierson.

Institute of Social Anthropology Publ. No. 13. The Tajin Totonac: Part 1. History, subsistence, and technology, by Isabel Kelly and Angel Palerm.

Institute of Social Anthropology Publ. No. 14. The Indian caste of Peru, 1795-1950: A population study based upon tax records and census reports, by George Kubler.

Publications distributed totaled 19,116 as compared with 19,660 for the fiscal year 1949.

LIBRARY

The total number of volumes accessioned in the library is 34,838, an increase of 119 volumes over the fiscal year 1949.

ARCHIVES

The largest collection of Indian photographs acquired by the Bureau in many years was obtained during the past year when the Library of Congress gave permission to copy pictures submitted long ago for copyright purposes. These pictures, made more than 50 years ago, show many famous Indians whose portraits are new to the collections. Another group of 50 rare Indian photographs was received from Eddie Herman, a Sioux Indian of Hot Springs, S. Dak.

The manuscript material in the archives of the Bureau has been used by research workers both by personal visits for consultation and by correspondence.

A new manuscript of 2,380 pages, in the Fox Indian language, consisting of a vocabulary, with grammatical and linguistic notes, was donated to the Bureau by Miss Ella A. Merritt of Washington. This work was compiled by the late James Brannin, formerly connected with the United States Navy during the time (1935-42) he was stationed near the Fox Indians in Wisconsin.

COLLECTIONS

Acc. No.

175998. Surface material from aboriginal sites in Allatoona Reservoir area, Cherokee, Bartow, and Cobb Counties, northwest Georgia, collected by Joseph R. Caldwell from November 1946 to April 1947. River Basin Surveys.

Acc. No.

182578. Archeological materials, consisting of stone artifacts and potsherds, from two prehistoric shell mounds near Monagrillo, Herrera Province, Republic of Panamá, and including in the Monagrillo pottery series what is believed to be the earliest yet known from Panamá, collected by Drs. M. W. Stirling and Gordon R. Willey during the 1948 Smithsonian Institution-National Geographic Society expedition to Panamá.
182845. A collection of archeological material together with 250 geological specimens, 31 mammals, botanical specimens, 4 fish, 20 insects, and approximately 64 marine invertebrates from Cornwallis Island, the Canadian Arctic, collected by Henry B. Collins, Jr., in the summer of 1949 on the National Museum of Canada-Smithsonian Institution Expedition.
183940. 68 potsherds of various types from an archeological site, Crystal River, Citrus County, Fla., collected by Dr. Gordon R. Willey.
185245. 2 beetles, 2 lizards, 1 snake, and 1 frog from Province of Chiriquí, Panamá, collected by Dr. M. W. Stirling.
185249. About 20 specimens of Eocene invertebrate fossils from Louisiana, collected by Carl F. Miller. River Basin Surveys.
185382. 11 original oil paintings of Yahgan, Ona, and Tehuelche Indians, Argentine prisoners, and scenes of the Furlong Expedition of 1908 to Tierra del Fuego, painted by Charles W. Furlong.
185538. (Through Carl F. Miller) 12 fresh-water mollusks from northwestern Georgia, gathered in an Indian village site. River Basin Surveys.
185627. (Through Dr. Frank H. H. Roberts, Jr.) 2 mosasaur skulls collected by Dr. T. E. White from upper Cretaceous deposits of the Lavon Reservoir area, 1 mile east of Culeoka, Collin County, Tex. River Basin Surveys.
186797. 4 dictaphones and phonographs, including ones used by Alice C. Fletcher and Frances Densmore.

MISCELLANEOUS

Miss Frances Densmore, Dr. John R. Swanton, and Dr. Antonio J. Waring, Jr., continued as collaborators of the Bureau of American Ethnology.

During the year information was furnished by members of the Bureau staff in reply to numerous inquiries concerning the American Indians, past and present, of both continents. The increased number of requests from teachers of primary and secondary grades and from Scout organizations indicates a rapidly growing interest in the American Indian throughout the country. Various specimens sent to the Bureau were identified and data on them furnished for their owners.

Respectfully submitted.

M. W. STIRLING, *Director.*

Dr. A. WETMORE,
Secretary, Smithsonian Institution.

APPENDIX 6

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, 1950:

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 object, "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 received for transmission during the year was 1,009,675, an increase over the previous year of 169,550 packages, or approximately 20 percent. The weight of the packages was 832,087 pounds, an increase of 35,387 pounds, or approximately 4.4 percent. It was only through the installation and utilization of labor-saving devices that the International Exchange Service was able to process the additional number of packages without increased personnel.

The average weight of the individual package decreased to approximately 13 ounces as compared with the average of 15 ounces for the fiscal year of 1949. This indicates that the majority of the publications now being transmitted are current publications rather than accumulated publications. A further reason for the reduction in the average weight of the individual package is to be found in the fact that more of the departments of the United States Government are using the International Exchange Service for the transmission of their periodical publications. The publications received from both the

foreign and domestic sources for shipment are classified as shown in the following table:

Classification	Packages		Weight	
	<i>Number</i>	<i>Number</i>	<i>Pounds</i>	<i>Pounds</i>
United States parliamentary documents sent abroad.....	526, 804		226, 966	
Publications received in return for parliamentary documents.....		13, 596		21, 873
United States departmental documents sent abroad.....	251, 107		220, 487	
Publications received in return for departmental documents.....		5, 955		14, 147
Miscellaneous scientific and literary publications sent abroad.....	169, 129		253, 928	
Miscellaneous scientific and literary publications received from abroad for distribution in the United States.....		43, 084		94, 686
Total.....	947, 040	62, 635	701, 381	130, 706
Grand total.....	1, 009, 675		832, 087	

The packages of publications are forwarded by freight to the exchange bureaus of foreign countries and to addressees in foreign countries where shipment by such means is impractical by direct mail. The number of boxes shipped to the foreign exchange bureaus was 2,889, a decrease of 407 boxes from the previous year. Of the boxes shipped 841 were for depositories of full sets of United States Government documents, these publications being furnished in exchange for the official publications of foreign governments for deposit in the Library of Congress. The number of packages forwarded by mail and means other than freight was 219,471.

In spite of the fact that considerable savings in transportation continued to be effected by exporting through Baltimore rather than New York, and in spite of the advantage gained through special arrangements for shipment to Germany, the allotment for transportation was insufficient to maintain full operations for the entire year. Owing to the insufficient funds and to the fact that no shipments were made to China or Rumania, the International Exchange Service ended the fiscal year with a backlog of 145,224 pounds of publications.

Consignments are now forwarded to all countries except China and Rumania. Publications for addressees in Formosa, formerly sent through the Chinese Exchange Bureau, are now forwarded by direct mail.

FOREIGN DEPOSITORIES OF GOVERNMENTAL DOCUMENTS

The number of sets of United States official publications received by the Exchange Service to be sent abroad in return for the official publications sent by foreign governments for deposit in the Library of Congress is 99 (59 full and 40 partial sets). Changes that occurred during the year are shown in the footnotes.

DEPOSITORIES OF FULL SETS

- ARGENTINA: Dirección de Investigaciones, Archivo, Biblioteca y Legislación Extranjero, 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.¹
- BULGARIA: Bulgarian Bibliographical Institute, Sofia.
- 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.²
- CHILE: Biblioteca Nacional, Santiago.
- CHINA: Ministry of Education, National Library, Nanking, China.³
 PEIPING: National Library of Peiping.³
- COLOMBIA: Biblioteca Nacional, Bogotá.
- COSTA RICA: Oficina de Depósito y Canje Internacional de Publicaciones, San José.
- CUBA: Ministerio de Estado, Canje Internacional, Habana.
- CZECHOSLOVAKIA: Bibliothèque de l'Assemblée Nationale, Prague.
- DENMARK: Institut Danois des Échanges Internationaux, Copenhagen.⁴
- EGYPT: Bureau des Publications, Ministère des Finances, Cairo.
- FINLAND: Parliamentary Library, Helsinki.
- FRANCE: Bibliothèque Nationale, Paris.
- GERMANY: Öffentliche Wissenschaftliche Bibliothek, Berlin.
 Parliamentary Library, Bonn.⁵
- 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.
- INDIA: National Library, Calcutta.
- INDONESIA: Ministry for Foreign Affairs, Djakarta.⁶
- IRELAND: National Library of Ireland, Dublin.
- ISRAEL: Government Archives and Library, Hakiryá.⁶
- ITALY: Ministero della Pubblica Istruzione, Rome.
- JAPAN: National Diet Library, Tokyo.
- MEXICO: Secretaría de Relaciones Exteriores, Departamento de Información para el Extranjero, Mexico, D. F.

¹ Changed from Instituto Nacional do Livro.

² Changed from partial set.

³ Suspended.

⁴ Changed from Kongelige Danske Videnskabernes Selskab.

⁵ Changed from Amerika Institut, Berlin.

⁶ Added during the year.

- NETHERLANDS: Royal Library, The Hague.
 NEW ZEALAND: General Assembly Library, Wellington.
 NORWAY: Utenriksdepartementets 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.
 PORTUGAL: Biblioteca Nacional, Lisbon.
 SPAIN: Biblioteca Nacional, Madrid.⁷
 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 115.
 UKRAINE: Ukrainian Society for Cultural Relations with Foreign Countries, Kiev.⁸
 UNITED NATIONS: Library of the United Nations, Geneva, Switzerland.
 URUGUAY: Oficina de Canje Internacional de Publicaciones, Montevideo.
 VENEZUELA: Biblioteca Nacional, Caracas.
 YUGOSLAVIA: Ministère de l'Education, Belgrade.

DEPOSITORIES OF PARTIAL SETS

- AFGHANISTAN: Library of the Afghan Academy, Kabul.
 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.
 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.
 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:
 BIHAR AND ORISSA: Revenue Department, Patna.
 BOMBAY: Undersecretary to the Government of Bombay, General Department, Bombay.

⁷ Changed from Cambio Internacional de Publicaciones.

⁸ Suspended.

INDIA—Continued

UNITED PROVINCES OF AGRA AND OUDH:

University of Allahabad, Allahabad.

Civil Secretariat, Council House, Lucknow.⁹

WEST BENGAL: Library, West Bengal Legislature, Assembly House, Calcutta.

IRAN: Imperial Ministry of Education, Tehran.

IRAQ: Public Library, Baghdad.

JAMAICA: Colonial Secretary, Kingston.

University College of the West Indies, St. Andrews.⁹

LIBERIA: Department of State, Monrovia.

MALAYA: Federal Secretariat, Federation of Malaya, Kuala Lumpur.

MALTA: Minister for the Treasury, Valleta.

NEWFOUNDLAND: Department of Home Affairs, St. John's.

NICARAGUA: Ministerio de Relaciones Exteriores, Managua.

PAKISTAN: Chief Secretary to the Government of Punjab, Lahore.

PANAMA: Ministerio de Relaciones Exteriores, Panama.

PARAGUAY: Ministerio de Relaciones Exteriores, Sección Biblioteca, Asunción.

SALVADOR:

Biblioteca Nacional, San Salvador.

Ministerio de Relaciones Exteriores, San Salvador.

SCOTLAND: National Library of Scotland, Edinburgh.⁹

SIAM: National Library, Bangkok.

SINGAPORE: Chief Secretary, Government Offices, Singapore.

VATICAN CITY: Biblioteca Apostolica Vaticana, Vatican City, Italy.

INTERPARLIAMENTARY EXCHANGE OF THE OFFICIAL JOURNAL

There are now being sent abroad 83 copies of the Federal Register and 87 copies of the Congressional Record. This is an increase of 2 copies of the Federal Register and 12 of the Congressional Record over the preceding year. The countries to which these journals are being forwarded are given in the following list.

DEPOSITORY OF CONGRESSIONAL RECORD AND FEDERAL REGISTER

ARGENTINA:

Biblioteca del Congreso Nacional, Buenos Aires.

Biblioteca del Poder Judicial, Mendoza.¹⁰

Cámara de Diputados, Oficina de Información Parlamentaria, Buenos Aires.

Boletín Oficial de la República Argentina, Ministerio de Justicia e Instrucción Pública, 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.

WESTERN AUSTRALIA: Library of Parliament of Western Australia.

BRAZIL:

Biblioteca da Camera dos Deputados, Rio de Janeiro.

AMAZONAS: Archivo, Biblioteca e Imprensa Publica, Manaus.

BAHIA: Governador do Estado da Bahia, São Salvador.

ESPIRITO SANTO: Presidencia do Estado do Espirito Santo, Victoria.

⁹ Added during the year.¹⁰ Federal Register only.

BRAZIL—Continued

RIO GRANDE DO SUL: Imprensa Oficial do Estado, Porto Alegre.

SERGIPE: Biblioteca Publica do Estado de Sergipe, Aracajú.

SÃO PAULO: Imprensa Oficial do Estado, São Paulo.

BRITISH HONDURAS: Colonial Secretary, Belize.

CANADA:

Library of Parliament, Ottawa.

Clerk of the Senate, Houses of Parliament, Ottawa.

CUBA:

Biblioteca del Capitolio, Habana.

Biblioteca Publica Panamericana, Habana.¹⁰

House of Representatives, Habana.

CZECHOSLOVAKIA: Library of the Czechoslovak National Assembly, Prague.^{11 12}

EGYPT: Ministry of Foreign Affairs, Egyptian Government, Cairo.¹¹

EL SALVADOR: Library, National Assembly, San Salvador.

FRANCE:

Bibliothèque Assemblée Nationale, Paris.

Bibliothèque, Conseil de la République.

Library, Organization for European Economic Cooperation, Paris.^{11 12}

Publiques de l'Institut de Droit Compare, Université de Paris, Paris.¹⁰

Research Department, Council of Europe, Strasbourg.^{11 12}

Service de la Documentation Étrangère, Assemblée Nationale, Paris.¹¹

GERMANY: Der Bayrische Landtag, Munich.^{13 14}

Deutscher Bundesrat, Bonn.^{13 15}

Deutscher Bundestag, Bonn.^{13 15}

GREAT BRITAIN:

House of Commons Library, London.¹³

Printed Library of the Foreign Office, London.

GREECE: Bibliothèque, Chambre des Députés Hellénique, Athens.¹⁶

GUATEMALA: Biblioteca de la Asamblea Legislativa, Guatemala.

HAITI: Bibliothèque Nationale, Port-au-Prince.

HONDURAS: Biblioteca del Congreso Nacional, Tegucigalpa.

INDIA:

Civil Secretariat Library, Lucknow, United Provinces.¹⁷

Indian Council of World Affairs, New Delhi.^{13 15}

Legislative Assembly Library, Lucknow, United Provinces.

Legislative Department, Simla.

Parliament Library, New Delhi.^{13 15}

INDONESIA: Provisional Parliament of East-Indonesia, Macassar, Celebes.

IRELAND: Dail Eireann, Dublin.

ITALY:

Biblioteca Camera dei Deputati, Rome.

Biblioteca del Senato della Republica, Rome.

European Office, Food and Agriculture Organization of the United Nations,
Rome.¹⁷

International Institute for the Unification of Private Law, Rome.¹⁷

¹¹ Congressional Record only.

¹² Added during the year.

¹³ Congressional Record only.

¹⁴ Three copies.

¹⁵ Added during the year.

¹⁶ Changed from Library, Greek Parliament.

¹⁷ Federal Register only.

JAPAN: Library of the National Diet, Tokyo.¹⁵

MEXICO:

Dirección General de Información, Secretaría de Gobernación, Mexico, D. F.
Biblioteca Benjamin Franklin, Mexico, D. F.

AGUASCALIENTES: Gobernador del Estado de Aguascalientes, Aguascalientes.

CAMPECHE: Gobernador del Estado de Campeche, Campeche.

CHIAPAS: Gobernador del Estado de Chiapas, Tuxtla Gutierrez.

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.

DURANGO: Gobernador Constitucional del Estado de Durango, Durango.

GUANAJUATO: Secretaría General de Gobierno del Estado, Guanajuato.

GUERRERO: Gobernador del Estado de Guerrero, Chilpancingo.

JALISCO: Biblioteca del Estado, Guadalajara.

LOWER CALIFORNIA: Gobernador del Distrito Norte, Mexicali.

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, Palacia de Gobierno, Oaxaca.

PUEBLA: Secretaría General de Gobierno, Puebla.

QUERÉTARO: Secretaría General de Gobierno, Sección de Archivo, Querétaro.

SAN LUIS POTOSÍ: Congreso del Estado, San Luis Potosí.

SINALOA: Gobernador del Estado de Sinaloa, Culiacán.

SONORA: Gobernador del Estado de Sonora, Hermosillo.

TABASCO: Secretaría de Gobierno, Sesión 3a, Ramo de Prensa, Villahermosa.

TAMAULIPAS: Secretaría General de Gobierno, Victoria.

TLAXCALA: Secretaría de Gobierno del Estado, Tlaxcala.

VERACRUZ: Gobernador del Estado de Veracruz, Departamento de Gobernación y Justicia, Jalapa.

YUCATÁN: Gobernador del Estado de Yucatán, Mérida.

NETHERLANDS: Koninklijke Bibliotheek, The Hague.¹⁹

NEW ZEALAND: General Assembly Library, Wellington.

NORWAY: Library of the Norwegian Parliament, Oslo.

PAKISTAN: Punjab Legislative Assembly, Lahore.¹⁸

PERU: Cámara de Diputados, Lima.

POLAND: Ministry of Justice, Warsaw.¹⁹

PORTUGAL: Secretaria da Assembla Nacional, Lisbon.^{18 20}

SWITZERLAND: Bibliothèque, Bureau International du Travail, Geneva.¹⁹

Library, United Nations, Geneva.

International Labor Office, Geneva.^{19 21}

UNION OF SOUTH AFRICA:

CAPE OF GOOD HOPE: Library of Parliament, Cape Town.

TRANVAAL: State Library, Pretoria.

UNION OF SOVIET SOCIALIST REPUBLICS: Fundamental'niia Biblioteka, Obshchestvennykh Nauk, Moscow.^{18 20}

¹⁸ Added during the year.

¹⁹ Federal Register only.

²⁰ Congressional Record only.

²¹ Two copies.

URUGUAY: *Diario Oficial*, Calle Florida 1178, Montevideo.

VENEZUELA: Biblioteca del Congreso, Caracas.

FOREIGN EXCHANGE AGENCIES

Exchange publications are forwarded to all countries except China and Rumania. The countries listed are those to which shipments are forwarded by freight. Packages of publications are forwarded to addresses in other countries directly by mail.

LIST OF AGENCIES

AUSTRIA: Austrian National Library, Vienna.

BELGIUM: Service des Échanges Internationaux, Bibliothèque Royale de Belgique, Bruxelles.

CHINA: Bureau of International Exchange, National Central Library, Nanking.²²

CZECHOSLOVAKIA: Bureau of International Exchanges, National and University Library, Prague.²³

DENMARK: Institut des Échanges Internationaux, Bibliothèque Royale, Copenhagen K.

EGYPT: Government Press, Publications Office, Bulaq, Cairo.

FINLAND: Delegation of the Scientific Societies of Finland, Kasärngatan 24, Helsinki.

FRANCE: Service des Échanges Internationaux, Bibliothèque Nationale, 58 Rue de Richelieu, Paris.

GERMANY: Öffentliche Wissenschaftliche Bibliothek, Berlin.^{24 25}

German Central Committee for Distribution of Cultural Materials, Stuttgart.^{24 25}

GREAT BRITAIN AND IRELAND: Wheldon & Wesley, 83/84 Berwick Street, London, W. 1.

HUNGARY: Hungarian Libraries Board, Ferenciektere 5, Budapest, IV.

INDIA: Superintendent of Government Printing and Stationery, Bombay.

ITALY: Ufficio degli Scambi Internazionali, Ministero della Pubblica Istruzione, Rome.

JAPAN: International Exchange Service, National Diet Library, Tokyo.²⁷

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.

PALESTINE: Jewish National and University Library, Jerusalem.

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.

²² Shipments suspended.

²³ Changed from Bureau des Échanges Internationaux, Bibliothèque de l'Assemblée Nationale.

²⁴ Distribution under the supervision of the United States High Commissioner for Germany.

²⁵ For all sectors of Berlin and the Eastern Zone.

²⁶ For the Western Zone.

²⁷ Changed from International Exchange Service, National Library of Japan.

- QUEENSLAND: Bureau of Exchanges of International Publications, Chief Secretary's Office, Brisbane.
- RUMANIA: Ministère de la Propagande Nationale, Service des Échanges Internationaux, Bucharest.²²
- 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, Avenida Calvo Sotelo 20, Madrid.
- SWEDEN: Kungliga Biblioteket, Stockholm.
- SWITZERLAND: Service Suisse des Échanges Internationaux, Bibliothèque Centrale Fédérale, Palais Fédérale, Berne.
- TASMANIA: Secretary to the Premier, Hobart.
- TURKEY: Ministry of Education, Department of Printing and Engraving, Istanbul.
- UNION OF SOUTH AFRICA: Government Printing and Stationery Office, Cape Town, Cape of Good Hope.
- UNION OF SOVIET SOCIALIST REPUBLICS: Bureau of Book Exchange, State Lenin Library, Moscow 19.²³
- VICTORIA: Public Library of Victoria, Melbourne.
- WESTERN AUSTRALIA: Public Library of Western Australia, Perth.
- YUGOSLAVIA: Federal Bibliographical Institute of Yugoslavia, Belgrade.²⁴

Respectfully submitted.

D. G. WILLIAMS, *Chief*.

Dr. A. WETMORE,
Secretary, Smithsonian Institution.

²² Shipments suspended.

²³ Changed from International Book Exchange Department, Society for Cultural Relations with Foreign Countries, Moscow 56.

²⁴ Changed from Section des Échanges Internationaux, Ministère des Affaires Étrangères.

APPENDIX 7

REPORT ON THE NATIONAL ZOOLOGICAL PARK

SIR: Transmitted herewith is a report on the operations of the National Zoological Park for the fiscal year ended June 30, 1950.

The value of the collection was enhanced by the acquisition of specimens that have not hitherto been on exhibition or that are rarities. As the Zoo is a combined educational, recreational, and research institution, the addition of new kinds of animals is of marked benefit. At the close of the year the personnel had been recruited to almost its authorized strength, and the rate of personnel turn-over had declined. Such good progress had been made in repair work that the general condition is definitely better than it has been for several years.

The National Zoological Park continues to do its utmost to further the expressed purpose of the Smithsonian Institution, "the increase and diffusion of knowledge among men," by constantly rendering a wide variety of services in addition to maintaining the exhibits. Valuable opportunities for research are afforded students of biology, particularly vertebrate zoology, as well as artists, photographers, and writers, utilizing only methods of study that do not endanger the welfare of the animals or of the public. Other services are answering in person, and by phone, mail, and telegraph, questions regarding animals and their care and transportation; furnishing information to other zoos and private and public agencies regarding structures for keeping and housing animals; cooperation with other agencies of the Federal, State, and municipal governments in research work; and preparation of articles for publication.

THE EXHIBITS

Specimens for exhibition are acquired by gift, deposit, purchase, exchange, births, and hatchings and are removed by death, exchange, or return of those on deposit. Although depositors are at liberty to remove their specimens, many leave them permanently.

As in any colony of living things, there is a steady turn-over, and so the exhibits are constantly changing. Thus, the inventory list of specimens in the collection on June 30 of each year does not show all the kinds of animals that were exhibited during the year; sometimes

creatures of outstanding interest at the time they were shown are no longer in the collection at the time the list is prepared.

ACCESSIONS

GIFTS

Many valuable additions to the collections were made by gifts during the past year.

The Government of India, through Prime Minister Jawaharlal Nehru and the Embassy of India in Washington, presented a pair of baby elephants. These were captured in Mysore and sent from Bombay to the States with a young Indian mahout, Baba Jan, in charge. The Isthmian Steamship Co. furnished free transportation for the elephants and a return passage for Baba Jan. They were officially presented by Madam Vijayalakshmi Pandit, Ambassador to the United States from India, through Assistant Secretary of State George C. McGhee, in the presence of some 70,000 people. Ashok, named after an ancient Indian emperor known for his peaceful reign, was about a year old. Shanti, an Indian word meaning peace (and also a girl's name), was about 2 years old. They adapted themselves immediately to life at the Zoo and are two much-admired animals.

The U. S. National Park Service captured and sent three grizzly bears, which were especially desirable additions inasmuch as the Zoo has had none for many years. Grizzlies are now so scarce that they are highly prized, and the courtesy of the National Park Service in supplying them is much appreciated. These three were removed from Yellowstone Park because they threatened to become a menace to visitors; otherwise they would not have been disturbed.

A number of shipments were received from members of the Armed Forces who had been abroad; many of them came from Malaya, where they were collected by Maj. Robert Traub, of the Army Medical Department, Research and Graduate School. Outstanding among the rare and interesting creatures are two pencil-tailed tree mice, a species seldom seen in captivity.

Miss Alice Birney Robert, Washington, D. C., presented a great gray kangaroo that her father obtained while in Australia.

The American Veterans Association presented "Amvet," an unusually fine lion cub, which promises to become a splendid adult.

Roy Humbert, of Eustis, Fla., sent four giant anolis lizards from Cuba.

Capt. Hugh L. Keegan, of the United States Army Medical Corps, sent a number of Philippine species, including two elephant trunk snakes, a tangalunga, a Philippine palm civet, and a slender-tailed cloud rat (*Phloeomys cumingi*).

The U. S. Fish and Wildlife Service continued sending valuable animals, including a Steller's sea lion from St. Paul Island, Alaska.

J. D. Handman, of Nyasaland, Africa, in making shipments of animals ordered from him, has in each case put in one or two extra creatures as gifts. The specimens are from a region not well known zoologically, and so all are of special interest.

An American black bear, "Smoky," a cub that had been rescued from a forest fire in New Mexico, was presented by the U. S. Forest Service. The animal was flown to Washington in a Piper Cub airplane, through the courtesy of Mr. Piper, and presented in connection with the Forest Service's campaign to emphasize the necessity for prevention and control of forest fires.

DEPOSITORS AND DONORS AND THEIR GIFTS

(Deposits are marked *)

- Adams, Joseph L., Washington, D. C., opossum.
 Allen, Mrs. Arthur, Alexandria, Va., horned lizard.
 Allen, Robert F., Washington, D. C., 2 opossums.
 Allen, Ross, Ocala, Fla., 3 southern chicken snakes.
 AMVETS, Washington, D. C., lion cub.
 Anholt, R. W., Washington, D. C., Pekin duck.
 Aqueduct Police Force, Washington, D. C., water snake.
 Army Medical Department, Research and Graduate School, through Maj. Robert Traub, Washington, D. C., 2 pencil-tailed tree mice.
 Asbury, George, Jr., Washington, D. C., alligator.
 Austin, Arthur E., Washington, D. C., 2 rabbits, guinea pig.
 Baird, James, Triangle, Va., copperhead snake.
 Baldwin, Lt. Col. Charles, Canal Zone, 2 kinkajous.
 Barbour, Mrs., Sunnybrook, Md., Muscovy duck.
 Beckett, Howard, Lanham, Md., great horned owl.
 Bergen, R. P., Washington, D. C., Pekin duck.
 Bittenbender, C. R., Arlington, Va., Pekin duck.
 Blair, Mrs. Marge, Washington, D. C., Pekin duck.
 Blair, William, Hillwood Square, Va., horned grebe.
 Blocker, E. M., Fresno, Calif., California spotted skunk, 2 coyotes.
 Boatright, Miss Susie, Peacock, Tex., 4 horned lizards.
 Bockman, Chas. C., Baltimore, Md., blue goose.
 Boykin, Masters Robert and Richard, Washington, D. C., jumping mouse.
 Brill, Delbert, Washington, D. C., opossum.
 Brucker, Brad, Washington, D. C., black-widow spider.
 Buell, Miner W. and James, Bethesda, Md., 5 rabbits.
 Busbey, Bill, Berwyn, Md., 2 pygmy rattlesnakes, diamondback rattlesnake, black racer, opossum.
 Butler, C. P., Washington, D. C., 12 hermit crabs.
 Butler, William J., Chevy Chase, Md., opossum.
 Canada, Dr. R. O., Arlington, Va., 2 cottontail rabbits.
 Chaffe, Melvin, Washington, D. C., horned lizard.
 Charles, R. W., Washington, D. C., alligator.
 Cleveland Zoological Park, Cleveland, Ohio, 2 spur-winged geese.

- Cliff, Arthur E., Washington, D. C., Pekin duck.
 Cline, L. A., Washington, D. C., chain king snake.
 Coleman, Mrs. Howard, Arlington, Va., 2 Pekin ducks.
 Collins, Mrs. J., Washington, D. C., horned lizard.
 Collins, Miss Jeanne, Washington, D. C., 7 rabbits.
 Comley, Clifford, Jr., Arlington, Va., 2 Pekin ducks.
 Costello, Mrs. E., Washington, D. C., Philippine macaque.
 Cottam, Dr. Clarence, Washington, D. C., white-fronted goose.
 Counts, R. L., Washington, D. C., rabbit.
 Darison, Mrs. G. F., Washington, D. C., albino gray squirrel.
 Davidson, Miss Mary, Washington, D. C., screech owl.
 Davis, Miss Elizabeth, Washington, D. C., 4 blue jays.
 Davis, Mrs. Elwood, Washington, D. C., rabbit.
 Davis, John, Washington, D. C., great blue heron.
 Davis, Malcolm, Calcutta, India, 2 koels.
 Dean, Mr., Sunnyside, Md., 70 bantam chickens.
 Denletian, Gary A., Washington, D. C., eastern nighthawk.
 Dickey, Donald, Suitland, Md., osprey.
 Dix, Mr. and Mrs. E. S., Vienna, Va., bobwhite quail.
 Doerr, William C., Washington, D. C., alligator.
 Dornin, W., Phoenix, Ariz., Boyle's king snake, 5 sidewinder rattlesnakes.
 Douglas, J. E., Rockville, Md., pilot black snake.
 DuFour, Mrs. E., Prince Georges County, Md., red, blue, and yellow macaw.
 Easterman, W. B., Arlington, Va., 2 Pekin ducks.
 Eleazer, J. M., Clemson, S. C., red-tailed hawk.
 Faul, Mrs. Henry, Lanham, Md., 4 opossums.
 Faust, John H., Washington, D. C., spotted salamander.
 Fickel, Miss Susan, Alexandria, Va., domestic rabbit.
 Fieser, Jimmy and Johnny, Bethesda, Md., Pekin duck.
 Fox, James B., Washington, D. C., goshawk.*
 French, Mrs. Patterson, Washington, D. C., baby alligator.
 Frey, Miss Jane, Washington, Pekin duck.
 Gabriel, Master Richard, Arlington, Va., Pekin duck.
 Garrett, Miss Betty I., Arlington, Va., alligator.
 Gassage, F. T., Takoma Park, Md., horned lizard.
 Gaver, Gordon, Thurmont, Md., king cobra,* 3 Indian cobras,* cape cobra,*
 boa constrictor,* central American boa,* rainbow boa,* regal python,* Indian
 rock python,* 3 Mexican tropical moccasins,* cottonmouth moccasin,* 3
 copperhead snakes,* chicken snake,* corn snake,* pine snake,* 2 black tegus,*
 Gila monster,* 4 rhesus monkeys,* 2 Javan macaques,* African monitor,*
 2 gila monsters,* 3 beaded lizards.*
 Gaynor, Donald B., Silver Spring, Md., 3 Pekin ducks.
 Geuton, John, McLean, Va., 4 Pekin ducks.*
 Gillespie, Mrs. Wm. V., Takoma Park, Md., ring-necked dove.
 Good, C. B., Gore, Va., raccoon.
 Gooden, Mrs. E. L., Takoma Park, Md., Pekin duck.
 Gouleit, Misses Gloria and Joann, Washington, D. C., 2 rabbits.
 Graham, Mrs. Wallace H., Washington, D. C., ocelot.
 Gray, Ralph, Arlington, Va., 2 gray raccoons.
 Green, Robert, Washington, D. C., barn owl.
 Greeson, L. E., Arlington, Va., fox squirrel.
 Griffin, Fred, Washington, D. C., black duck.
 Haggard, J. W., Washington, D. C., 5 hamsters.

- Haggerty, Miss Irene, Washington, D. C., 3 guinea pigs.
 Hall, Miss Suzanne, Westgate, Md., Pekin duck.
 Hamilton, A. G., Washington, D. C., mockingbird.
 Handley, Charles, Washington, D. C., 3 guinea pigs, 12 hamsters.
 Hanley, C., Arlington, Va., angora goat.
 Hardy, Mrs. W. E., Bowie, Md., 2 wood ducks.
 Harris, Mrs. E. G., Arlington, Va., 2 hamsters.
 Harris, Lester E., Jr., Takoma Park, Md., pilot black snake.
 Hassett, William D., The White House, mynah.*
 Hayes, Buster, Tampa, Fla., Indian rock python,* coatimundi.*
 Hebert, Emmett, A., Bethesda, Md., 2 Pekin ducks.
 Hegener Research Supply, Sarasota, Fla., corn snake.
 Heller, Miss Barbara, Washington, D. C., Pekin duck.
 Hershfield, Master Peter, Alexandria, Va., raccoon.
 Hicks, Robert, Washington, D. C., puma.*
 Hoffman, R. A., Washington, D. C., double yellow-headed parrot.
 Holcomb, V., Washington, D. C. blue heron.
 Hook, Rev. Walter C., Fairfax, Va., 2 Pekin ducks.
 Houser, Adam, Avondale, Md., 2 Pekin ducks.
 Hughes, Chas., Silver Spring, Md., 4 fence lizards, 5 garter snakes, prairie rattlesnake, bull snake.
 Hughes, Miss Gene, Washington, D. C., 2 red-shouldered hawks.
 Humbert, Roy, Eustis, Fla., 4 giant anolis.
 Hynes, Dr. Wm. P., Washington, D. C., 3 grass parakeets.
 Indian Government, through Premier Jawaharlal Nehru, 2 Asiatic elephants.
 Ingalls, Tommy, Washington, D. C., 2 white mice, 2 canaries.
 Ingham, Rex, Ruffin, N. C., patas monkey,* rhesus monkey,* DeBrazza's guenon monkey,* sooty mangabey monkey,* great gray kangaroo,* scarlet snake.*
 Jenkins, R. S., Buena Vista, Va., Philippine macaque.*
 Johnson, Miss Betty, Chevy Chase, Md., raccoon.
 Jolley, Edward M., Jr., Washington, D. C., black snake, copperhead.
 Jones, Miss Marie, Washington, D. C., 2 white rabbits.
 Judd, Master Robert, Chevy Chase, Md., flying squirrel.
 Kahlaugh, Mrs. R., Knoxville, Tenn., sparrow hawk.
 Kane, Miss Kathleen, Washington, D. C., Pekin duck.
 Kaplin, Mrs. S., Takoma Park, Md., wood thrush.
 Kaye, Joseph, Washington, D. C., 2 Pekin ducks, 2 rabbits.
 Keegan, Capt. Hugh L., Pampanga, P. I., 2 elephant trunk snakes, tangalunga, Philippine palm civet, slender-tailed cloud rat.
 Keller, Stanley, Silver Spring, Md., 2 crows.
 Kelly, John S., Hyattsville, Md., 2 skunks.
 Kemp, Mr., Washington, D. C., bobwhite quail.
 Kidda, Mrs. Leonard, Washington, D. C., skunk.
 Kinannon, Oliver, Chevy Chase, Md., 4 fighting fowl.
 Kinsey, M. E., Washington, D. C., 2 rabbits.
 Kintz, Maj. J. S., Washington, D. C., snapping turtle.
 Knauss, Misses Sylvia and Miriam, McLean, Va., alligator.
 Knight, Mrs. R. L., Silver Spring, Md., crow.
 Kochanaki, Mr. and Mrs. J. F., Arlington, Va., 8 horned lizards.
 Kreitzer, H. M., Silver Spring, Md., 2 Pekin ducks.
 Kyriages, Gus, Alexandria, Va., loggerhead turtle.
 Lamon, John C., Knoxville, Tenn., grass snake.
 Lawburt, Max H., Washington, D. C., white rabbit.

Lawner, Mr., Chevy Chase, Md., hamster.
Long, Lewis E., Washington, D. C., South American opossum and 4 young.
Loraman, Mrs., Washington, D. C., red fox.
Lund, Hugh, Arlington, Va., 2 Pekin ducks.
MacBurnett, Mrs. R. D., Washington, D. C., horned lizard.
Mackintosh, Master Dick, Bethesda, Md., water snake.
Martin, Miss Diana, Washington, D. C., Pekin duck.
Marx, Joy, Washington, D. C., gray squirrel.
McCabe, John H., Arlington, Va., snowy owl.*
McChaney, H. M., McLean, Va., mole snake.
McCoy, Mrs. W. L., Kensington, Md., 4 Pekin ducks.
McCrary, J. A., Washington, D. C., rabbit.
McDowell, A. W. K., Annapolis, Md., great horned owl.
McGill, Paul P., Arlington, Va., mockingbird.*
McGraham, A., Washington, D. C., 2 opossums.
McKnett, Mrs. John W., Washington, D. C., 4 mallard ducks.
Meate, Mrs. May, Arlington, Va., Pekin duck.
Meible, Mrs. John C., Washington, D. C., canary.*
Miller, Miss B., Washington, D. C., Pekin duck.
Miller, Roy, Washington, D. C., horned lizard.
Millon, Arthur, Washington, D. C., 2 horned lizards.
Mitchell, Master George, Arlington, Va., alligator.
Montedonico, Joe, Bethesda, Md., garter snake, grass snake.
Morgan, Joseph P., Baltimore, Md., 200 clawed frogs.*
Morris, Dr. Anthony, Washington, D. C., 2 kangaroo rats.
Morse, Thatcher, Washington, D. C., pilot black snake.
Nash, Mrs. James T., Washington, D. C., capuchin monkey.
Nelson, Helen May, Washington, D. C., baby alligator.
Norris, A. N., Chevy Chase, Md., 2 albino-gray squirrels.
O'Neill, Mrs. Wm. C., Alexandria, Va., Java finch.
Owen, Miss Susan, Arlington, Va., Pekin duck.
Paine, Mrs. D. C., and McGovern, Miss Joan, Arlington, Va., angora rabbit.
Pamply, William A., Silver Spring, Md., 2 Pekin ducks.
Pararas, J. L., Washington, D. C., alligator.
Parkinson, Mrs. W. C., Washington, D. C., 100 guppies.
Pates, W. W., Fredericksburg, Va., 2 red-shouldered hawks.
Patterson, Mrs. H. French, Washington, D. C., baby alligator.
Paul, Seymour, Balboa Heights, C. Z., coatimundi.*
Perrott, Mr. and Mrs. Thomas A., North Arlington, Va., 4 Cumberland turtles.
Pettis, Louis, and Miller, Jack, Washington, D. C., 4 barn owls.
Pickett, Miss Evelyn, Washington, D. C., 2 Pekin ducks.
Picot, Mrs. Hanison, Alexandria, Va., opossum.
Preston, J. H., Mount Pleasant, Pa., 2 silver foxes, 2 platinum foxes.
Pritchard, Hunter, Washington, D. C., hamster.
Rabillard, Capt. and Mrs. G. N., Washington, D. C., domestic rabbit.
Randel, Capt. Hugh W., Canal Zone, crested guan.
Reese, Miss Barbara Ann, Alexandria, Va., 4 Pekin ducks.
Ridder, Mrs. I. D., Clifton Forge, Va., 2 Philippine macaques.
Roane, Wayne, Arlington, Va., hamster.
Robert, Miss Alice Birney, Washington, D. C., great gray kangaroo.
Robertson, Alaric Alvis, Arlington, Va., Pekin duck.
Rose, Mrs. Joseph, Falmouth, Va., hamadryas baboon.

- Ryan, Thomas W., Washington, D. C., Canada goose.
 Sapp, Mary Ellen, Vincent, and Chris, Bethesda, Md., snapping turtle
 Sargent, Mrs. V. W., Garrett Park, Md., coot.
 Sartain, W., Washington, D. C., sparrow hawk.
 Schwartz, Mrs. H., Washington, D. C., Pekin duck.
 Scott, Allwood, Washington, D. C., white rabbit.
 Scott, Joseph R., Arlington, Va., ring-necked pheasant.
 Seay, Mrs. Thomas, Washington, D. C., muskrat.
 Seielestad, H. D., Washington, D. C., copperhead.
 Sergeant, Russell, Washington, D. C., small alligator.
 Shaddix, W. N., Washington, D. C., barred owl.
 Sharpe, Miss Barbara A., Takoma Park, Md., white rabbit.
 Shaw, B., Washington, D. C., 2 ring-necked pheasants.
 Shaw, Brackley, Washington, D. C., 2 Pekin ducks.
 Silberman, James M., Washington, D. C., 2 spice finches, black-hooded red
 siskin.
 Simpson, Murry S., Chevy Chase, Md., skunk.
 Sinclare, L. A., Alexandria, Va., ring-necked pheasant.
 Sinclare, M. E., Herndon, Va., great horned owl.
 Smith, H. W., Washington, D. C., rabbit.
 Smith, Miss Hilda E., Silver Spring, Md., barn owl.
 Snapp, Mrs. Edwin C., Washington, D. C., Polyphemus moth.
 Snyder, Mrs. E. T., Washington, D. C., Pekin duck.
 Spicer, Master Curt J., Greenbelt, Md., 6 hamsters.
 Spicer, Jack, Arlington, Va., mink.
 Stevens, R. E., Washington, D. C., pilot black snake.
 Stover, Mrs. Harry B., Arlington, Va., crow.*
 Stover, Miss Susan, Chevy Chase, Md., opossum.
 Swift, C. B., Jr., Washington, D. C., Pekin duck.
 Tanit-Ikao, Princess, Lynbrook, N. Y., 3 Indian rock pythons,* alligator.
 Tapley, Mrs., Arlington, Va., chicken.
 Thompson, H. O., Brandon, Va., 2 Virginia deer.
 Thompson, W. E., Bethesda, Md., 12 Pekin ducks.
 Thompson School, Washington, D. C., rabbit.
 Thornton, Herbert, Washington, D. C., scarlet tanager.
 Trefflich's Bird & Animal Co., New York City, 2 great gray kangaroos.*
 Tullock, W. J., Jr., Alexandria, Va., alligator.
 U. S. Fish and Wildlife Service:
 Through Edward K. Beebe, Missoula, Mont., 2 pumas.
 Through Leon D. Cool, Rockville, Md., cardinal.
 Through Vernon Ekedahl, Sacramento National Wildlife Refuge, Willows,
 Calif., 2 snow geese, 4 cackling geese.
 Through K. F. Roahen, Billings, Mont., whistling swan.
 Through J. C. Savage, Klamath Falls, Oreg., 4 cackling geese.
 Through Dr. Victor Scheffer, St. Paul Island, Alaska, Steller's sea lion.
 U. S. Forest Service, New Mexico, through Homer C. Pickens, black bear cub.
 U. S. National Park Service, Washington, D. C., whistling swan.
 U. S. National Park Service, through Edmund B. Rogers, Yellowstone National
 Park, Wyo., 3 grizzly bears.
 Vaughn, Mrs. Harry H., Alexandria, Va., yellow-headed parrot.*
 Veckey, Mrs. L., Washington, D. C., ovenbird.

Vieth, Miss Elsie Jane, Washington, D. C., 2 Pekin ducks.
 Vinogradoff, Mrs. Gene, Alexandria, Va., 3 ring-necked doves.*
 Walters, H. R., Washington, D. C., 2 Pekin ducks.
 Warner, Tony, Washington, D. C., guinea pig.
 Washington Animal Rescue League, Washington, D. C., silver fox.
 Wayne, Mr. and Mrs. Robert, Washington, D. C., cheetah.*
 Weaver, W. C., Washington, D. C., saw-whet owl.
 Weisbender, Eugene R., Arlington, Va., 2 raccoons.
 Welch, Mr. (address unknown), coatimundi.
 Westbrook School, Washington, D. C., white rabbit.
 Wharton, Charles, Avondale Estates, Ga., 4 *Cercomys*, 1 *Euryzgomatomys*,
 cottonmouth moccasin, diamondback rattlesnake, copperhead snake, king
 snake, garter snake.
 White, Mrs. Harry D., Washington, D. C., Florida gallinule.
 Whitmore, Miss Catherine, Arlington, Va., rabbit.
 Wildrick, Mrs. Warren, Washington, D. C., weasel.*
 Williams, C. E., Washington, D. C., woolly monkey.*
 Williams, Mrs. M. C., Arlington, Va., sparrow hawk.
 Wills, Carl, Arlington, Va., skunk.
 Wise, Mrs. E. B., Washington, D. C., 3 guinea pigs.
 Wolf, Miss Mary, Washington, D. C., diamondback turtle.
 Wright, Albert, Arlington, Va., 2 Pekin ducks.
 Wyatt, Mrs. Walter, Washington, D. C., brown thrasher.
 Xidon, Mrs. Y., Washington, D. C., rabbit, frogs, salamanders.
 Zaroff, Mrs. J., Washington, D. C., cooter turtle.
 Zoological Society of Philadelphia, 2 red wolves, 3 coyotes.

PURCHASES

Some of the more important of the year's purchases include a pair each of great-eared foxes and fennecs; two echidnas which have been continuously on exhibition for more than a year; a pair of Steller's sea lions; a pair of red howler monkeys; a greater bird of paradise; a pair of Siberian red-breasted geese; and a male armadillo.

BIRTHS AND HATCHINGS

It was a surprise when both pairs of the Zoo's hybrid bears (female Alaska brown bear \times male polar bear) produced litters of cubs. One of the cubs (named Gene) was raised and has grown into a husky bear and, because of its ancestry, a famous one.

The English Park cattle, the gaur, the pygmy hippopotami, and the Chinese water deer have been breeding regularly.

A baby black-fronted duiker was born.

One pair of *Acoumba* lemurs produced a young one that has done amazingly well.

A pair of snowy egrets in the flight cage at the bird house built a nest, hatched two eggs, and raised the young to maturity.

Roseate spoonbills nested and hatched three young.

MAMMALS

Scientific name	Common name	Number
<i>Ammotragus lervia</i>	Aoudad.....	9
<i>Axis axis</i>	Axis deer.....	1
<i>Bos taurus</i>	English Park cattle.....	2
<i>Bibos gaurus</i>	Gaur.....	1
<i>Cephalophus nigrifrons</i>	Black-fronted duiker.....	1
<i>Cercopithecus aethiops sabaeus</i> × <i>C. a. pygerythrus</i>	Green guenon × vervet guenon.....	1
<i>Cercopithecus diana</i>	Diana monkey.....	1
<i>Cervus nippon</i>	Japanese deer.....	1
<i>Choeropsis liberiensis</i>	Pygmy hippopotamus.....	2
<i>Cuniculus paca</i>	Paca.....	1
<i>Dama dama</i>	Brown fallow deer.....	7
	White fallow deer.....	5
<i>Felis concolor</i> × <i>F. c. patagonica</i>	Puma.....	3
<i>Hippopotamus amphibius</i>	Hippopotamus.....	1
<i>Hydropotes inermis</i>	Chinese water deer.....	4
<i>Hylobates agilis</i> × <i>H. lar pileatus</i>	Hybrid gibbon.....	1
<i>Leontocebus rosalia</i>	Lion-headed marmoset.....	2
<i>Mephitis mephitis nigra</i>	Skunk.....	6
<i>Otocyon megalotis</i>	Great-eared fox.....	3
<i>Tamandua tetradactyla</i>	Tamandua anteater.....	1
<i>Taurotragus oryx</i>	Eland.....	1
<i>Thalarcos maritimus</i> × <i>Ursus middendorffi</i> (2d generation, 2 litters of 3 each)	Hybrid bear.....	6

BIRDS

<i>Ajaia ajaja</i>	Roseate spoonbill.....	3
<i>Chenopsis atrata</i>	Black swan.....	4
<i>Haliaeetus leucocephalus</i>	Bald eagle.....	1
<i>Leucophoyx thula</i>	Snowy heron.....	2
<i>Streptopelia tranquebarica</i>	Blue-headed ring dove.....	7

REPTILES

<i>Crotalus terrificus</i>	Mexican rattlesnake.....	14
<i>Constrictor constrictor</i>	Boa constrictor.....	32

RESEARCH

Scientific research is not set up as a separate activity in the National Zoological Park but is an important part of the operation. The proper care of hundreds of different kinds of animals, some of which have not previously been kept alive, calls for constant observation and study to determine for each one its natural living conditions, likes and dislikes. Usually the most important step is to try foods that will be acceptable substitutes for those that the animals would normally obtain in the wild. Other conditions, such as humidity, temperature, type of bedding, types of perch, indeed everything affecting

the animal in captivity, require constant study to make certain that a suitable environment is maintained. Failure to provide the proper conditions is likely to result in the loss of animals that are often of great value and are sometimes irreplaceable. Even if the animals do not die, they are almost certain to become unsuitable for exhibition if not properly cared for.

In the course of carrying on in his home studies of small mammals that were not well known or that had been considered difficult or impossible to keep alive in captivity, the Assistant Director has developed a food mixture that has proved highly satisfactory. The lesser short-tailed shrew (*Cryptotis parva*) and the large African elephant shrew (*Macroscelides rufescens*) were fed this and produced young, the short-tailed shrews even producing the second generation in captivity. Four species of bats thrived on this diet exclusively. The greater short-tailed shrews (*Blarina brevicauda*) and star-nosed mole (*Condylura cristata*) preferred this to most other food. It has been offered to many other small and medium-sized mammals such as marmosets, night monkeys, and several different kinds of rodents and carnivores, practically all of which like the food. It has been so successful with specialized mammals that have heretofore been very difficult or impossible to keep in captivity, that it appears worth while to publish the formula:

One yolk of hard-boiled egg; approximately an equal amount of rather dry cottage cheese; approximately an equal amount of ripe banana; approximately an equal amount of mealworms; 6 drops of Jeculin; 6 drops of wheat-germ-oil; 6 grains of Theragram.

Make up the mixture with a mortar and pestle. If the wheat-germ oil is in 3-minim capsules put in two; add the Theragram, which is a yellowish paste; add a few drops of water to soften the gelatin of the wheat-germ-oil capsules and to dissolve the Theragram. Then put in the other ingredients and grind all together with the pestle until a paste is formed with the chitin of the mealworms scattered through it.

The mealworms (*Tenebrio molitor*) are the same as, or similar to, those that get into cereals. Cultures of them can be maintained in bran or cornmeal with the addition of banana peelings, slices of raw potato, and occasionally light sprinklings of water to moisten the bran or cornmeal very slightly but not enough to cause it to form lumps or to mildew.

The Assistant Director has also developed a milk mixture that has been tried out with many small mammals with excellent success. It is as follows:

Three ounces cow's milk from which about one-third of the cream has been removed; 1 teaspoonful raw egg yolk; 4 drops Jeculin; 1 drop Navitol or Viosterol; $\frac{1}{4}$ teaspoonful calcium gluconate.

Stir until thoroughly mixed. Keep in refrigerator. Warm the small amount needed for each feeding. Use same care in sterilizing utensils as would be used in caring for a human baby.

MAINTENANCE AND IMPROVEMENTS

In addition to the numerous daily small repairs, substantial progress was made during the year in maintenance work of a more permanent improvement character.

The 85,000-gallon sea-lion pool that had been leaking seriously was completely relined with concrete. Four-hundred linear feet of concrete coping for fence was built and 400 feet of 6-foot fencing erected thereon; a parking area between the restaurant and the creek, 300 feet long and 20 feet wide, was given a bituminous-stone surfacing; the surface of the area behind the cages above the reptile house was improved by 2,100 square feet of cement surfacing, 175 linear feet of curb, 175 feet of concrete retaining wall 4 feet high, and 60 linear feet of steps; V-gutters were installed in front of these cages. This will improve the appearance of the area, check erosion, and improve sanitation. Three hundred eighty-six feet of 4-inch soil pipe and fittings were installed to provide for sewage disposal from the vicinity of the cook house; a high-voltage cable was laid from the basement of the reptile house to the cook house to provide current for the electric oven. The space in the bird house formerly occupied by eight double-deck bird cages that had never been satisfactory was remodeled to accommodate three large cages that are much better. Five thousand square feet of parking area was surfaced with bituminous-stone mixture. At odd times, particularly when outside work could not be carried on, the making of cement legs for benches and cement tables was continued.

VISITORS

The number of visitors was 3,437,669, an increase of 91,619 over the previous year. This was the largest attendance in the history of the Zoo and was probably due in part to the continued high employment in the Washington area, increase in travel accompanying the general economic prosperity, and the frequency with which the Zoo was able to announce the addition of interesting specimens to the collection. The variation in attendance on the different days of the week, which was so extreme before the war, has been much less noticeable. Formerly early days of the week had relatively low attendance, with an increasing number of visitors the latter portion of the week, and very large crowds on Saturdays, Sundays, and holidays. There is also a considerable increase in the earlier hours of the day.

ESTIMATED NUMBER OF VISITORS FOR FISCAL YEAR 1950

July (1949).....	419, 000	February.....	133, 350
August.....	475, 700	March.....	208, 450
September.....	372, 200	April.....	447, 419
October.....	262, 200	May.....	406, 000
November.....	175, 400	June.....	288, 500
December.....	71, 350		
January (1950).....	178, 100	Total.....	3, 437, 669

Groups came to the Zoo from schools in 31 States, some as far away as Maine, Florida, Washington, California, and New Mexico. There was an increase of 129 groups and 8,901 individuals in groups over last year.

NUMBER OF GROUPS FROM SCHOOLS

	Number of groups	Number in groups		Number of groups	Number in groups
Alabama.....	9	256	New Hampshire.....	1	44
California.....	1	33	New Jersey.....	18	1, 060
Connecticut.....	11	455	New Mexico.....	1	18
Delaware.....	17	731	New York.....	84	5, 253
District of Columbia.....	135	7, 070	North Carolina.....	199	6, 720
Florida.....	3	556	Ohio.....	70	2, 624
Georgia.....	48	2, 850	Oklahoma.....	1	16
Illinois.....	2	39	Pennsylvania.....	243	11, 580
Indiana.....	9	291	Rhode Island.....	1	38
Kentucky.....	7	252	South Carolina.....	58	1, 825
Maine.....	12	696	South Dakota.....	1	80
Maryland.....	582	34, 493	Tennessee.....	46	1, 983
Massachusetts.....	13	1, 215	Virginia.....	346	19, 602
Michigan.....	15	545	Washington.....	1	36
Minnesota.....	1	42	West Virginia.....	35	1, 942
Missouri.....	1	50			
Mississippi.....	2	138	Total.....	1, 973	102, 553

About 2 p.m. each day the cars then parked in the Zoo are counted by the Zoo police 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. The tabulation for the fiscal year 1950 is as follows:

Maryland.....	Percent 26. 0	Ohio.....	Percent 1. 7
Washington, D. C.....	25. 5	West Virginia.....	1. 5
Virginia.....	20. 9	New Jersey.....	1. 3
Pennsylvania.....	4. 4	Massachusetts.....	1. 0
North Carolina.....	2. 4	California.....	0. 9
New York.....	2. 3	Florida.....	0. 8

The cars that made up the remaining 11.3 percent came from every one of the remaining States, as well as from Alaska, Bahamas, Belgium, Canada, Canal Zone, Cuba, Dutch West Indies, France, Guam, Guatemala, Hawaii, Japan, Mexico, Newfoundland, Okinawa, Philippines, Poland, Puerto Rico, and Saipan.

FINANCES

The regular appropriation provided in the District of Columbia appropriation act was \$544,700.

The stone restaurant building, which was constructed in the Park in 1940 under an allotment of \$90,000, is under a 3-year lease, obtained by competitive bidding, at \$23,052 per annum. This money is deposited in the general fund of the United States Treasury. The concessionaire serves meals and light refreshments and sells souvenirs.

NEEDS OF THE ZOO

The principal needs of the Zoo remain as they have for several years, i. e., the replacement of antiquated structures that have long since ceased to be suitable for the purpose. The more urgently needed buildings are: (1) A new administration building to replace the 145-year-old historic landmark now in use for an office building for the Zoo, but which is neither suitably located nor well adapted for the purpose. This building is in an excellent location for a public recreational structure and could probably be rehabilitated and used for recreational purposes, perhaps as a children's museum, and thus maintained as a historic building. The new office building should be better located both from the standpoint of accessibility to the public and convenience for the administration of the Zoo. (2) A new building to house antelopes and other medium-sized hoofed animals that require a heated building.

STATUS OF THE COLLECTION

Class	Species or sub-species	Individuals	Class	Species or sub-species	Individuals
Mammals.....	243	734	Insects.....	2	103
Birds.....	353	1,087	Mollusks.....	2	4
Reptiles.....	113	487			
Amphibians.....	29	148	Total.....	771	2,821
Fish.....	29	258			

SUMMARY

Animals on hand July 1, 1949.....	12,947
Accessions during the year.....	1,414
Total number of animals in collection during the year.....	4,361
Removals for various reasons such as death, exchanges, return of animals on deposit, etc.....	1,540
In collection on June 30, 1950.....	2,821

¹ The total 3,724 given in last year's report was in error.

ANIMALS IN THE COLLECTION, JUNE 30, 1950

MAMMALS

Scientific name	MONOTREMATA	Common name	Number
Tachyglossidae:			
<i>Tachyglossus aculeatus</i>	Echidna or spiny anteater.....		2
MARSUPIALIA			
Didelphiidae:			
<i>Didelphis virginiana</i>	Opossum.....		5
<i>Metachirus nudicaudatus</i>	South American naked-tailed opossum.....		1
Phalangeridae:			
<i>Petaurus norfolcensis</i>	Australian flying phalanger.....		2
<i>Trichosurus vulpecula</i>	Vulpine opossum.....		2
Macropodidae:			
<i>Dendrolagus inustus</i>	New Guinea tree kangaroo.....		1
INSECTIVORA			
Tupaiaidae:			
<i>Urogale everetti</i>	Philippine tree shrew.....		2
Macroscelididae:			
<i>Macroscelides rufescens</i>	East African elephant shrew.....		3
PRIMATES			
Lemuridae:			
<i>Lemur macaco</i>	Acoumba lemur.....		3
<i>Lemur mongoz</i>	Mongoose lemur.....		2
Lorisidae:			
<i>Nycticebus coucang</i>	Slow loris.....		2
Callithricidae:			
<i>Leontocebus rosalia</i>	Silky or lion-headed marmoset.....		2
<i>Marikina oedipus</i>	Cotton-headed marmoset.....		1
<i>Oedipomidas geoffroyi</i>	Geoffroy's marmoset.....		13
Cebidae:			
<i>Alouatta seniculus</i>	Red howler monkey.....		2
<i>Aotus trivirgatus</i>	Douroucouli or night monkey.....		5
<i>Ateles geoffroyi vellerosus</i>	Spider monkey.....		2
<i>Cebus apella</i>	Gray capuchin.....		2
<i>Cebus capucinus</i>	White-throated capuchin.....		3
<i>Cebus fatuellus</i>	Weeping capuchin.....		2
<i>Pithecia pithecia</i>	Saki monkey.....		2
Cercopithecidae:			
<i>Cercocebus aterrimus</i>	Black-crested mangabey.....		1
<i>Cercocebus fuliginosus</i>	Sooty mangabey.....		2
<i>Cercopithecus aethiops pygerythrus</i>	Vervet guenon.....		1
<i>Cercopithecus aethiops sabaes</i>	Green guenon.....		8
<i>Cercopithecus aethiops sabaes</i> × <i>C.</i> <i>a. pygerythrus</i>	Hybrid, green guenon × vervet guenon.....		3
<i>Cercopithecus cephus</i>	Moustached guenon.....		2
<i>Cercopithecus diana</i>	Diana monkey.....		3

Scientific name	Common name	Number
Cercopithecidae—Continued		
<i>Cercopithecus diana roloway</i>	Roloway monkey.....	1
<i>Cercopithecus neglectus</i>	De Brazza's guenon.....	1
<i>Cercopithecus nictitans petaurista</i>	Lesser white-nosed guenon.....	1
<i>Cercopithecus preussi</i>	Preussi's guenon.....	1
<i>Erythrocebus patas</i>	Patas monkey.....	2
<i>Gymnopyga maurus</i>	Moor monkey.....	1
<i>Macaca irus</i>	Crab-eating macaque.....	1
<i>Macaca irus mordax</i>	Javan macaque.....	5
<i>Macaca lasiotis</i>	Chinese macaque.....	1
<i>Macaca mulatta</i>	Rhesus monkey.....	15
<i>Macaca nemestrina</i>	Pig-tailed monkey.....	2
<i>Macaca philippinensis</i>	Philippine macaque.....	7
<i>Macaca silenus</i>	Wanderoo monkey.....	1
<i>Macaca sinica</i>	Toque or bonnet monkey.....	1
<i>Macaca speciosa</i>	Red-faced macaque.....	2
<i>Macaca sylvanus</i>	Barbary ape.....	4
<i>Mandrillus sphinx</i>	Mandrill.....	2
<i>Papio cynocephalus</i>	Golden baboon.....	1
<i>Papio hamadryas</i>	Hamadryas baboon.....	3
<i>Papio porcarius</i>	Chacma baboon.....	4
Hylobatidae:		
<i>Hylobates agilis</i>	Sumatran gibbon.....	1
<i>Hylobates agilis</i> × <i>H. lar pileatus</i> ...	Hybrid gibbon.....	1
<i>Hylobates hoolock</i>	Hoolock gibbon.....	1
<i>Hylobates lar pileatus</i>	Black-capped gibbon.....	1
Pongidae:		
<i>Pan satyrus</i>	Chimpanzee.....	2
<i>Pongo pygmaeus abelii</i>	Orangutan.....	2
EDENTATA		
Dasypodidae:		
<i>Chaetophractus villosus</i>	Hairy armadillo.....	1
<i>Euphractus sexcinctus</i>	Six-banded armadillo.....	1
Myrmecophagidae:		
<i>Myrmecophaga tridactyla</i>	Giant anteater.....	1
<i>Tamandua tetradactyla</i>	Three-toed anteater.....	2
LAGOMORPHA		
Leporidae:		
<i>Oryctolagus cuniculus</i>	Domestic rabbit.....	10
<i>Sylvilagus floridanus</i>	Cottontail rabbit.....	1
RODENTIA		
Sciuridae:		
<i>Callosciurus nigrovittatus</i>	Southern Asiatic squirrel.....	1
<i>Callosciurus prevostii</i>	Tricolored squirrel.....	1
<i>Callospermophilus lateralis</i>	Albino golden-mantled ground squirrel.....	1
<i>Citellus beecheyi douglasii</i>	Douglas's ground squirrel.....	2
<i>Cynomys ludovicianus</i>	Plains prairie dog.....	30

Scientific name	Common name	Number
Sciuridae—Continued		
<i>Eutamias speciosus</i>	San Bernardino chipmunk.....	1
<i>Glaucomys volans</i>	Flying squirrel.....	3
<i>Marmota monax</i>	Woodchuck or ground hog.....	4
<i>Sciurus carolinensis</i>	Gray squirrel.....	1
<i>Sciurus carolinensis</i>	Albino gray squirrel.....	2
<i>Sciurus niger</i>	Fox squirrel.....	1
<i>Tamias striatus</i>	Eastern chipmunk.....	2
<i>Tamiasciurus hudsonicus</i>	Red squirrel.....	1
Geomysidae:		
<i>Thomomys bottae mewa</i>	Pocket gopher.....	3
Heteromyidae:		
<i>Dipodomys microps</i>	Small-faced kangaroo rat.....	1
<i>Dipodomys spectabilis</i>	Large kangaroo rat.....	1
Cricetidae:		
<i>Gerbillus pyramidum</i>	Gerbil.....	3
<i>Meriones unguiculatus</i>	Mongolian gerbil.....	1
<i>Mesocricetus auratus</i>	Golden hamster.....	15
<i>Microtus californicus</i>	California meadow mouse.....	4
<i>Microtus pennsylvanicus</i>	Meadow mouse.....	1
<i>Neotoma lepida</i>	Pack rat.....	2
<i>Ondatra zibethicus</i>	Muskrat.....	2
<i>Peromyscus leucopus</i>	Eastern white-footed mouse.....	3
<i>Peromyscus maniculatus gambeli</i>	Gambel's white-footed mouse.....	13
<i>Peromyscus maniculatus sonoriensis</i>	Sonoran white-footed mouse.....	1
<i>Peromyscus n. nuttalli</i>	Northern golden mouse.....	1
<i>Reithrodontomys megalotis longicaudus</i>	California harvest mouse.....	3
<i>Tatera schinzi shirensis</i>	Nyasaland gerbil.....	7
Rhizomyidae:		
<i>Rhizomys sumatrensis</i>	Bay bamboo rat.....	2
Muridae:		
<i>Acomys cahirinus</i>	Egyptian spiny mouse.....	4
<i>Chiropodomys gliroides</i>	Pencil-tailed tree mouse.....	1
<i>Mus musculus</i>	White and other domestic mice.....	10
<i>Phloeomys cumingi</i>	Slender-tailed cloud rat.....	3
<i>Rattus bowersi</i>	Bower's tree rat.....	1
<i>Rattus cremoriventer</i>	Pencil-tailed tree rat.....	1
<i>Rattus edwardsi</i>	Edward's tree rat.....	2
<i>Rattus mülleri</i>	Müller's tree rat.....	2
<i>Rattus rajah</i>	Rajah tree rat.....	1
<i>Rattus rattus</i>	Hooded laboratory rat.....	5
<i>Rattus sabanus</i>	Large spiny-backed tree rat.....	2
<i>Rattus whiteheadi</i>	Whitehead's tree rat.....	1
<i>Saccostomus</i> sp.....	African pouched mouse.....	1
Zapodidae:		
<i>Zapus hudsonius</i>	Jumping mouse.....	1
Hystriidae:		
<i>Acanthion brachyurum</i>	Malay porcupine.....	3
<i>Atherurus africanus</i>	West African brush-tailed porcupine.....	1
<i>Hystrix galeata</i>	African porcupine.....	2

Scientific name	Common name	Number
Caviidae:		
<i>Cavia porcellus</i>	Guinea pig	10
<i>Dolichotis patagonica</i>	Patagonian cavy	3
Dasyproctidae:		
<i>Cuniculus paca</i>	Paca	4
<i>Dasyprocta prymnolopha</i>	Agouti	2
<i>Dasyprocta punctata</i>	Speckled agouti	2
Chinchillidae:		
<i>Chinchilla chinchilla</i>	Chinchilla	3
<i>Lagidium viscaccia</i>	Peruvian viscacha	3
Capromyidae:		
<i>Capromys pilorides</i>	Hutia	3
Myocastoridae:		
<i>Myocastor coypus</i>	Coypu	4
Abrocomidae:		
<i>Abrocoma bennetti</i>	Abrocoma	1
Echimyidae:		
<i>Cercomys cunicularius</i>	Cercomys	1
<i>Euryzgomatomys</i> sp.	Euryzgomatomys	1
Thryonomyidae:		
<i>Thryonomys swinderianus</i>	Cane rat	1
Bathyergidae:		
<i>Cryptomys</i> sp.	Mole-rat	4
CARNIVORA		
Canidae:		
<i>Alopex lagopus</i>	Arctic fox	1
<i>Canis antarcticus</i>	Dingo	2
<i>Canis latrans</i>	Coyote	5
<i>Canis lupus nubilus</i>	Plains wolf	1
<i>Canis niger rufus</i>	Texas red wolf	2
<i>Fennecus zerda</i>	Fennec fox	2
<i>Nyctereutes procyonoides</i>	Raccoon dog	1
<i>Otocyon megalotis</i>	Big-eared fox	2
<i>Urocyon cinereoargenteus</i>	Gray fox	12
<i>Vulpes fulva</i>	Red fox	6
<i>Vulpes fulva</i>	Silver fox	5
Ursidae:		
<i>Euarctos americanus</i>	Black bear	4
<i>Euarctos thibetanus</i>	Himalayan bear	1
<i>Helarctos malayanus</i>	Malay or sun bear	1
<i>Melursus ursinus</i>	Sloth bear	1
<i>Thalarctos maritimus</i>	Polar bear	2
<i>Thalarctos maritimus</i> × <i>Ursus middendorffi</i>	Hybrid bear	1 ⁵
<i>Tremarctos ornatus</i>	Spectacled bear	2
<i>Ursus arctos</i>	European brown bear	1
<i>Ursus arctos occidentalis</i>	Syrian brown bear	2
<i>Ursus gyas</i>	Alaskan Peninsula bear	2
<i>Ursus horribilis</i>	Grizzly bear	3
<i>Ursus middendorffi</i>	Kodiak bear	2
<i>Ursus sitkensis</i>	Sitka brown bear	3
<i>Ursus</i> sp.	Alaska brown bear	1

¹ First generation 4; second generation 1.

Scientific name	Common name	Number
Procyonidae:		
<i>Bassariscus astutus</i>	Ringtail or cacomistle.....	1
<i>Nasua narica</i>	Coatimundi.....	8
<i>Nasua nelsoni</i>	Nelson's coatimundi.....	1
<i>Potos flavus</i>	Kinkajou.....	6
<i>Potos</i> sp.....	Dwarf kinkajou.....	2
<i>Procyon lotor</i>	Raccoon.....	20
	Black raccoon.....	3
	Raccoon (albino).....	1
Mustelidae:		
<i>Lutra canadensis vaga</i>	Florida otter.....	1
<i>Martes flavigula henricii</i>	Asiatic marten.....	1
<i>Meles meles leptorynchus</i>	Chinese badger.....	1
<i>Mephitis mephitis nigra</i>	Skunk.....	4
<i>Mustela eversmanni</i>	Ferret.....	1
<i>Mustela noveboracensis</i>	Weasel.....	1
<i>Mustela rixosa</i>	Least weasel.....	1
<i>Spilogale phenax</i>	California spotted skunk.....	1
<i>Taxidea taxus</i>	American badger.....	8
<i>Tayra barbara barbara</i>	White tayra.....	1
<i>Tayra barbara senilis</i>	Gray-headed tayra.....	1
Viverridae:		
<i>Civettictis civetta</i>	African civet.....	1
<i>Crossarchus obscurus</i>	Kusimanse.....	1
<i>Myonax sanguineus</i>	Dwarf civet.....	1
<i>Nandinia binotata</i>	African palm civet.....	1
<i>Paradoxurus hermaphroditus</i>	Small-toothed palm civet.....	3
<i>Paradoxurus philippinensis</i>	Philippine palm civet.....	1
<i>Viverra tangalunga</i>	Ground civet.....	1
Hyaenidae:		
<i>Crocuta crocuta germinans</i>	East African spotted hyena.....	2
Felidae:		
<i>Felis chaus</i>	Jungle cat.....	1
<i>Felis concolor</i>	Puma.....	4
<i>Felis concolor</i> × <i>F. c. patagonica</i>	Hybrid, North American puma × South American puma.....	6
<i>Felis leo</i>	Lion.....	5
<i>Felis onca</i>	Jaguar.....	3
<i>Felis pardalis</i>	Ocelot.....	2
<i>Felis pardus</i>	Black Indian leopard.....	1
<i>Felis pardus</i>	African leopard.....	2
<i>Felis temminckii</i>	Golden cat.....	1
<i>Felis tigris</i>	Bengal tiger.....	4
<i>Felis tigris sumatrae</i>	Sumatran tiger.....	2
<i>Oncifelis geoffroyi</i>	Geoffroy's cat.....	3
<i>Oncilla pardinoides</i>	Lesser tiger cat.....	1

	Scientific name	PINNIPEDIA	Common name	Number
Otariidae:				
	<i>Eumetopias jubata</i>	Steller's sea lion.....		1
Phocidae:				
	<i>Phoca vitulina richardii</i>	Pacific harbor seal.....		1
TUBULIDENTATA				
Orycteropodidae:				
	<i>Orycteropus afer</i>	Aardvark or ant bear.....		1
PROBOSCIDEA				
Elephantidae:				
	<i>Elephas maximus</i>	Asiatic elephant.....		3
	<i>Loxodonta africana oxyotis</i>	African elephant.....		1
HYRACOIDEA				
Procaviidae:				
	<i>Procavia capensis</i>	Hyrax.....		2
PERISSODACTYLA				
Equidae:				
	<i>Equus burchellii antiquorum</i>	Chapman's zebra.....		1
	<i>Equus kiang</i>	Asiatic wild ass or kiang.....		1
	<i>Equus onager</i>	Onager.....		1
	<i>Equus przewalskii</i>	Mongolian wild horse.....		2
	<i>Equus quagga granti</i>	Grant zebra.....		2
	<i>Equus zebra</i>	Mountain zebra.....		1
Rhinocerotidae:				
	<i>Diceros bicornis</i>	Black rhinoceros.....		1
	<i>Rhinoceros unicornis</i>	Great Indian one-horned rhinoceros.....		1
ARTIODACTYLA				
Suidae:				
	<i>Babirussa babyrussa</i>	Babirussa.....		1
	<i>Phacochoerus aethiopicus aeliani</i>	East African wart hog.....		2
	<i>Sus scrofa</i>	European wild boar.....		2
Tayassuidae:				
	<i>Pecari angulatus</i>	Collared peccary.....		1
Hippopotamidae:				
	<i>Choeropsis liberiensis</i>	Pygmy hippopotamus.....		9
	<i>Hippopotamus amphibius</i>	Hippopotamus.....		2
Camelidae:				
	<i>Camelus bactrianus</i>	Bactrian camel.....		3
	<i>Camelus dromedarius</i>	Single-humped camel.....		3
	<i>Lama glama</i>	Llama.....		1
	<i>Lama glama guanico</i>	Guanaco.....		3
	<i>Lama pacos</i>	Alpaca.....		3
	<i>Vicugna vicugna</i>	Vicuña.....		1

	Scientific name	Common name	Number
Cervidae:			
	<i>Axis axis</i>	Axis deer.....	2
	<i>Cervus canadensis</i>	American elk.....	4
	<i>Cervus elaphus</i>	Red deer.....	1
	<i>Cervus nippon</i>	Japanese deer.....	4
	<i>Cervus nippon manchuricus</i>	Dybowsky's deer.....	2
	<i>Dama dama</i>	{ Fallow deer.....	16
		{ White fallow deer.....	20
	<i>Hydropotes inermis</i>	Chinese water deer.....	6
	<i>Odocoileus virginianus</i>	Virginia deer.....	5
Giraffidae:			
	<i>Giraffa camelopardalis</i>	Nubian giraffe.....	5
	<i>Giraffa reticulata</i>	Reticulated giraffe.....	1
Bovidae:			
	<i>Ammotragus lervia</i>	Aoudad.....	29
	<i>Bibos gaurus</i>	Gaur.....	5
	<i>Bison bison</i>	American bison.....	13
	<i>Bos indicus</i>	Zebu.....	3
	<i>Bos taurus</i>	Domestic cow (Jersey).....	1
	<i>Bos taurus</i>	West Highland or Kyloe cattle.....	4
	<i>Bos taurus</i>	British Park cattle.....	5
	<i>Bubalus bubalis</i>	Water buffalo.....	2
	<i>Capra sibirica</i>	Ibex.....	1
	<i>Cephalophus maxwellii</i>	Maxwell's duiker.....	1
	<i>Cephalophus nigrifrons</i>	Black-fronted duiker.....	3
	<i>Hemitragus jemlahicus</i>	Tahr.....	3
	<i>Limnotragus spekii</i>	Sitatunga.....	1
	<i>Oryx leucoryx</i>	Arabian oryx.....	1
	<i>Ovis aries</i>	Domestic sheep.....	1
	<i>Ovis europaea</i>	Mouflon.....	1
	<i>Poephagus grunniens</i>	Yak.....	4
	<i>Pseudois nayaur</i>	Bharal or blue sheep.....	1
	<i>Syncerus caffer</i>	African buffalo.....	3
	<i>Taurotragus oryx</i>	Eland.....	3

BIRDS

STRUTHIONIFORMES

Struthionidae:			
	<i>Struthio camelus</i>	Ostrich.....	1

RHEIFORMES

Rheidae:			
	<i>Rhea americana</i>	Common rhea.....	3

CASUARIFORMES

Casuariidae:			
	<i>Casuarus casuarus aruensis</i>	Aru cassowary.....	1
	<i>Casuarus unappendiculatus occipitalis</i>	Island cassowary.....	1
	<i>Casuarus unappendiculatus unappendiculatus</i>	One-wattled cassowary.....	1
Dromiceidae:			
	<i>Dromiceus novaehollandiae</i>	Common emu.....	2

TINAMIFORMES

Scientific name	Common name	Number
Tinamidae:		
<i>Crypturellus variegatus</i>	Variegated tinamou.....	1

SPHENISCIFORMES

Spheniscidae:		
<i>Aptenodytes forsteri</i>	Emperor penguin.....	1
<i>Eudyptes chrysolophus</i>	Macaroni penguin.....	1
<i>Spheniscus demersus</i>	Jackass penguin.....	3
<i>Spheniscus humboldti</i>	Humboldt's penguin.....	1

PELECANIFORMES

Pelecanidae:		
<i>Pelecanus erythrorhynchus</i>	White pelican.....	2
<i>Pelecanus occidentalis californicus</i>	California brown pelican.....	2
<i>Pelecanus occidentalis occidentalis</i>	Brown pelican.....	2
<i>Pelecanus roseus</i>	Rose-colored pelican.....	2

Sulidae:		
<i>Sula leucogaster</i>	Brown booby.....	1

Phalacrocoracidae:		
<i>Phalacrocorax auritus albociliatus</i>	Farallon cormorant.....	1
<i>Phalacrocorax auritus auritus</i>	Double-crested cormorant.....	1

CICONIIFORMES

Ardeidae:		
<i>Ardea herodias</i>	Great blue heron.....	2
<i>Hydranassa tricolor ruficollis</i>	Louisiana heron.....	1
<i>Leucophoyx thula</i>	Snowy egret.....	6
<i>Notophoyx novaehollandiae</i>	White-faced heron.....	1
<i>Nycticorax nycticorax hoactli</i>	Black-crowned night heron.....	29

Cochleariidae:		
<i>Cochlearius cochlearius</i>	Boat-billed heron.....	1

Ciconiidae:		
<i>Ciconia alba</i>	White stork.....	2
<i>Ibis cinereus</i>	Malayan painted stork.....	1
<i>Jabiru mycteria</i>	Jabiru.....	2
<i>Leptoptilus crumeniferus</i>	Marabou.....	1
<i>Leptoptilus dubius</i>	Indian adjutant.....	1
<i>Leptoptilus javanicus</i>	Lesser adjutant.....	2
<i>Mycteria americana</i>	Wood ibis.....	1

Threskiornithidae:		
<i>Ajaia ajaja</i>	Roseate spoonbill.....	3
<i>Guara alba</i>	White ibis.....	4
<i>Guara alba</i> × <i>G. rubra</i>	Hybrid, white ibis × scarlet ibis.....	1
<i>Guara rubra</i>	Scarlet ibis.....	3
<i>Threskiornis melanocephala</i>	Black-headed ibis.....	1

Phoenicopteridae:		
<i>Phoenicopus antiquorum</i>	Old World flamingo.....	2
<i>Phoenicopus chilensis</i>	Chilean flamingo.....	7
<i>Phoenicopus ruber</i>	Cuban flamingo.....	1

ANSERIFORMES

Scientific name	Common name	Number
Anhimidae:		
<i>Chauna torquata</i>	Crested screamer.....	4
Anatidae:		
<i>Aix sponsa</i>	Wood duck.....	3
<i>Anas bahamensis</i>	Bahama pintail.....	2
<i>Anas brasiliensis</i>	Brazilian teal.....	1
<i>Anas platyrhynchos</i>	{ Mallard duck.....	20
	{ White mallard duck.....	3
<i>Anas platyrhynchos</i> × <i>Dafila acuta</i>	Hybrid, mallard duck × pintail duck.....	1
<i>Anas platyrhynchos domestica</i>	Pekin duck.....	20
<i>Anas rubripes</i>	Black duck.....	3
<i>Anser albifrons</i>	Greenland white-fronted goose.....	1
<i>Anser anser domestica</i>	Toulouse goose.....	4
<i>Anseranas semipalmata</i>	Australian pied goose.....	1
<i>Aythya affinis</i>	Lesser scaup.....	1
<i>Aythya fuligula</i>	Tufted duck.....	4
<i>Aythya valisineria</i>	Canvasback duck.....	2
<i>Branta canadensis</i>	Canada goose.....	26
<i>Branta canadensis</i> × <i>Chen caerulescens</i>	Hybrid, Canada goose × blue goose.....	2
<i>Branta canadensis occidentalis</i>	White-cheeked goose.....	16
<i>Branta hutchinsii</i>	Hutchins's goose.....	3
<i>Branta hutchinsii minima</i>	Cackling goose.....	20
<i>Branta ruficollis</i>	Red-breasted goose.....	2
<i>Cairina moschata</i>	Muscovy duck.....	7
<i>Cereopsis novaehollandiae</i>	Cape Barren goose.....	1
<i>Chen atlantica</i>	Snow goose.....	3
<i>Chen caerulescens</i>	Blue goose.....	3
<i>Chen hyperborea</i>	Lesser snow goose.....	2
<i>Chenopsis atrata</i>	Black swan.....	9
<i>Chloephaga leucoptera</i>	Upland goose.....	2
<i>Coscoroba coscoroba</i>	Coscoroba.....	1
<i>Cygnopsis cygnoides</i>	Domestic swan-goose.....	3
<i>Cygnus columbianus</i>	Whistling swan.....	5
<i>Cygnus cygnus</i>	Whooper swan.....	2
<i>Cygnus melancoriphus</i>	Black-necked swan.....	1
<i>Dafila acuta</i>	Pintail.....	7
<i>Dafila spinicauda</i>	Chilean pintail.....	1
<i>Dendrocygna autumnalis</i>	Black-bellied tree duck.....	3
<i>Dendrocygna viduata</i>	White-faced tree duck.....	2
<i>Mareca americana</i>	Baldpate.....	1
<i>Metopiana peposaca</i>	Rosy-billed pouchard.....	2
<i>Nettion carolinense</i>	Green-winged teal.....	3
<i>Nettion formosum</i>	Baikal teal.....	2
<i>Philacte canagica</i>	Emperor goose.....	2
<i>Plectropterus gambiensis</i>	Spur-winged goose.....	2
<i>Querquedula discors</i>	Blue-winged teal.....	2

FALCONIFORMES

Scientific name	Common name	Number
Cathartidae:		
<i>Cathartes aura</i>	Turkey vulture.....	1
<i>Coragyps atratus</i>	Black vulture.....	7
<i>Sarcoramphus papa</i>	King vulture.....	2
<i>Vultur gryphus</i>	Andean condor.....	2
Sagittariidae:		
<i>Sagittarius serpentarius</i>	Secretarybird.....	2
Accipitridae:		
<i>Accipiter cooperi</i>	Cooper's hawk.....	1
<i>Buteo jamaicensis</i>	Red-tailed hawk.....	5
<i>Buteo lineatus lineatus</i>	Red-shouldered hawk.....	4
<i>Buteo melanoleucus</i>	South American buzzard eagle.....	2
<i>Buteo platypterus</i>	Broad-winged hawk.....	1
<i>Buteo poecilochrous</i>	Red-backed buzzard.....	1
<i>Buteo swainsoni</i>	Swainson's hawk.....	1
<i>Gyps rueppelli</i>	Rüppell's vulture.....	2
<i>Haliaeetus leucocephalus</i>	Bald eagle.....	7
<i>Haliaeetus leucogaster</i>	White-breasted sea eagle.....	2
<i>Haliastur indus</i>	Brahminy kite.....	3
<i>Harpia harpya</i>	Harpy eagle.....	1
<i>Milvago chimango</i>	Chimango.....	3
<i>Milvus migrans parasitus</i>	African yellow-billed kite.....	2
<i>Pandion haliaetus carolinensis</i>	Osprey.....	2
<i>Parabuteo unicinctus</i>	One-banded hawk.....	1
<i>Pithecophaga jefferyi</i>	Monkey-eating eagle.....	1
<i>Spiziastur melanoleucus</i>	Black-and-white hawk eagle.....	1
Falconidae:		
<i>Falco mexicanus</i>	Prairie falcon.....	1
<i>Falco peregrinus anatum</i>	Duck hawk.....	1
<i>Falco sparverius</i>	Sparrow hawk.....	5
<i>Polyborus plancus</i>	South American caracara.....	3
GALLIFORMES		
Megapodiidae:		
<i>Alectura lathami</i>	Brush turkey.....	2
Cracidae:		
<i>Crax fasciolata</i>	Crested curassow.....	2
<i>Crax fasciolata sclateri</i>	Sclater's curassow.....	1
<i>Crax rubra</i>	Panama curassow.....	1
<i>Mitu mitu</i>	Razor-billed curassow.....	1
<i>Penelope boliviana</i>	Crested guan.....	3
Phasianidae:		
<i>Argusianus argus</i>	Argus pheasant.....	1
<i>Chrysolophus amherstiae</i>	Lady Amherst's pheasant.....	1
<i>Chrysolophus pictus</i>	Golden pheasant.....	2
<i>Colinus cristatus</i>	Crested quail.....	11
<i>Colinus virginianus</i>	Bobwhite.....	1
<i>Crossoptilon auritum</i>	Blue-eared pheasant.....	1
<i>Francolinus coqui</i>	Coqui francolin.....	2
<i>Gallus gallus</i>	Bantam fowl.....	70
<i>Gallus gallus</i>	Oriental silky bantam fowl.....	2

Scientific name	Common name	Number
Phasianidae—Continued		
<i>Gallus gallus</i>	Fighting fowl.....	10
<i>Gallus gallus</i>	Red jungle fowl.....	7
<i>Gallus gallus</i>	Hybrid, red jungle fowl × bantam fowl.....	1
<i>Gallus lafayettii</i>	Ceylonese jungle fowl.....	1
<i>Gallus sonneratii</i>	Gray jungle fowl.....	1
<i>Gennaeus albocristatus</i>	White-crested kaleege.....	1
<i>Gennaeus leucomelanus</i>	Nepal kaleege.....	11
<i>Gennaeus nychthemerus</i>	Silver pheasant.....	2
<i>Hierophasis swinhoii</i>	Swinhoe's pheasant.....	1
<i>Odontophorus gujanensis marmoratus</i>	Marbled Guiana quail.....	1
<i>Pavo cristatus</i>	Peafowl.....	5
<i>Phasianus torquatus</i>	Ring-necked pheasant.....	4
<i>Syrmaticus reevesi</i>	Reeves's pheasant.....	1
Numididae:		
<i>Acryllium vulturinum</i>	Vulturine guinea fowl.....	1
<i>Numida</i> sp.....	Guinea fowl.....	1
<i>Guttera eduardi schoutedeni</i>	Schouteden's crested guinea fowl.....	1
<i>Guttera plumifera schubotzi</i>	Uele crested guinea fowl.....	2
Meleagrididae:		
<i>Agriocharis ocellata</i>	Ocellated turkey.....	3
<i>Meleagris gallopavo</i>	Wild turkey.....	2
GRUIFORMES		
Gruidae:		
<i>Anthropoides virgo</i>	Demoiselle crane.....	2
<i>Balearica pavonina</i>	West African crowned crane.....	2
<i>Balearica regulorum gibbericeps</i>	East African crowned crane.....	1
<i>Grus leucauchen</i>	White-naped crane.....	1
<i>Grus leucogeranus</i>	Siberian crane.....	2
Psophiidae:		
<i>Psophia leucoptera</i>	White-backed trumpeter.....	1
Rallidae:		
<i>Amaurornis phoenicurus</i>	White-breasted rail.....	1
<i>Aramides cajanea</i>	Wood rail.....	2
<i>Fulica americana</i>	American coot.....	8
<i>Gallinula chloropus cachinnans</i>	Florida gallinule.....	3
<i>Gallinula chloropus indica</i>	Indian gallinule.....	2
<i>Ironornis martinica</i>	Purple gallinule.....	1
<i>Laterallus viridis</i>	Cayenne rail.....	2
<i>Rallus limicola limicola</i>	Virginia rail.....	1
Cariamidae:		
<i>Cariama cristata</i>	Cariama or seriema.....	2
Eurypygidae:		
<i>Eurypyga major</i>	Sun bittern.....	2
CHARADRIIFORMES		
Recurvirostridae:		
<i>Himantopus mexicanus</i>	Black-necked stilt.....	2
Burhinidae:		
<i>Burhinus bistriatus</i>	South American thick-knee.....	1

Scientific name	Common name	Number
Haematopodidae:		
<i>Haematopus ostralegus</i>	European oystercatcher.....	3
Charadriidae:		
<i>Belonopterus chilensis</i>	Chilean lapwing.....	2
<i>Philomachus pugnax</i>	Ruff.....	5
Laridae:		
<i>Larus argentatus</i>	Herring gull.....	1
<i>Larus delawarensis</i>	Ring-billed gull.....	2
<i>Larus dominicanus</i>	Kelp gull.....	2
<i>Larus novaehollandiae</i>	Silver gull.....	6

COLUMBIFORMES

Columbidae:		
<i>Columba livia</i>	Domestic pigeon.....	9
<i>Columba nigrirostris</i>	Short-billed pigeon.....	1
<i>Columbigallina minuta elaeodes</i>	Ground dove.....	2
<i>Ducula paulina</i>	Celebian imperial pigeon.....	1
<i>Gallinocolumba luzonica</i>	Bleeding-heart dove.....	2
<i>Gallinocolumba luzonica</i> × <i>Streptopelia</i> <i>decaocto</i>	Hybrid, bleeding-heart dove × ring-necked dove.....	1
<i>Goura victoria</i>	Victoria crowned pigeon.....	1
<i>Oreopeleia montana</i>	Ruddy quail dove.....	2
<i>Streptopelia tranquebarica</i>	Blue-headed ring dove.....	17
<i>Streptopelia decaocto</i>	Ring-necked dove.....	15
<i>Zenaida asiatica</i>	White-winged dove.....	12
<i>Zenaidura auriculata</i>	South American mourning dove.....	4
<i>Zenaidura macroura</i>	Mourning dove.....	2

PSITTACIFORMES

Psittacidae:		
<i>Agapornis lilianae</i>	Red-faced lovebird.....	2
<i>Amazona aestiva</i>	Blue-fronted parrot.....	1
<i>Amazona auropalliata</i>	Yellow-naped parrot.....	4
<i>Amazona ochrocephala</i>	Yellow-headed parrot.....	4
<i>Amazona oratrix</i>	Double yellow-headed parrot.....	8
<i>Anodorhynchus hyacinthinus</i>	Hyacinthine macaw.....	1
<i>Ara ararauna</i>	Yellow-and-blue macaw.....	7
<i>Ara macao</i>	Red, blue, and yellow macaw.....	6
<i>Aratinga euops</i>	Cuban conure.....	1
<i>Brotogeris jugularis</i>	Tovi parakeet.....	12
<i>Calyptorhynchus magnificus</i>	Banksian cockatoo.....	1
<i>Conurus weddelli</i>	Weddell's conure.....	5
<i>Domicella garrula</i>	Red lory.....	1
<i>Kakatoe alba</i>	White cockatoo.....	2
<i>Kakatoe ducrops</i>	Solomon Islands cockatoo.....	2
<i>Kakatoe galerita</i>	Large sulphur-crested cockatoo.....	3
<i>Kakatoe moluccensis</i>	Great red-crested cockatoo.....	1
<i>Kakatoe sanguineus</i>	Bare-eyed cockatoo.....	1
<i>Neophema chrysostoma</i>	Blue-winged parrot.....	2
<i>Nestor notabilis</i>	Kea.....	1
<i>Nymphicus hollandicus</i>	Cockatiel.....	1

Scientific name	Common name	Number
Psittacidae—Continued		
<i>Pionus menstruus</i>	Blue-headed conure.....	1
<i>Psittacula eupatria</i>	Red-shouldered parakeet.....	1
<i>Psittacula krameri</i>	Kramer's parakeet.....	1

CUCULIFORMES

Cuculidae:		
<i>Eudynamys scolopacea</i>	Koel.....	1
Musophagidae:		
<i>Tauraco corythaix</i>	South African turaco.....	2
<i>Tauraco donaldsoni</i>	Donaldson's turaco.....	1
<i>Tauraco persa</i>	Purple turaco.....	2

STRIGIFORMES

Tytonidae:		
<i>Tyto alba pratincola</i>	Barn owl.....	10
Strigidae:		
<i>Bubo virginianus</i>	Great horned owl.....	8
<i>Ketupa ketupu</i>	Malay fishing owl.....	1
<i>Nyctea nyctea</i>	Snowy owl.....	1
<i>Otus asio</i>	Screech owl.....	4
<i>Strix varia varia</i>	Barred owl.....	11

CORACIIFORMES

Alcedinidae:		
<i>Dacelo gigas</i>	Kookaburra.....	2
Coraciidae:		
<i>Anthracoceros coronatus</i>	Pied hornbill.....	2
Momotidae:		
<i>Baryphthengus martii</i>	Great rufous motmot.....	1
<i>Momotus lessoni</i>	Lesson's motmot.....	1

PICIFORMES

Capitonidae:		
<i>Megalaima asiatica</i>	Blue-throated barbet.....	1
Ramphastidae:		
<i>Pteroglossus inscriptus</i>	Yellow-billed toucanet.....	1
<i>Ramphastos ariel</i>	Ariel toucan.....	2
<i>Ramphastos carinatus</i>	Sulphur-breasted toucan.....	3
<i>Ramphastos culminatus</i>	White-breasted toucan.....	1
<i>Ramphastos piscivorus</i>	Toco toucan.....	1

PASSERIFORMES

Cotingidae:		
<i>Rupicola rupicola</i>	Cock-of-the-rock.....	2
Dieruridae:		
<i>Dissemurus paradiseus</i>	Giant racquet-tailed drongo.....	1
Oriolidae:		
<i>Zarhynchus wagleri</i>	Wagler's oropendula.....	1
Corvidae:		
<i>Corvus brachyrhynchos</i>	American crow.....	8
<i>Corvus corax principalis</i>	Northern raven.....	1

Scientific name	Common name	Number
Corvidae—Continued		
<i>Corvus cornix</i>	Hooded crow	1
<i>Corvus cryptoleucus</i>	White-necked raven	1
<i>Corvus insoleus</i>	Indian crow	2
<i>Corvus monedula</i>	Jackdaw	3
<i>Cyanocitta cristata</i>	Blue jay	8
<i>Cyanocorax chrysops</i>	Urraca jay	1
<i>Garrulus glandarius</i>	European jay	1
<i>Gymnorhina hypoleuca</i>	White-backed piping crow	1
<i>Pica nuttalli</i>	Yellow-billed magpie	1
<i>Pica pica hudsonica</i>	American magpie	2
<i>Urocissa caerulea</i>	Formosan red-billed pie	2
Paradiseidae:		
<i>Paradisa apoda</i>	Great bird-of-paradise	1
<i>Ptilonorhynchus violaceus</i>	Satin bowerbird	1
Timaliidae:		
<i>Garrulax bicolor</i>	White-headed laughing thrush	2
Pycnonotidae:		
<i>Heterophasia capistrata</i>	Black-headed sibia	2
<i>Pycnonotus analis</i>	Yellow-vented bulbul	1
<i>Pycnonotus leucogenys</i>	White-cheeked bulbul	1
Mimidae:		
<i>Mimus polyglottos polyglottos</i>	Eastern mockingbird	1
<i>Mimus polyglottos leucopterus</i>	Western mockingbird	2
<i>Toxostoma rufum</i>	Brown thrasher	2
Turdidae:		
<i>Geokichla citrina</i>	Orange-headed ground thrush	1
<i>Hylcocichla mustelina</i>	Wood thrush	1
<i>Platycichla flavipes</i>	Yellow-footed thrush	1
<i>Turdus grayi</i>	Bonaparte's thrush	1
<i>Turdus migratorius</i>	Eastern robin	3
Sturnidae:		
<i>Acridotheres tristis</i>	Common mynah	1
<i>Gracula religiosa</i>	Southern hill mynah	1
<i>Gracupica melanopectera</i>	White starling	1
<i>Lamprocolius splendens</i>	Splendid glossy starling	3
<i>Lamprotornis australis</i>	Burchell's glossy starling	1
<i>Sturnia malabarica</i>	Gray-headed mynah	1
Parulidae:		
<i>Dendroica pinus</i>	Pine warbler	1
<i>Seiurus aurocapillus</i>	Ovenbird	2
Ploceidae:		
<i>Aegintha temporalis</i>	Sydney waxbill	8
<i>Aidemosyne cantans</i>	Tawny waxbill	3
<i>Aidemosyne malabarica</i>	Indian silverbill	2
<i>Aidemosyne modesta</i>	Plum-headed finch	2
<i>Alistieranus cinctus</i>	Parson finch	2
<i>Amadina fasciata</i>	Cut-throat weaver finch	6
<i>Amandava amandava</i>	Strawberry finch	3
<i>Cayleya picta</i>	Painted finch	1
<i>Diatropura procne</i>	Giant whydah	2
<i>Estrilda astrild</i>	Red-eared waxbill	10

Scientific name	Common name	Number
Ploceidae—Continued		
<i>Euplectes franciscana</i>	Bishop weaver	3
<i>Hypochera ultramarina</i>	Combasou or indigobird	1
<i>Lagonosticta senegalla</i>	African fire finch	2
<i>Lonchura leucogastroides</i>	Bengali finch	2
<i>Munia maja</i>	White-headed munia	2
<i>Munia malacca</i>	Black-throated munia	1
<i>Munia punctulata</i>	Spice finch	3
<i>Padda oryzivora</i>	Java sparrow	15
<i>Passer domesticus</i>	House sparrow	3
<i>Ploceus baya</i>	Baya weaver	2
<i>Ploceus intermedius</i>	Black-cheeked weaver	2
<i>Ploceus vitellinus</i>	Vitelline masked weaver	6
<i>Poephila cuticauda</i>	Long-tailed finch	1
<i>Poephila personata</i>	Masked finch	2
<i>Quelea quelea</i>	Red-billed weaver	4
<i>Sporaeginthus melopodus</i>	Orange-cheeked waxbill	5
<i>Steganopleura bichenovii</i>	Bicheno's finch	1
<i>Steganura paradisea</i>	Paradise whydah	12
<i>Taeniopygia castanotis</i>	Zebra finch	3
<i>Uraeginthus bengalus</i>	Cordon-bleu finch	7
Coerebidae:		
<i>Cyanerpes cyaneus</i>	Blue honey creeper	14
Icteridae:		
<i>Agelaius assimilis</i>	Cuban red-winged blackbird	2
<i>Amblyramphus holosericeus</i>	Scarlet-headed blackbird	1
<i>Gymnomystax mexicanus</i>	Giant oriole	1
<i>Icterus bullocki</i>	Bullock's troupial	1
<i>Icterus giraudi</i>	Giraud's oriole	1
<i>Molothrus bonariensis</i>	Shiny cowbird	1
<i>Notiopsar curaeus</i>	Chilean blackbird	2
<i>Pezites defilippii</i>	Military starling	4
<i>Quiscalus quiscula</i>	Purple grackle	1
<i>Xanthocephalus xanthocephalus</i>	Yellow-headed blackbird	1
<i>Xanthornis angustifrons</i>	Oropendula	1
Thraupidae:		
<i>Calospiza inornata languens</i>	Plain-colored tanager	1
<i>Calospiza ruficollis</i>	Brown-headed tanager	1
<i>Piranga erythromelas</i>	Scarlet tanager	2
<i>Ramphocelus carbo</i>	Silver-beaked tanager	2
<i>Ramphocelus dimidiatus</i>	Crimson tanager	2
<i>Ramphocelus flammigerus</i>	Yellow tanager	2
<i>Ramphocelus passerinii</i>	Passerini's tanager	1
<i>Thraupis bonariensis darwini</i>	Darwin's tanager	2
<i>Thraupis cana</i>	Blue tanager	1
Fringillidae:		
<i>Carpodacus mexicanus</i>	Mexican house finch	2
<i>Carpodacus purpureus californicus</i>	California purple finch	3
<i>Coryphospingus cucullatus</i>	Red-crested finch	1
<i>Cyanocompsa argentina</i>	Argentine blue grosbeak	2
<i>Diuca diuca</i>	Diuca finch	1
<i>Lophospingus pusillus</i>	Black-crested finch	2

Scientific name	Common name	Number
Fringillidae—Continued		
<i>Melopyrrha nigra</i>	Cuban bullfinch.....	2
<i>Melospiza melodia</i>	Song sparrow.....	3
<i>Paroaria cucullata</i>	Brazilian cardinal.....	1
<i>Paroaria gularis nigro-genis</i>	Black-eared cardinal.....	1
<i>Passerella iliaca</i>	Fox sparrow.....	1
<i>Passerina amoena</i>	Lazuli bunting.....	1
<i>Passerina ciris</i>	Painted bunting.....	1
<i>Passerina cyanea</i>	Indigo bunting.....	2
<i>Passerina leclancheri</i>	Leclancher's bunting.....	1
<i>Passerina versicolor</i>	Varied bunting.....	1
<i>Pheucticus aureoventris</i>	Black-and-yellow grosbeak.....	2
<i>Phrygilus alaudinus</i>	Chilean lark finch.....	1
<i>Phrygilus fruticeti</i>	Mourning finch.....	2
<i>Phrygilus gayi</i>	Gay's gray-headed finch.....	1
<i>Poospiza torquata</i>	Ringed warbling finch.....	2
<i>Richmondia cardinalis</i>	Cardinal.....	3
<i>Serinus canarius</i>	Canary.....	7
<i>Serinus canarius</i> × <i>Carduelis mexi-</i> <i>cana</i>	Hybrid, canary × siskin.....	2
<i>Serinus icterus</i>	Green singing finch.....	1
<i>Sicalis flaveola</i>	Mysto finch.....	1
<i>Sicalis luteola</i>	Saffron finch.....	3
<i>Sicalis minor</i>	Lesser yellow finch.....	4
<i>Spinus uropygialis</i>	Chilean siskin.....	1
<i>Sporophila aurita</i>	Hicks's seedeater.....	1
<i>Sporophila gutturalis</i>	Yellow-billed seedeater.....	1
<i>Sporophila melanocephala</i>	Black-headed seedeater.....	2
<i>Tiaris olivacea</i>	Mexican grassquit.....	3
<i>Volatinia jacarina</i>	Blue-black grassquit.....	1
<i>Zonotrichia albicollis</i>	White-throated sparrow.....	4
<i>Zonotrichia capensis</i>	Chingolo.....	1

REPTILES

LORICATA

Crocodylidae:

<i>Alligator mississippiensis</i>	Alligator.....	33
<i>Alligator sinensis</i>	Chinese alligator.....	2
<i>Caiman latirostris</i>	Broad-snouted caiman.....	1
<i>Caiman sclerops</i>	Spectacled caiman.....	4
<i>Crocodylus acutus</i>	American crocodile.....	3
<i>Crocodylus cataphractus</i>	Narrow-nosed crocodile.....	1
<i>Crocodylus niloticus</i>	African crocodile.....	2
<i>Crocodylus palustris</i>	"Toad" crocodile.....	2
<i>Crocodylus porosus</i>	Salt-water crocodile.....	1
<i>Osteolaemus tetraspis</i>	Broad-nosed crocodile.....	3

SQUAMATA

	Scientific name	SAURIA	Common name	Number
Agamidae:				
	<i>Physignathus lesueuri</i>		Lesueur's water dragon.....	4
	<i>Uromastix acanthinurus</i>		North African spiny-tailed lizard.....	1
Xenosauridae:				
	<i>Xenosaurus laticaudatus</i>		Broad-tailed lizard.....	1
Iguanidae:				
	<i>Anolis carolinensis</i>		American anolis or false chameleon.....	10
	<i>Anolis equestris</i>		Giant anolis.....	2
	<i>Anolis sagrae</i>		Giant anolis.....	1
	<i>Basiliscus vittatus</i>		Basilisk.....	4
	<i>Conolophus subcristatus</i>		Galápagos iguana.....	2
	<i>Phrynosoma cornutum</i>		Horned lizard.....	6
	<i>Sceloporus undulatus</i>		Pine or fence lizard.....	6
Zonuridae:				
	<i>Zonosaurus ornatus</i>		Ornate lizard.....	1
	<i>Zonurus giganteus</i>		African spiny lizard.....	1
Helodermatidae:				
	<i>Heloderma horridum</i>		Mexican beaded lizard.....	2
	<i>Heloderma suspectum</i>		Gila monster.....	4
Lacertidae:				
	<i>Eremias mucronata</i>		Egyptian sand lizard.....	3
Teiidae:				
	<i>Cnemidophorus bocourti</i>		Whiptail lizard.....	1
Scincidae:				
	<i>Egernia cunninghami</i>		Cunningham's skink.....	3
	<i>Egernia luctuosa</i>		Mourning skink.....	2
	<i>Egernia whittii</i>		White's skink.....	10
	<i>Eumeces fasciatus</i>		Blue-tailed skink.....	2
	<i>Tiliqua scincoides</i>		Blue-tongued lizard.....	4
Chameleontidae:				
	<i>Chameleon dilepis</i>		Chameleon.....	10

SERPENTES

Typhlopidae:				
	<i>Typhlops</i> sp.....		African burrowing snake.....	1
Boidae:				
	<i>Boa canina</i>		Green tree boa.....	1
	<i>Boa dumerilii</i>		Duméril's boa.....	1
	<i>Constrictor constrictor</i>		Boa constrictor.....	2
	<i>Constrictor imperator</i>		Central American boa.....	36
	<i>Constrictor mexicanus</i>		Southern boa.....	1
	<i>Epicrates cenchria</i>		Rainbow boa.....	11
	<i>Eunectes murinus</i>		Anaconda.....	1
	<i>Python molurus</i>		Indian rock python.....	13
	<i>Python regius</i>		Ball python.....	1
	<i>Python reticulatus</i>		Regal python.....	6
	<i>Python spilotes</i>		Diamond python.....	1
	<i>Python variegatus</i>		Carpet python.....	4

Scientific name	Common name	Number
Colubridae:		
<i>Arizona elegans eburnata</i>	Glossy snake.....	1
<i>Boaedon fuliginosus</i>	House snake.....	1
<i>Boaedon lineatum</i>	Brown house snake.....	1
<i>Carpophis amoena</i>	Worm snake.....	1
<i>Chlorophis heterolepidota</i>	Bush snake.....	3
<i>Coluber constrictor</i>	Black snake.....	1
<i>Dasyplettis scabra</i>	Egg-eating snake.....	1
<i>Diadophis punctatus</i>	Ring-necked snake.....	2
<i>Drymarchon corais couperi</i>	Indigo snake.....	3
<i>Elaphe guttata</i>	Corn snake.....	1
<i>Elaphe obsoleta</i>	Pilot snake.....	7
<i>Elaphe quadrivittata</i>	Chicken snake.....	1
<i>Elaphe vulpina</i>	Fox snake.....	1
<i>Eyrx thebaicus</i>	Dassa's snake.....	4
<i>Heterodon contortrix</i>	Hog-nosed snake.....	1
<i>Lampropeltis getulus boylii</i>	Boyle's king snake.....	1
<i>Lampropeltis getulus getulus</i>	Chain king snake.....	4
<i>Lampropeltis rhombomaculata</i>	Mole snake.....	3
<i>Lampropeltis triangulum triangulum</i>	Milk snake or spotted adder.....	1
<i>Natrix sipedon</i>	Banded water snake.....	3
<i>Natrix</i> sp.....	Water snake.....	6
<i>Opheodrys vernalis</i>	Smooth-scaled green snake.....	1
<i>Oxybelis acuminatus</i>	Pike-head snake.....	1
<i>Ptyas mucosus</i>	Indian rat snake.....	1
<i>Storeria dekayi</i>	DeKay's snake.....	2
<i>Thamnophis sirtalis</i>	Garter snake.....	7
Elapidae:		
<i>Bungarus fasciatus</i>	Banded krait.....	2
<i>Naja haje</i>	Egyptian cobra.....	1
<i>Naja hannah</i>	King cobra.....	1
<i>Naja melanoleuca</i>	West African cobra.....	1
Viperidae:		
<i>Bitis arietans</i>	Puff adder.....	2
Crotalidae:		
<i>Agkistrodon mokeson</i>	Copperhead snake.....	3
<i>Agkistrodon piscivorus</i>	Cottonmouth moccasin.....	10
<i>Bothrops lanceolatus</i>	Fer-de-lance.....	3
<i>Crotalus terrificus basiliscus</i>	Mexican rattlesnake.....	6
TESTUDINATA		
Chelydidae:		
<i>Batrachemys nasuta</i>	South American side-necked turtle.....	2
<i>Chelodina longicollis</i>	Australian long-necked turtle.....	2
<i>Hydraspis</i> sp.....	Cagado or South American snake-necked turtle.....	1
<i>Hydromedusa tectifera</i>	South American snake-necked turtle.....	14
<i>Platemys platycephala</i>	Flat-headed turtle.....	1

Scientific name	Common name	Number
Kinosternidae:		
<i>Kinosternon subrubrum</i>	Mud turtle.....	5
<i>Sternotherus odoratus</i>	Musk turtle.....	4
Chelydridae:		
<i>Chelydra serpentina</i>	Snapping turtle.....	8
<i>Macrochelys temminckii</i>	Alligator snapping turtle.....	1
Testudinidae:		
<i>Batagur baska</i>	Indian fresh-water turtle.....	1
<i>Chrysemys picta</i>	Painted turtle.....	7
<i>Clemmys guttata</i>	Spotted turtle.....	6
<i>Clemmys insculpta</i>	Wood turtle.....	4
<i>Cyclemys amboinensis</i>	Kura kura box turtle.....	1
<i>Emydura krefftii</i>	Krefft's turtle.....	3
<i>Emydura macquariae</i>	Murra turtle.....	11
<i>Gopherus berlandieri</i>	Berlandier's turtle.....	4
<i>Graptemys barbouri</i>	Barbour's turtle.....	8
<i>Kinixys belliana</i>	Hinge-backed turtle.....	1
<i>Malaclemys centrata</i>	Diamondback turtle.....	3
<i>Pelomedusa galeata</i>	Common African water turtle.....	1
<i>Pelusios nigricans</i>	Black African water turtle.....	7
<i>Pseudemys concinna</i>	Cooter.....	1
<i>Pseudemys elegans</i>	Mobile turtle.....	12
<i>Pseudemys ornata</i> subsp.....	Central American turtle.....	6
<i>Terrapene carolina</i>	Box turtle.....	50
<i>Terrapene major</i>	Florida box turtle.....	4
<i>Testudo ephippium</i>	Duncan Island turtle.....	2
<i>Testudo hoodensis</i>	Hood Island turtle.....	2
<i>Testudo tabulata</i>	South American turtle.....	3
<i>Testudo vicina</i>	Albemarle Island turtle.....	5
Trionychidae:		
<i>Amyda ferox</i>	Soft-shelled turtle.....	17
<i>Amyda triunguis</i>	West African soft-shelled turtle.....	1

AMPHIBIA

CAUDATA

Salamandridae:		
<i>Triturus cristatus danubialis</i>	European crested newt.....	2
<i>Triturus pyrrhogaster</i>	Red Japanese salamander.....	1
<i>Triturus torosus</i>	Giant newt.....	14
<i>Triturus viridescens</i>	Common newt (of the United States).....	3
<i>Triturus vulgaris</i>	Common European salamander.....	3
Amphiumidae:		
<i>Amphiuma means</i>	Congo eel.....	1
Ambystomidae:		
<i>Ambystoma tigrinum</i>	Tiger salamander.....	6
Cryptobranchidae:		
<i>Cryptobranchus alleganiensis</i>	Hellbender.....	10
<i>Megalobatrachus japonicus</i>	Giant Japanese salamander.....	1

SALIENTIA

Scientific name	Common name	Number
Dendrobatidae:		
<i>Atelopus varius cruciger</i>	Yellow atelopos.....	14
<i>Dendrobates auratus</i>	Arrow-poison frog.....	6
Bufoidea:		
<i>Bufo alvarius</i>	Western green toad.....	4
<i>Bufo americanus</i>	Common toad.....	1
<i>Bufo empusus</i>	Sapo de concha.....	1
<i>Bufo marinus</i>	Marine toad.....	11
<i>Bufo peltacephalus</i>	Cuban giant toad.....	1
Discoglossidae:		
<i>Bombina bombina</i>	Red-bellied toad.....	2
Leptodactylidae:		
<i>Ceratophrys ornata</i>	Horned frog.....	4
Pipidae:		
<i>Pipa pipa</i>	Surinam toad.....	1
<i>Xenopus laevis</i>	African clawed frog.....	5
<i>Xenopus mülleri</i>	Müller's clawed frog.....	16
Ranidae:		
<i>Hyperolius</i> sp.....	African green tree frog.....	1
<i>Hyperolius</i> sp.....	Broad-striped African tree frog.....	12
<i>Hyperolius</i> sp.....	Narrow-striped African tree frog.....	2
<i>Hyperolius</i> sp.....	Red-legged African tree frog.....	5
<i>Rana adspersa</i>	African bull frog.....	3
<i>Rana catesbiana</i>	Bull frog.....	6
<i>Rana clamitans</i>	Green frog.....	2
<i>Rana pipiens</i>	Leopard frog.....	10

FISHES

<i>Anabas testudineus</i>	Climbing perch.....	4
<i>Anoptichthys jordani</i>	Blind characin.....	6
<i>Aphyosemion sjoestedti</i>	Red fundulus.....	2
<i>Barbus everetti</i>	Clown barb.....	2
<i>Barbus oligolepis</i>	Tiger barb.....	25
<i>Barbus partipentazona</i>	Banded barb.....	2
<i>Brachydanio albolineatus</i>	Pearl danio.....	2
<i>Brachydanio rerio</i>	Zebra danio.....	1
<i>Carassius auratus</i>	Goldfish.....	1
<i>Channa asiatica</i>	Snakehead.....	1
<i>Corydoras</i> sp.....	South American catfish.....	2
<i>Danio malabaricus</i>	Blue danio.....	2
<i>Gymnocorymbus ternetzi</i>	Black tetra.....	14
<i>Hemichromis bimaculatus</i>	Jewelfish.....	1
<i>Hemmigramus ocellifer</i>	Head- and tail-light fish.....	2
<i>Hyphessobrycon innesi</i>	Neon tetra.....	25
<i>Lebistes reticulatus</i>	Guppy.....	100
<i>Lepidosiren paradoxa</i>	South American lungfish.....	2
<i>Loricaria</i> sp.....	2
<i>Mesonauta insignis</i>	1
<i>Otocinclus affinus</i>	Sucker catfish.....	1

Scientific name	Common name	Number
<i>Platypoecilus maculatus</i>	{ Wagtail platy.....	4
	{ Red platy.....	10
<i>Platypoecilus punctatus</i>	Moonfish.....	3
<i>Poecilibrycon unifasciatus</i>	Pencilfish.....	1
<i>Pristella riddlei</i>	Tetra.....	7
<i>Protopterus annectens</i>	African lungfish.....	2
<i>Rasbora heteramorphas</i>	Rasbora fish.....	30
<i>Tanichthys albonubes</i>	White cloud mountain fish.....	3

INSECTS

<i>Blabera</i> sp.....	Giant cockroach.....	100
<i>Enyaliopsis petersi</i>	African giant cricket.....	3

MOLLUSKS

<i>Achatina achatina</i>	Giant land snail.....	3
<i>Achatina fulica</i>	Zanzibar-Madagascar snail.....	1

Respectfully submitted.

W. M. MANN, *Director.*

Dr. A. WETMORE,
Secretary, Smithsonian Institution.

APPENDIX 8

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, 1950:

The Astrophysical Observatory has continued its two divisions, the Division of Astrophysical Research, devoted to the study of solar radiation, and the Division of Radiation and Organisms, founded in 1929 for the study of radiation effects on organisms.

Beginning September 1, 1948, the Division of Radiation and Organisms was entirely reorganized under the new chief of the division, Dr. Robert B. Withrow. During this fiscal year Dr. Withrow's extensive program of remodeling and reconditioning the laboratories was completed and his new research program inaugurated.

Progress on the new editions of the Smithsonian Meteorological Tables and the Smithsonian Physical Tables can be reported. The sixth edition of the Meteorological Tables was in press at the end of the year, and the manuscript of the ninth edition of the Physical Tables was nearly completed. This new and completely revised edition of the Physical Tables has been compiled under the direction of Dr. William E. Forsythe. Preparation of this manuscript has proved a colossal task because of the great volume of new material made available since the eighth revision was issued in 1932.

DIVISION OF ASTROPHYSICAL RESEARCH

Early in June 1950, the Director left Washington on an inspection trip that included both the Montezuma, Chile, and the Table Mountain, Calif., field stations. He spent 16 days in June at the first-named station and 9 days in July at the second. Excellent skies prevailed especially at Montezuma during his stay. Many intercomparisons of instruments were made, as well as direct comparisons with substandard silver-disk pyrheliometer S. I. No. 5, which he carried with him from Washington. Inventories were made at both stations of all nonexpendable equipment on hand. Various phases of the work were discussed in detail with the personnel of the field stations.

The Montezuma field station has now been in continuous operation for 30 years. Throughout this period an average of three determina-

tions of the solar constant was made on each day that skies were sufficiently clear. And throughout this whole period every effort was made to maintain the solar-constant values on the same scale. It seems worth while, therefore, to examine whether in these years of observation there is evidence of a progressive change in total radiation given off by the sun. The following table gives the mean solar constant for three decades:

<i>Period</i>	<i>Total number of solar-constant determinations (Montezuma, Chile)</i>	<i>Mean value of the solar constant</i>
1921-30 (inclusive) -----	5, 820	1. 9431
1931-40 (inclusive) -----	5, 520	1. 9463
1941-48 (inclusive) -----	5, 004	1. 9478

This increase of one-fourth of 1 percent in the radiation emitted by the sun in two decades (1925-44) is of particular significance in view of evidence that has accumulated of climatic changes in various localities over the earth. On the whole, these changes indicate that average temperatures have increased somewhat during the past 100 years, with an accelerated increase during the past several decades. A very interesting discussion of these evidences is given by Prof. Julian Huxley (Natural history in Iceland, *Discovery*, vol. 11, No. 3, March 1950).

As stated in last year's report, funds have been requested to re-establish a third field station. Clark Mountain, in southern California near the Nevada border, has been chosen as the most satisfactory available location.

Work at Washington.—Statistical studies of, and final corrections for, the observational data from our two field stations (Montezuma, Chile, and Table Mountain, Calif.), were carried on under the supervision of W. H. Hoover, chief of the division. Mr. Hoover also supervised the preparation of instruments and equipment for the solar-constant observations, for special research problems in progress at Table Mountain, and for requests for certain instruments received from other institutions. Of these latter, three silver-disk pyrheliometers, each calibrated against the Observatory's standard pyrheliometer, were furnished at cost during the year, as follows:

1. S. I. No. 82 to Dominion Physical Laboratory, New Zealand.
2. S. I. A. P. O. No. 17 to Observatorio Cagigal, Caracas, Venezuela.
3. S. I. A. P. O. No. 18 to Central Meteorological Institute, Bucharest, Rumania.

In addition, two modified Angstrom pyrheliometers and one special water-vapor spectroscope were furnished to the Central Meteorological Institute at Uccle, Belgium.

A summary of silver-disk pyrheliometry, in the form of a revision of Dr. Abbot's paper of 1922 on "The Silver Disk Pyrheliometer,"

was published in December 1949 (Smithsonian Misc. Coll., vol. 111, No. 14). This paper gives the constants and the present locations of more than 90 pyrheliometers that have been constructed and calibrated by the Smithsonian Institution and are now in use in widely scattered parts of the world.

Five progress reports were submitted during the year, summarizing observations and exposures of textiles made under contract with the Office of the Quartermaster General, as mentioned in last year's report. This work was carried on mainly at Montezuma, Chile.

Both Dr. C. G. Abbot, research associate of the Observatory, and Dr. H. Arctowski continued their special studies referred to in last year's report.

Work in the field.—At the two continuously operating field stations (Montezuma, Chile, since 1920, and Table Mountain, Calif., since 1925) observations for the determination of the solar constant were made on all days having sufficiently clear skies. In addition to this work, at Montezuma considerable time and effort were spent to maintain the necessary radiation measurements in the work being done for the Quartermaster, mentioned above. These measurements were hampered by a lack of sufficient electric power. It is hoped soon to install new batteries and an improved generator. Since March 1, 1950, the Montezuma station has also exposed certain textiles and other materials at the request of the National Bureau of Standards.

With the cooperation of General Motors Corp. and under the sponsorship of the Office of the Quartermaster General, Department of the Army, as mentioned in our reports for 1947 and 1948, the Observatory established at Miami, Fla., in November 1947, a temporary observing station, where exposures to the sun and sky were made, both direct and through filters, of certain tent materials. Measurements of radiation received were made, as had been done previously at Camp Lee, Va. In addition, studies were made of the water-vapor absorption and spectral-energy distribution of sunlight at this moist, sea-level location. The equipment of the former field station at Tyrone, N. Mex., was used in these studies. By July 1949 the work at Miami was nearly completed. Early in August 1949, Mr. Hoover supervised the dismantling of this temporary Miami station, and the equipment was transported in two trucks to the Table Mountain, Calif., field station. Here, with the aid of funds generously given by John A. Roebling, a second observing tunnel was prepared, similar to, but somewhat larger than, the regular tunnel in use at this station. The new tunnel is about 100 feet to the west of the old one.

It is now possible, for the first time since the solar-constant program was inaugurated nearly 50 years ago, to make simultaneous, duplicate,

spectrobolometric observations at the two tunnels, each tunnel operating with independent equipment but observing the sun through the same sky. As a preliminary to various special experiments that are contemplated with the new tunnel, there was in progress at the end of the fiscal year a series of duplicate solar-constant observations taken exactly simultaneously. A study of these simultaneous observations will doubtless furnish interesting information concerning the dependability of the instrumental and observational procedures.

DIVISION OF RADIATION AND ORGANISMS

(Report prepared by R. B. WITHROW)

The principal activities of the Division of Radiation and Organisms for the first two-thirds of the year were concerned with concluding the reorganization and reconstruction of the laboratory facilities. The division laboratories are now in first-class condition for plant photochemical research and include four constant-condition rooms, as follows:

A 2° C. cold room for chemical isolation and analyses of labile compounds.

A plant-growing room with one large luminaire for the routine production of plant material and eight small compartments for growing plants under controlled conditions of intensity and wavelength.

A monochromator room for action spectrum studies.

A general experimentation room.

A new type of fluorescent-incandescent luminaire has been developed which involves the use of a special type of lamp holder for the fluorescent lamps, making it possible to put thirty-four 8-foot Slim-line lamps in a unit 4 feet wide and 8 feet long. The separation between the tubes is only $\frac{1}{4}$ inch. Behind the lamps is a bank of twelve 60-watt incandescent lamps. These lamps raise the long-wavelength energy level of the unit to permit a better type of growth than is possible with fluorescent lamps alone. The fluorescent lamps operate in series at 450 milliamperes on an 18,000-volt transformer and reactor. This arrangement greatly simplifies wiring and makes it possible to remove all auxiliary equipment from the growing room. The luminaire has a glass window and an exhaust system, making it possible to operate with a power input of 4 kilowatts without excessive heating. With this luminaire it is possible to obtain 2,500 foot-candles 2 feet below the unit. This is nearly double the intensity possible with similar luminaires designed around conventional auxiliaries and standard lamp holders.

A self-condensing type of water-cooled incandescent lamp luminaire has been developed which condenses the water vapor from the water-

filter cell and makes it possible to operate a unit involving one or more internal reflector lamps without contamination of the distilled-water filter by dust in the air or replacement of it for at least 2 weeks of continuous operation. This type of unit is proving useful for the incandescent irradiation of small cultures of algae and germinating seedlings. With this luminaire it is possible to obtain 3,000 foot-candles over small areas without excessive temperature rise of the irradiated cultures.

Two large grating monochromators have been designed and are now being constructed for action spectrum studies. One unit will be used for recording absorption spectra and the other as an irradiation monochromator for action spectrum studies. The source for the irradiation monochromator is a 12-kilowatt carbon arc.

A new type of 60-cycle conductance bridge with a phase-detector amplifier has been developed which records directly changes in conductance of $1/R$ instead of some complex function of resistance, as with conventional bridges. With this instrument it is possible to follow changes in the concentration of dilute inorganic nutrient solutions with a precision of better than 0.3 percent, and no replotting of data is necessary. Continuous recordings of the uptake of single salts by seedlings may be followed, as well as the loss of salts from roots and other tissues. This instrument is being used for studies of the effect of light and growth substances on ion exchange in plant tissues.

During the latter third of the year experimental work was under way in three general areas: First, the effect of native and synthetic auxins on the water and ion exchange relations of potato-tuber tissue and corn and bean roots. As this work is being supported by the United States Army Chemical Corps, the results are not available for this report. The second area of work pertains to an investigation of the action spectrum and pigment systems involved in photomorphogenesis of seedlings. Seedlings are being grown under conditions of constant light intensity and limited spectral range as obtained by large dyed gelatin filters prepared in these laboratories in order to separate photomorphogenesis from the other photochemical reactions of phototropism, chlorophyll synthesis, and photosynthesis. The third area of investigation pertains to the effect of light on the permeability of plant tissues and on the capacity of seedlings to absorb nutrients from single salt solutions. These data are being obtained by continuous recording of solution conductance.

A paper entitled "Light as a Modifying Influence on the Mineral Nutrition of Plants" was presented by the chief of the division at the Symposia on Plant Growth Substances and Mineral Nutrition of Plants at the University of Wisconsin in September 1949.

The work of the division was materially aided by a generous grant last year by the Research Corporation for basic equipment and facilities. This support is gratefully acknowledged and has been invaluable to the reorganization program.

Respectfully submitted.

L. B. ALDRICH, *Director.*

DR. A. WETMORE,
Secretary, Smithsonian Institution.

APPENDIX 9

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, 1950:

HIGHLIGHTS

The National Air Museum suffered a great loss in the death in January of General of the Air Force H. H. Arnold, whose interest in the establishment of an aeronautical museum for the Nation was of long standing. Following the close of World War II General Arnold contributed generously both time and effort in the movement before Congress to make the museum a reality, and after its establishment in 1946 he continued, through correspondence and personal contacts, to help the new agency. At its meeting on May 24, 1950, the Advisory Board of the National Air Museum unanimously adopted the following resolution:

WHEREAS, The May 24 meeting of the Advisory Board of the National Air Museum is the first since the lamented death on January 15, 1950, of General of the Air Force H. H. Arnold; and

WHEREAS, It was General Arnold who developed the idea of a National Air Museum to memorialize the national development of aviation, and to preserve for posterity aeronautical material of historic interest and significance; and who, moreover, ordered the setting aside of examples of aircraft and aviation materials used or developed during World War II for future preservation:

Therefore be it

Resolved, That the Advisory Board of the National Air Museum records in its minutes its profound sorrow and its deep sense of loss in the death of General Arnold, brilliant leader and man of vision and foresight; and be it further

Resolved, That a copy of this resolution be sent to the family of General Arnold and to the Secretary of the Air Force.

On March 17, 1950, the report to Congress on the National Air Museum, required by law, was submitted to the President of the Senate and the Speaker of the House of Representatives, respectively. This report carries out the stipulation of section 3 of Public Law 722, establishing the National Air Museum, that the Secretary of the Smithsonian Institution shall submit "recommendations to Congress for the acquisition of suitable lands and buildings for said national air museum."

On June 1, 1950, the services of Maj. Gen. Grandison Gardner as the United States Air Force representative on the Advisory Board were terminated by reason of his transfer to a post of duty away from Washington. General Gardner's enthusiastic interest and advice on Air Museum matters during his year's tenure in this office were most helpful to the Board and the Air Museum staff. In his stead, Gen. Hoyt S. Vandenberg, Chief of Staff, United States Air Force, appointed Lt. Gen. K. B. Wolfe as his representative on the Board.

The Air Museum had so busy a year that backlogs developed in several of the bureau's work programs. Requests for information were of large volume, and a quarter of the curator's time was spent on this service in addition to considerable time of two associate curators. There were accessioned and cataloged 465 items—a four-fold increase over last year—and there were designed, prepared, and installed three times as many temporary special exhibits of current or commemorative significance as the year before.

Worth-while improvements were made, too, in the bureau's condition and operations. At the Park Ridge storage facility, for example, a considerable portion of the space originally rented by the bureau was vacated, and the smaller retained area was enclosed by fencing. These changes permitted the safe reduction of the watch force from 10 to 7 guards and the employment, at no increase in over-all cost, of additional technical and clerical help to further the essential preservation and accessioning programs. With the help of a second museum aide added to the Washington staff, marked improvements were made in the aeronautical exhibits.

MUSEUM BUILDING STUDIES

As indicated in the bureau's recent annual reports, for the past 2 years studies have been conducted by the bureau's staff in cooperation with the Public Buildings Administration to determine a suitable Museum building and site. After 17 months of work these studies were completed, and a report thereon was presented to the Advisory Board on June 29, 1949.

The report embodies the ideas of the Advisory Board members, of architects and engineers of the Public Buildings Administration, and of the professional staff of the bureau regarding the scope and volume of the proposed aeronautical collection and the equipment, facilities, and services required to maintain, exhibit, and preserve the collection and operate the Museum. The descriptive matter, perspective drawings, preliminary floor plans, estimates of costs, and suggestions of suitable sites contained in the report are believed to provide a

basic scheme from which there can be developed a feasible and adequate building for the national aeronautical collections.

With this report as a nucleus, the required report to Congress was prepared this year and, as indicated earlier, was submitted to Congress on March 17, 1950.

ADVISORY BOARD

A meeting of the Advisory Board of the National Air Museum was held on May 24, 1950, with the following members present:

Dr. Alexander Wetmore, chairman, Secretary of the Smithsonian Institution; Rear Adm. A. M. Pride, Chief, Bureau of Aeronautics, Department of the Navy; Maj. Gen. Grandison Gardner, Deputy Chief of Staff, Matériel, Department of the Air Force; Grover Loening, Presidential appointee; William B. Stout, Presidential appointee.

The death of Gen. H. H. Arnold, who was known personally by all members, was the subject of a commemorative conversation among the members and resulted in the resolution mentioned in the fore part of this report. The Board then heard brief reports by staff members on the year's operations by the bureau at the Park Ridge, Ill., storage facility and in the conduct of the Museum activities in Washington. These operations are described under separate headings in subsequent parts of this report. In connection with the storage operations, the Board approved the staff's list of aeronautical items in the collection that are to be rejected as unnecessary to the Museum.

With the knowledge that the required report to Congress on the National Air Museum was in the hands of that body, the Board gave considerable attention to the problems involved in advancing the Air Museum's site-procurement and building programs. It was appreciated that positive action must await, as with all federally supported building programs, specific authorization by Congress.

SPECIAL EVENTS

During the year the Air Museum participated both as host and guest in a number of unusual events connected with the acquisition of new aeronautical items for the national collection. The following are worthy of mention:

On July 3, 1949, during the Air Force Association's annual convention in Chicago, and as one of the public events held at the O'Hare International Airport, there was received for the Museum the United States Air Force B-29 superfort *Enola Gay*, famous as the first aircraft to drop an atomic bomb in warfare. The presentation was made by Maj. Gen. Emmett R. O'Donnell, Jr., Commanding General of the 15th Air Force, with Col. Paul W. Tibbets, pilot of the *Enola Gay*,

and Maj. Thomas W. Ferebee, bombardier, in attendance. C. W. Mitman, Assistant to the Secretary for the National Air Museum, accepted it for the Museum. The previous day at the Air Force Association annual convention luncheon, the Air Museum was awarded a bronze plaque and citation in recognition of its continuing interest in and devotion to the Nation's aeronautical history. The award was made by Gen. James Doolittle, United States Air Force (Ret.).

On July 7, 1949, at the Washington National Airport there was formally presented to the Museum the Stinson SR-10F airplane that had been used by All American Aviation in airmail pick-up service and later was employed by the Air Force in developing the techniques of picking up airplanes, gliders, and persons from the ground. Norman Rintoul, the donor, who had piloted this plane in the above operations, demonstrated these methods prior to the presentation.

On September 8, 1949, at the airport the *City of Washington*, Piper Super Cruiser that had been flown around the world in 1947 by Clifford Evans, Jr., was presented by William T. Piper. It was flown in for the presentation by George Truman, who had accompanied Evans on the world flight in a similar airplane.

On October 7, 1949, at a small but impressive presentation ceremony in the Aircraft Building in Washington, memorabilia of the internationally famous aviatrix Amelia Earhart, consisting of a portrait sculpture, flight maps, globe, books, radio, photographs, models, trophy, and medals, were presented to the Air Museum by the Amelia Earhart Post of the American Legion, Department of California. Mrs. Amy Otis Earhart, mother of the aviatrix, unveiled the exhibit.

On November 8, 1949, the Museum received from Power Jets, Ltd., London, England, the original Whittle W-1-X turbojet engine in a presentation ceremony, held in the auditorium of the United States National Museum, in which several of the Advisory Board members participated. The presentation was made by the British Ambassador, and addresses were made by W. E. P. Johnson, Managing Director of Power Jets, and Sir Frank Whittle, the inventor of the engine, both of whom journeyed from London, England, for the occasion. The acceptance address was made by Dr. A. Wetmore, Secretary of the Smithsonian Institution.

On January 27, 1950, in the Regents' Room of the Smithsonian, in the presence of several Board members, Mr. and Mrs. Elmer F. Wieboldt, of North Garden, Va., presented a bronze bust of Wilbur Wright by the sculptor Oskar J. W. Hansen. With this accession, the Museum now has bronze busts of both Orville and Wilbur Wright by the same sculptor. They are appropriately exhibited in the Aircraft Building.

Lastly, on June 28, 1950, the Air Museum participated as host to a small company gathered in the Aircraft Building to witness the awarding of a citation to Mrs. ("Mother") C. A. Tusch, Berkeley, Calif., by the United States Air Force, in recognition of her great interest in and fostering of airmen over the past 30 years. In the course of her long voluntary service Mrs. Tusch had gathered in her home a large collection of aeronautical memorabilia which she generously presented to the National Air Museum earlier in the year. A token exhibit of the "Mother" Tusch collection formed the background for the ceremony setting.

CURATORIAL ACTIVITIES

The curator, Paul E. Garber, reports on the year's work as follows:

The general condition of aeronautical exhibits continues good, but the need for space is desperate. Until an adequate building of its own is provided, the National Air Museum is restricted for its displays to the Aircraft Building—a World War I hangar erected in 1919—and a small hall and overhead suspended exhibits in the adjacent Arts and Industries Building. These areas now house 37 man-carrying aircraft together with numerous engines, structural parts, and cased displays of parachutes, instruments, flight clothing, models, and other material reflecting some of the accomplishments of designers, engineers, and airmen. Were adequate space available a far more complete picture of aeronautical progress could be created with the irreplaceable material that the Museum now has in storage. This is a source of much disappointment to the visitor, the student, and historians.

A number of improvements were made in the bureau's exhibits during the year. Two bays in the Aircraft Building are now assigned to the Wright Brothers. In one, the portrait busts of Wilbur and Orville Wright are associated with memorials and awards; in the other there is displayed a reproduction of their wind tunnel, while on the walls their story is augmented by photographs, drawings, and paintings. To satisfy further the public interest in the *Kitty Hawk*, a 4-panel floor frame containing photographs of the Wright Brothers, a picture of their first flight, and a nomenclature drawing of the machine was installed beneath the plane. Twelve scale models of aircraft, illustrating types developed and flown by a number of the pioneers who followed the Wright Brothers, were attractively arranged in realistic action positions in a scenic setting depicting a flying field of the pioneer period. The planes are identified in the text on a miniature "billboard" bordering the field. A splendid series of paintings by Jerome D. Biederman, illustrating World War II air-

craft in service, were utilized to augment an older display of scale models of these planes. Among other exhibits improved were the Thompson Trophy series and the story of the first American air force—the balloon corps established during the Civil War. With the help of Col. Roderick Tower, who had once been a pilot of the Curtiss *Jenny* now in the collection, the original numbering and insignia of this airplane of World War I were restored, thereby improving the appearance and authenticity of the plane. Numerous other exhibits were serviced; the cleaning and repairing of all aircraft maintained; and the continuing project to provide accurate drawings and a representative space control scale model for each aircraft in the collection was advanced.

Among new accessions of aircraft and engines, the *Enola Gay* and Whittle W-1-X are outstanding. Of the 14 full-sized aircraft accessioned, only one, the Roadable Autogiro, could be given exhibition in Washington; all the others were placed in the storage area. Five engines were received during the year, three being jets. In deference to the increasing size of huge bombers, transports, and patrol planes, a departure from the Museum standard airplane model scale of 1:16 was decided upon, and 1:48 adopted for the larger models. Two of this new scale, a Northrop flying wing B-49 and a Fairchild cargo plane C-82, were added to the collection. A large sectioned model, 1:8, of the Piasecki helicopter permits technical study of this type. One guided missile, a Navy "Bat," was acquired, and enables the Museum to show the contrast between a radio-guided weapon and the human-guided "suicide" Japanese Baka bomb previously accessioned.

In addition to the aeronautical material actually accessioned this year, it can be reported that the Department of the Navy has placed in safe storage for the Museum the Lockheed P2V *Truculent Turtle*, which established the present long-distance, nonstop, nonrefueled flight record, and the Vought F-5-U. The F-5-U is a unique development of low aspect-ratio wing configuration which has an unusually wide range of flight performance.

Projects under way at the close of the year included a rearrangement of the aircraft engine collection in the Aircraft Building; improving, through the use of an automatic slide projector, the illustrated story of Colonel Lindbergh's flights in the *Spirit of St. Louis*; and preparing a commemorative display to record the fortieth anniversary of the beginning of carrier operations in the Navy.

STORAGE

Compression of material to conserve space, development of preservation techniques, disassembly of aircraft, and packing of aeronautical

materials have been the four principal categories of work at the Museum's storage facility at Park Ridge, Ill., this year.

Following an intensive period of preplanning, the curator, with the help of the storage facility staff and two of the staff from Washington, concentrated the entire stored collection within about one-half of the space previously occupied. This was followed by the erection of an 8-foot-high wire-mesh fence enclosing the entire area, the fence being so made that individual panels are removable to facilitate the movement of aircraft into and out of the area.

Preservation of aircraft flown in requires running up of the engines and giving them protective coatings while they are free and warm, draining tanks and venting fumes, cleaning the aircraft inside and out, placing dehydrators, and sealing all openings with tape. Proper treatment of material, when received, requires cleaning, inspecting, and replacing of preservatives. A large backlog exists in the inspection and preservation of the aeronautical items originally transferred to the bureau by the Air Force. As an example of the work involved in preservation, the cleaning of the propellers on the *Enola Gay*, which, prior to its transfer to the Air Museum, had been stored outdoors for a long period, required 247 man-hours of time. Another rust-removing project involving the cleaning and applying of preservatives to the *Enola Gay's* engines will consume an estimated 1,400 man-hours.

The disassembly of aircraft condenses the space they occupy, and this task constitutes the initial step taken toward boxing them. Some of the planes received from the Air Force had been partially dismantled and required further disassembly. Including these and the aircraft dismantled entirely by the facility personnel, 59 were handled during the fiscal year involving 1,697 man-hours.

The boxing program is intended, as far as is practical, to prepare all stored material for safe storage and future shipment to Washington. Twenty-nine aircraft, 67 engines, and other aeronautical materials were already packed in boxes when received from the Air Force. The boxes had become damaged, however, through repeated handling, and many of them were repaired during the year. In addition, 6 airplanes were packed, requiring 18 boxes and consuming 950 man-hours. Economies were effected by extensive salvaging of lumber from the boxes and crates in which rejected aircraft had been placed. Most of the aircraft and material received during the fiscal year were delivered in permanent boxes.

These several major continuing projects begun during the year required nearly a fifth of the curator's time in planning and supervision. Several conferences of Air Force, Navy, and Air Museum

personnel had to be held—for example, to develop standards for retention or rejection of material for Museum purposes. There was involved, too, the details of the design and procurement of a large variety of essential equipment and supplies to carry on the work.

INFORMATIONAL SERVICES

To satisfy the demand for the bureau's informational services, there was required during the year the expenditure of the equivalent of over 2 man-years of the staff's time. Some examples of this great volume of requests received are:

The National Defense Establishment was assisted by the loan of models of the Navy PBV and Air Force B-25 airplanes which served as the basis for larger models to be used for electronic evaluation tests. The Court of Claims was aided in its investigation of the origin of radio-shielding on aircraft engines. A number of photographs preserved by the Archives were given correct identification. The commemorative stamp issued on the forty-sixth anniversary of the Wright Brothers' first flight and the first anniversary of the return to America of the *Kitty Hawk*, was checked for design, accuracy of technical detail, and text by the staff, working with officials of the Post Office Department and the Bureau of Engraving.

The aeronautics classes of the District of Columbia high schools were supplied with a list of nonmilitary uses of aircraft compiled for their information and discussion. The Aircraft Industries Association was given facts regarding the Wrights' first engine for use in a research project. The curator served on the committee of the National Aeronautic Association which determined the annual awardee for the Brewer Trophy. Many hobbyist modelmakers were assisted with loans of drawings and photographs, and photographic collectors exchanged prints with the Museum to mutual advantage. The Handbook of the National Aircraft Collection, written by the curator, continues to be in great demand, and the ninth edition will shortly be undertaken. The United Service Organization ordered this year a large number of copies for its libraries, and many schools continue to use it as a text.

The bureau continued, as in former years, to satisfy as far as possible the requests of District of Columbia citizens' groups for illustrated lectures on aviation subjects.

SURVEY

Concentration by the staff on operations at the Washington base, and at the field storage facility limited the time available for survey

trips to locate and examine new material. The following surveys were made:

Dearborn, Mich., January 18, by the curator and Stephen Beers, associate curator, to inspect aeronautical material at the Edison Institute.

Dayton, Ohio, March 25, by Robert Strobell, associate curator, to inspect Air Force and other material available to the museum.

ACCESSIONS

This year the bureau received 34 new accessions from 31 sources totaling 465 specimens. Each accession was fully recorded in the Museum's catalog system and formally acknowledged. The list follows:

AIR FORCE, DEPARTMENT OF, Washington, D. C.: The Boeing B-29 superfortress bomber *Enola Gay* used to drop the first atomic bomb in warfare, on Hiroshima, Japan, August 6, 1945 (N. A. M. 682).

AMELIA EARHART POST 678, AMERICAN LEGION, DEPARTMENT OF CALIFORNIA, Los Angeles, Calif.: A collection of 6 objects associated with the aeronautical accomplishments of the late Amelia Earhart: the globe on which she planned her flights (contributed by Mrs. Amy Otis Earhart); a sculptured portrait (contributed by Mrs. Grace Wells Parkinson, the sculptress); the radio used on her Atlantic flight (contributed by Paul Mantz); two scale models of Lockheed Vega and Electra airplanes which she flew, and a trophy intended to be presented at conclusion of the world flight (contributed by the Lockheed Aircraft Corporation) (N. A. M. 689).

BEECH AIRCRAFT CORP., Wichita, Kans.: The Beech Bonanza airplane *Waikiki Beech* in which the late Capt. William P. Odom set a world's nonstop, straight-line, distance record for light planes of 4,957.24 miles from Honolulu, Hawaii, to Teterboro, N. J., in 36.23 hours, March 7-8, 1949 (N. A. M. 667).

BIEDERMAN, JEROME D., San Francisco, Calif.: 59 full color paintings of United States, British, German, and Japanese warplanes in use during World War II (N. A. M. 660, loan).

CIVIL AERONAUTICS ADMINISTRATION, Washington, D. C.: A Pitcairn Roadable Autogiro, significant as an early and successful attempt, under Government sponsorship, to provide a practical, low-cost, road/air vehicle for private pilots (N. A. M. 672).

ELEY, MAJ. J. S. M., Alexandria, Va.: Eight insignia cut from sides of World War I airplanes; a French barometric altimeter taken from a French plane, World War I; and two name plates, one a Caproni, the other a Mercedes, from World War I equipment (N. A. M. 658).

FAIRCHILD ENGINE AND AIRPLANE CORP., Hagerstown, Md.: A 1:48-sized scale model of a Fairchild C-82 "Packet," the first military cargo and troop transport designed as such (N. A. M. 664).

FRACKELTON, MR. AND MRS. ROBERT, Fredericksburg, Va., "In Memory of 1st Lt. Rollin N. Conwell, Jr., USMCR": A bronze, life-size portrait bust of Orville Wright made from life in 1931 by Oskar J. W. Hansen (N. A. M. 670).

GOODYEAR AIRCRAFT CORP., Akron, Ohio: An exhibit illustrating the cross-wind landing-wheel design developed by the donor under Civil Aeronautics Administration sponsorship (N. A. M. 657).

GRANT-SMITH, HON. U., Washington, D. C.: A flechette (steel dart), air-ground, antipersonnel weapon of World War I (N. A. M. 679).

- GUGGENHEIM FOUNDATION, THE DANIEL AND FLORENCE, New York, N. Y.: The Robert H. Goddard Rocket Exhibit totaling 29 specimens consisting of 1 large and 1 intermediate rocket and a significant selection of units with descriptive charts (N. A. M. 668).
- KIRK, HARRY E., St. Louis, Mo.: A Consolidated PT-1, U. S. Army training plane, the first of the "modern" United States military primary trainers (N. A. M. 676, loan).
- KIRK, PRESTON, St. Louis, Mo.: An SE-5A airplane, an example of a single-seat British fighter used by Great Britain and United States during World War I. This particular specimen was one of 50 assembled in the United States for the Army, 1922-23 (N. A. M. 677, loan).
- KORN, DR. EDWARD A., East Orange, N. J.: A photograph album containing 98 prints showing scenes from the early flying activities of Edward Korn and his late brother Milton, 1908-15, as well as pictures of other "Early Bird" airplanes (N. A. M. 665).
- KORN, DR. EDWARD A., East Orange, N. J., and KORN, ARLINGTON L., Jackson Center, Ohio: A Benoist tractor biplane of 1911, one of the earliest planes of this type (N. A. M. 666).
- LEE, CAPT. E. HAMILTON, Glendale, Calif.: A United Air Lines pilot's uniform worn by donor prior to his retirement as senior pilot of United, July 1949 (N. A. M. 673).
- LOENING, ALBERT P., Southampton, N. Y.: A 1:16-sized scale model of the Loening Air Yacht. This model represents the high-performance 5-place flying-boat design that won the 1921 Wright Efficiency Trophy and the Collier Trophy for its designer, Grover Loening (N. A. M. 675).
- LOS ANGELES, CITY OF, Calif.: The Boeing B-17D *Swoose*; one of the very few combat-type aircraft operational on December 7, 1941, and still in service at the end of World War II (N. A. M. 662).
- MCDONNELL AIRCRAFT CORP., St. Louis, Mo.: Two 1:16-sized scale models of McDonnell aircraft: an FH-1 "Phantom," the U. S. Navy's first operational jet fighter and also the first U. S. all-jet aircraft to land and take off from a carrier; and an F2H "Banshee," carrier-based, single-seat jet fighter (N. A. M. 661).
- NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS, Langley Field, Va.: An N. A. C. A. "Quiet" propeller designed by the donor to reduce noise in light airplanes (N. A. M. 688).
- NAVY, DEPARTMENT OF, BUREAU OF AERONAUTICS, Washington, D. C.: A Westinghouse 19A "Yankee" engine, the first purely American-designed axial-flow turbojet engine (N. A. M. 684); a cutaway Westinghouse 9.5A (J.32) axial-flow turbojet engine designed to Navy specifications for powering guided missiles or small pilotless target aircraft (N. A. M. 685); a "Bat" pilotless glide bomb, radar controlled, the only Allied pilotless missile weapon designed by America or Allies used operationally in World War II (N. A. M. 686); a magnetic compass used on the NC-4 during the first transatlantic flight, 1919 (N. A. M. 687).
- NORTHROP AIRCRAFT, INC., Hawthorne, Calif.: A 1:48-sized scale model of the Northrop B-49, the first jet-propelled flying wing bomber designed and developed by donor for the United States Air Force (N. A. M. 659).
- PIASECKI HELICOPTER CORP., Morton, Pa.: A 1:8-sized scale model of the Piasecki HRP-1 Helicopter *Rescuer*. The first successful tandem rotor transport helicopter design to go into production (N. A. M. 674).

- PIPER AIRCRAFT CORP., Lock Haven, Pa.: A Piper Super Cruiser airplane, *City of Washington*, flown around the world, August 9–December 10, 1947, by Clifford Evans, Jr. (N. A. M. 683).
- POWER JETS, LTD., London, England: The Whittle W-1-X turbojet engine which was the first practical turbojet engine to successfully propel an aircraft in flight; and a 1:24-sized scale model of the Gloster-Whittle E 28/39 "Pioneer" experimental aircraft powered by the foregoing type of engine and representing the first successful turbojet-propelled aircraft (N. A. M. 669).
- RINTOUL, NORMAN, Pittsburgh, Pa.: A Stinson SR-10F "Reliant" 5-place cabin monoplane. Equipment used for mail and human pick-ups is included (N. A. M. 663).
- ROOSEVELT FIELD, INC., Mineola, L. I., N. Y.: Three full-sized airplanes: a Baldwin "Red Devil," 1910–11; a Bleriot XI, 1914; a Nieuport 12, 1917–18; and 2 aircraft engines: a Curtiss V-4 and a Salmson Z-9 of World War I period (N. A. M. 680).
- TUSCH, MRS. C. A. ("Mother"), Berkeley, Calif.: The collection of aeronautical memorabilia acquired by the donor from World War I to 1950 and formerly exhibited in her home, known as "The Hangar, Shrine of the Air." The collection of 325 listings consists of propellers, aeronautical and military uniform emblems and insignia, flight clothing, parts of aircraft and engines, personal souvenir items, wallpaper panels with original signatures, and framed photographs, many of which are autographed (N. A. M. 690).
- WATERMAN, WALDO, Santa Monica, Calif.: The Waterman *Whatsit* airplane of 1932, an early design of a tailless monoplane (N. A. M. 681).
- WHITNEY, GEORGE K., San Francisco, Calif.: An "Albatross" D-5 airplane of World War I, a type used widely by the German Air Force (N. A. M. 678).
- WIEBOLDT, MR. AND MRS. ELMER F., North Garden, Va.: A bronze, life-sized portrait bust of Wilbur Wright sculptured by Oskar J. W. Hansen in 1949 (N. A. M. 671).

Respectfully submitted.

CARL W. MITMAN,

Assistant to the Secretary for the National Air Museum.

DR. A. WETMORE,

Secretary, Smithsonian Institution.

APPENDIX 10

REPORT ON THE CANAL ZONE BIOLOGICAL AREA

SIR: It gives me pleasure to present herewith the annual report of the Canal Zone Biological Area for the fiscal year ended June 30, 1950.

IMPROVEMENTS MADE

A reinforced-concrete 11,720-gallon water tank, for ordinary uses as well as for fire protection, was built about 400 feet from the start of the Snyder-Molino Trail. The elevation of the tank above the laboratory level is such as to furnish enough pressure to bring the water over the roof of the large main building. The 4,000-gallon concrete water tank built in 1948 is now being used only for rain water for drinking and laboratory needs.

The land south of the Chapman house was leveled in preparation for the reconstruction of the building used for corrosion and deterioration tests; and the material necessary for a 12-foot extension to this building was purchased. The present house, originally built in 1926, is infested with termites. Considerable progress was made in clearing the land back of the present laboratory group to allow space for more effective separation of our buildings to eliminate fire hazard.

The floating equipment is in good shape. A reduction gear was added to the launch *Luna*. The narrow-gage rail line from the Frijoles dock to the railroad station was relocated and improved.

SCIENTISTS AND THEIR STUDIES

During the year, 21 scientists made use of the island's facilities. Present costs of transportation are keeping many from coming, and for the same reason a number of those who come do not stay as long as they would like to. Since the laboratory was started in 1923, about 660 separate papers relating to work done at Barro Colorado Island have appeared in print, not including the many reports made by representatives of Government agencies.

Dr. Alfred O. Gross, professor of biology, Bowdoin College, accompanied by Mrs. Gross, returned to the island after an absence of 25 years, to continue his studies of birds. He spent about 6 weeks studying in great detail and photographing the Hicks's seedeater and the little flycatcher, *Myiobius barbatus*, and made valuable observations of many other species. The island is exceptionally well suited for the investigation of the birds of the lower tropical forest.

Dr. Robert Zanes Brown, of Johns Hopkins University, spent 6 weeks on the island, accompanied by Mrs. Brown as assistant. His main objectives were to obtain additional ecological data on army ants for Dr. T. C. Schneirla, of the American Museum of Natural History, and to locate and check up on the 18 queens of *Eciton hamatum* and 9 of *E. burchelli* that he marked and left with their colonies in the 1948 dry season. He not only found the marked queens but was able to follow their movements day by day. Dr. Brown is also interested in mammalian ecology, and, having the opportunity to see more of the island and its life than he was able to during his 1948 visit, he made valuable observations on population numbers and behavior.

Dr. A. M. Chickering, of Albion College, Albion, Mich., returned to continue his exhaustive studies on the spiders of the island, Canal Zone, and Panamá. This is his fifth visit. He has published 15 papers on spiders of the region, the one on the salticids alone numbering 474 pages. His estimate of the number of species of spiders on Barro Colorado Island is 1,200.

Dr. Per Host, of Norway, returned to the island to continue his studies of the birds and mammals, as well as the general forest. With his special photographic equipment he made additional motion pictures and stills, in black-and-white and color. He also made many wire sound recordings of the voices of the jungle. In addition to his island studies, he revisited the Chocó Indians of Darién and the Cunas of San Blas and made photographic records and sound recordings of the songs, chants, and language. These records, being the only ones in existence, will become increasingly valuable as the customs and language of these Indians are lost through the encroachments of civilization.

Dr. Eugene Eisenmann, of New York City, continued his study of the birds of the region, with which he is unusually familiar. From the island records he has prepared a list of all the birds known from the island and has added many species to it himself.

Scott Seegers, of McLean, Va., and Mrs. Seegers, spent a few weeks on the island to obtain first-hand information on the plants and animals, and to consult published papers on studies made there, in connection with the preparation of an article.

Dr. Lawrence Kilham, Microbiological Institute, Laboratory of Infectious Diseases, National Institutes of Health, spent 4 days on the island, primarily to study the birds, and subsequently the mammals. His 12-page report is replete with careful observations and comparisons with conditions and the biota of Northeast Greenland. The number of birds he saw on the island was far beyond his expectation. Of the mammals he records howler monkeys (infested with

bot flies), white-faced capuchins, coati-mundis, peccaries, tamanduas, tayras at close range, tapirs, ñequis, and sloths.

G. W. Cottrell, of the Harvard University Library, and Mrs. Cottrell, spent about 2 weeks on the island to observe the whole complex of plant and animal life in a tropical rain forest. Their main interest was the study of the bird life, and, to a lesser degree, Lepidoptera. They covered fully half of the island's trails and had opportunity to study and observe the abundant mammalian life. Of birds, they identified 115 forms, 2 of which were new to the records of the island. Also they made a representative collection of Lepidoptera and took many photographs.

Mrs. E. R. Kalmbach, of Denver, Colo., was able to spend 3 days on the island, after a longer stay in Colombia. Her special interests were the flora and the birds, and to a lesser extent the mammals.

Ken Stott, Jr., general curator of the Zoological Society of San Diego, Calif., accompanied by Mrs. Stott, spent about 10 days on the island gathering first-hand knowledge of birds and mammals in the wild state in order to modify and improve the present exhibit and maintenance of the animals in the San Diego Zoo. He found opportunities for observing American tropical rain-forest wildlife on Barro Colorado Island to be unparalleled from the viewpoint of a zoo naturalist. During his brief stay he observed 102 species of birds and 11 of mammals, among the latter the ocelot and tapir. Special attention was given to feeding habits, particularly the manner of feeding and the types of food preferred, especially by the three species of diurnal primates, the tamandua anteater, the three-toed and two-toed sloths, and a number of birds, most of which are difficult to maintain in captivity for any great length of time.

Dr. Rolf Blomberg, of Norway, spent 2 weeks on the island collecting material for his forthcoming book on the fauna of tropical America. In his report he refers to the richness of the island fauna, to the great helpfulness of the library facilities, and states that in no other part of the world has he been able to carry out such studies with greater ease and under pleasanter circumstances.

Dr. Frederick W. Loetscher, Jr., of Centre College, Danville, Ky., with Mrs. Loetscher, spent 2 weeks on the island, mainly to study birds. A keen observer, he left with the laboratory a detailed list of the 102 species he definitely identified, with notes on their abundance. In addition, he made observations on the primates and edentates. Such reports, accumulated over long periods, give a valuable index to trends in populations, particularly relative abundance.

Dr. H. B. Goodrich, professor of biology of Wesleyan University, Middletown, Conn., spent 4 days on the island observing and

"experiencing" a tropical rain forest for the purpose of providing a biological background for his teaching. He also took many color photographs.

Dr. Cleveland Soper, director of the Tropical Research Laboratory of Eastman Kodak Co., continued exposure tests throughout the year, assisted by Paul Hermle, physicist, George Ade, chemist, and Ismael Olivares, microbiologist. These tests have yielded very valuable results, and, in Dr. Soper's opinion, the test tables for the island are the most practical way to determine the effectiveness of biocides in preventing deterioration of processed photographic materials, as well as the resistance of various protective coatings to tropical climatic conditions, etc. The correlations obtained between samples at the test table and similar items in actual use are more than satisfactory. Several important publications have resulted from these studies, such as "Notes on Tropical Photography," "Care of Films and Cameras in Tropical Climates," "Prevention and Removal of Fungus Growth on Processed Photographic Film," and "Notes for the Photo-Traveler." The prevention of corrosion of lenses by fungi is one of the important projects. These exposure tests emphasize the value of rapid and long-term studies of the effects of temperature and humidity, especially as they pertain to fungus growth. The island is particularly well suited for studies of corrosion and deterioration and the evaluation of biocides under such severe climatic conditions.

W. E. Lundy, of the Panama Canal and secretary-treasurer of the Panama Canal Natural History Society, again spent about a week on the island studying the birds and mammals, and particularly the "voices" of the jungle. His observations are of special interest because they help to give a better idea of faunal abundance and fluctuation in numbers.

Jay A. Weber, of Miami, Fla., spent considerable time in Panamá, part of it on the island, collecting mollusks, of which there is a superabundance of species. He was interested mainly in gathering the fresh-water and land forms of the island, largely for the United States National Museum. His previous visit to the island, to study birds, was 22 years ago.

Dr. Alexander Wetmore, Secretary of the Smithsonian Institution, revisited the island and held conferences with the resident manager on plans for the future of the area and proposed improvements. W. M. Perrygo, of the National Museum, accompanied him.

John E. Graf, Assistant Secretary, Smithsonian Institution, spent a few days on the island examining the laboratory facilities and the improvements made since his official visit the year before and discussing operations, plans for further improvements, and expansion.

George O. Lee, professor of biology, Junior College, Canal Zone, again brought his students for an overnight stay on the island, as part of their school work. Similar groups from the Normal School of Santiago, Panamá, the Abel Bravo Institute in Colón, and the National Institute of Panamá likewise came to the island.

The resident manager continued his special research problems, particularly the long-term termite-resistance tests, and host relationships of the fruit-fly population. The termite-resistance tests, started in 1924, are of increasing importance each year. During these 25 years 42 detailed reports have been prepared and 48 papers published, largely by Snyder, Hunt, and Zetek. It is possible now to build in the Tropics with untreated timbers despite the abundance of termites, and, with a minimum of vigilance, avoid the ravages of these pests.

Tests were also made on a number of electric-wire insulations, some untreated, others treated with pesticides and fungicides. The many instances in which termites have eaten through lead sheathing, as well as glass wool, prove the importance of these tests.

The Bureau of Entomology and Plant Quarantine continued to explore the worth and usefulness of soil poisons as deterrents to both termites and rot.

The large Berlese funnel was kept in operation and yielded an abundance of rare insects and mites difficult to collect otherwise.

URGENT NEEDS

A steady flow of electric current 24 hours a day is indispensable to a laboratory. The island's present supply of current is manufactured by gasoline-driven generators, some of which are not dependable. Some are single-phase, others three-phase, and this has made it necessary to revamp the entire distribution system. A double-throw three-pole switch had to be installed to separate the various phases and make mistakes impossible when the various generators are used. The drop in voltage at times is considerable. Also the gasoline and oil consumption of the present generators makes electricity too expensive. The only practical solution is to tap the transmission line of the Panama Canal at Frijoles, put in transformers there and on the island, and lay a cable along the lake bottom. This would give a dependable 24-hour daily service at a moderate cost.

LIST OF THE VERTEBRATES OF THE ISLAND (BIRDS EXCLUDED)

The following list, brought up to date by members of the scientific staff of the National Museum, shows a total of 173 species and subspecies of vertebrates (exclusive of the birds) now inhabiting Barro Colorado Island. The card index kept on the island gives pertinent

data as to who collected and identified each species, where and why they were collected, notes on abundance, and the synonymy as it affects previously published data.

FISHES (22)

Pimelodidae:

Rhamdia wagneri (Günther).

Characidae:

Astyanax ruberrimus Eigenmann.

Brycon chagrensis (Kner).

Bryconamericus emperador (Eigenmann and Ogle).

Compsura gorgonae (Evermann and Goldsborough).

Gephyrocharax atricaudata (Meek and Hildebrand).

Hoplias microlepis (Günther).

Piabucina panamensis Gill.

Roeboides guatemalensis (Günther).

Synbranchidae:

Synbranchus marmoratus Bloch.

Poecilidae:

Brachyrhaphis cascajalensis (Meek and Hildebrand).

Brachyrhaphis episcopi (Steindachner).

Gambusia nicaraguensis Günther.

Molliensia sphenops (Cuvier and Valenciennes).

Cyprinodontidae:

Rivulus brunneus Meek and Hildebrand.

Atherinidae:

Thyrinops chagresi (Meek and Hildebrand).

Centropomidae:

Centropomus parallelus Poey.

Cichlidae:

Aequidens coeruleopunctatus (Kner and Steindachner).

Syngnathidae:

Oostethus lineatus (Kaup).

Gobiidae:

Gobiomorus dormitor Lacépède.

Gobiomorus maculatus (Günther).

Leptophilypnus fluviatilis Meek and Hildebrand.

REPTILES (62)

TESTUDINATA

Chelydra acutirostris Peters.

Geoemyda annulata Gray.

Geoemyda punctariola funerea (Cope).

Kinosternon postinguinale Cope.

Pseudemys ornata Gray.

CROCODYLIA

Caiman fuscus (Cope).

Crocodylus acutus Cuvier.

SAURIA

Gekkonidae:

- Gonatodes fuscus* (Hallowell).
Lepidoblepharis sanctae-mariae fugax Ruthven.
Sphaerodactylus lineolatus Lichtenstein.
Thecadactylus rapicaudus (Houttuyn).

Iguanidae:

- Anolis lemurinus* Cope.
Anolis capito Peters.
Anolis lionotus Cope.
Anolis pentaprion Cope.
Anolis biporcatus (Wiegmann).
Anolis limifrons Cope.
Anolis frenatus Cope.
Norops auratus (Daudin).
Polychrus gutturosus (Berthold).
Corythophanes cristatus Boie.
Basiliscus basiliscus (Linnaeus).
Iguana iguana iguana (Linnaeus).

Xantusiidae:

- Lepidophyma flavomaculatum* Duméril.

Teiidae:

- Ameiva festiva* Lichtenstein.
Ameiva leptophrys Cope.
Leposoma southi Ruthven and Gaige.

Scincidae:

- Mabuya mabouya mabouya* (Lacépède).

Amphisbaenidae:

- Amphisbaena fuliginosa* Linnaeus.

SERPENTES

Typhlopidae:

- Anomalepis mexicanus* Jan.

Boidae:

- Constrictor constrictor imperator* (Daudin).
Epicrates cenchria maurus Gray.

Colubridae:

- Amastridium veliferum* Cope.
Rhadinaea decorata Günther.
Rhadinaea pachyura fulviceps Cope.
Coniophanes fissidens fissidens (Günther).
Pliocercus euryzonus dimidiatus Cope.
Oxyrhopus petola sebae (Duméril and Bibron).
Xenodon rabdocephalus (Wiedemann).
Siphlophis cervinus geminatus (Duméril and Bibron).
Leimadophis epinephalus epinephalus (Cope).
Enulius flavitorques (Cope).
Enulius sclateri Boulenger.
Dendrophidion percarinatus Cope.
Dryadophis boddaertii alternatus (Bocourt).
Thalerothis richardi occidentalis (Günther).
Oxybelis aeneus (Wagler).

Colubridae—Continued

- Spilotes pullatus pullatus* (Linnaeus).
Pseustes poecilonotus shropshirei (Barbour and Amaral).
Chironius carinatus (Linnaeus).
Chironius fuscus (Linnaeus).
Imantodes gemmistratus (Cope).
Imantodes cenchoa cenchoa (Linnaeus).
Leptodeira rhombifera Günther.
Leptodeira annulata annulata (Linnaeus).
Stenorhina degenhardti (Berthold).
Tantilla ruficeps (Cope).
Tantilla albiceps Barbour.

Elapidae:

- Micrurus mipartitus* (Duméril and Bibron).
Micrurus nigrocinctus nigrocinctus (Girard).

Crotalidae:

- Bothrops atrox asper* (Garman).
Bothrops schlegelii (Berthold).

AMPHIBIANS (33)

APODA

- Caecilia ochrocephala* Cope.

CAUDATA

- Oedipus complex* Dunn.
Oedipus parvipes (Peters).

SALIENTIA

Bufonidae:

- Bufo granulosis* Spix.
Bufo marinus (Linnaeus).
Bufo typhonius alatus (Thominot).
Engystomops pustulosus (Cope).
Leptodactylus bolivianus Boulenger.
Leptodactylus pentadactylus (Laurenti).
Eleutherodactylus biporcatus (Peters).
Eleutherodactylus bufoniformis (Boulenger).
Eleutherodactylus longirostris (Boulenger).
Eleutherodactylus fitzingeri (Schmidt).
Eleutherodactylus ockendeni (Boulenger).
Eleutherodactylus cruentus (Peters).
Eleutherodactylus lutosus molinoi (Barbour).
Eleutherodactylus gaigae (Dunn).
Eleutherodactylus diastema (Cope).

Brachycephalidae:

- Dendrobates minutus minutus* Shreve.
Dendrobates auratus (Girard).
Phyllobates nubicola flotator Dunn.

Hylidae:

- Hyla albomarginata* Spix.
Hyla sordida Peters.
Hyla phaeota Cope.
Hyla underwoodi Boulenger.
Hyla boulengeri (Cope).
Centrolene prosoblepon (Boettger).
Centrolene parambae (Boulenger).
Centrolene fleishmanni (Boettger).
Agalychnis spurrelli Boulenger.
Agalychnis calcarifer Boulenger.
Agalychnis callidryas (Cope).

Ranidae:

- Rana warschewitschii* (Schmidt).

MAMMALS (56)

MARSUPIALIA

- Didelphis marsupialis etensis* Allen (opossum).
Marmosa ruatanica isthmica Goldman (Isthmian marmosa).
Philander opossum fuscogriseus Allen (Allen's opossum).
Metachirus nudicaudatus dentaneous Goldman (brown opossum).
Caluromys derbianus derbianus Waterhouse (woolly opossum).

EDENTATA

- Bradypus griseus griseus* (Gray) (3-toed sloth).
Choloepus hoffmanni Peters (2-toed sloth).
Cyclopes didactylus dorsalis (Gray) (2-toed anteater).
Tamandua tetradactyla chiriquensis Allen (3-toed anteater).
Dasypus novemcinctus fenestratus Peters (9-banded armadillo).

ARTIODACTYLA

- Mazama satorii reperticia* Goldman (brocket deer).
Odocoileus virginianus chiriquensis Allen (white-tailed deer).
Tayassu tajacu bangsi Goldman (collared peccary).
Tayassu pecari spiradens Goldman (white-lipped peccary).

PERISSODACTYLA

- Tapirella bairdii* (Gill) (Baird's tapir).

RODENTIA

- Coendou rothschildi* Thomas (porcupine).
Cuniculus paca virgatus (Bangs) (conejo pintado, paca).
Dasypsecta punctata isthmica Alston (agouti, ñequi).
Heteromys desmarestianus zonalis Goldman (Canal Zone spiny pocket mouse).
Oecomys endersi Goldman (Ender's rat).
Oryzomys caliginosus chrysomelas Allen (dusky rice rat).
Oryzomys fulvescens costaricensis Allen (pigmy rice rat).
Oryzomys talamancae talamancae Allen (Talamanca rice rat).
Oryzomys tectus frontalis Goldman (Corozal rice rat).
Rattus rattus rattus Linnaeus (black rat).
Sigmodon hispidus chiriquensis Allen (Boqueron cotton rat).

- Zygodontomys cherriei ventriosus* Goldman (Canal Zone cane rat).
Proechimys semispinosus panamensis Thomas (spiny rat).
Microsciurus alfari venustus Goldman (Canal Zone pygmy squirrel).
Sciurus granatensis morulus Bangs (Canal Zone squirrel).

LAGOMORPHA

- Sylvilagus brasiliensis gabbi* (Allen) (forest rabbit).

CARNIVORA

- Jentinkia sumichrasti notinus* Thomas (bassariscus).
Nasua narica panamensis Allen (coati-mundi, gato solo).
Potos flavus isthmicus Goldman (kinkajou).
Procyon cancrivorus panamensis (Goldman) (crab-eating raccoon).
Eira barbara biologiae (Thomas) (tayra, black cat).
Lutra repanda Goldman (otter, nutria).
Felis concolor costaricensis Merriam (puma, leon).
Felis onca centralis Mearns (jaguar, tiger).
Felis pardalis mearnsi Allen (ocelot, tigrillo).
Felis yagouaroundi panamensis (Allen) (yagouaroundi).

CHIROPTERA

- Artibeus jamaicensis palmarum* (Allen) (Trinidad fruit bat).
Artibeus cinereus watsoni Thomas (Watson's bat).
Carollia perspicillata azteca Saussure (short-tailed bat).
Micronycteris megalotis microtis Miller (Nicaraguan small-eared bat).
Molossus coibensis Allen (Coiba Island mastiff bat).
Myotis nigricans nigricans (Schinz) (little black bat).
Noctilio leporinus leporinus (Linnaeus) (fish-eating bat).
Phyllostomus discolor discolor (Wagner).
Rhynchiscus naso priscus G. M. Allen (Mexican long-nosed bat).
Saccopteryx bilineata (Temminck) (greater white-lined bat).
Thyroptera albiventer (Tomes) (disc bat).

PRIMATES

- Alouatta palliata aequatorialis* Festa (howling monkey, mono negro).
Aotus zonalis Goldman (night monkey).
Cebus capucinus imitator Thomas (white-faced monkey, cari-blanco).
Marikina goeffroyi (Pucheran) (marmoset, mono titi).

RAINFALL

In 1949, during the dry season, rains of 0.01 inch or more fell on 27 days (50 hours), and during the wet season, on 214 days (949 hours); a total during the year of 241 days (999 hours). Rainfall was above the 25-year station average. November was the rainiest month (30 days, 211 hours). The dry season was the driest on record throughout the Isthmus. It began on December 19, 1948, and continued

until nearly the end of April. The rainy season continued till the early part of December. The first 4 months of 1949 had a deficiency of 5.22 inches. The rainy season showed an excess of 13.32 inches, giving an excess of 8.10 inches for the year.

TABLE 1.—*Annual rainfall, Barro Colorado Island, C. Z.*

Year	Total inches	Station average
1925	104.37	-----
1926	118.22	113.56
1927	116.36	114.68
1928	101.52	111.35
1929	87.84	106.56
1930	76.57	101.51
1931	123.30	104.69
1932	113.52	105.76
1933	101.73	105.32
1934	122.42	107.04
1935	143.42	110.35
1936	93.88	108.98
1937	124.13	110.12
1938	117.09	110.62
1939	115.47	110.94
1940	86.51	109.43
1941	91.82	108.41
1942	111.10	108.55
1943	120.29	109.20
1944	111.96	109.30
1945	120.42	109.84
1946	87.38	108.81
1947	77.92	107.49
1948	83.16	106.43
1949	114.86	106.76

TABLE 2.—*Comparison of 1947 and 1948 rainfall, Barro Colorado Island, C. Z. (inches)*

Month	Total		Station average	Years of record	Excess or deficiency	Accumulated excess or deficiency
	1948	1949				
January	1.84	0.70	1.79	24	-1.09	-1.09
February	.19	.07	1.17	24	-1.10	-2.19
March	.17	.11	1.31	24	-1.20	-3.39
April	2.92	.90	2.73	25	-1.83	-5.22
May	10.80	11.97	10.90	25	+1.07	-4.15
June	6.32	15.57	11.28	25	+4.29	+1.14
July	11.45	13.38	11.68	25	+1.70	+1.84
August	10.46	9.99	12.34	25	-2.35	-.51
September	6.72	7.11	10.15	25	-3.04	-3.55
October	10.74	14.45	13.12	25	+1.33	-2.22
November	20.33	32.76	19.40	25	+13.36	+11.14
December	1.22	7.85	10.89	25	-3.04	+8.10
Year	83.16	114.86	106.76	-----	-----	+8.10
Dry season	5.12	1.78	7.00	-----	-----	-5.22
Wet season	78.04	113.08	99.76	-----	-----	+13.32

FISCAL REPORT

During the fiscal year 1950, \$10,609.04 in trust funds was available. Of this amount \$10,502.83 was spent, leaving a balance of \$106.21. In addition to this, \$1,184.88 is still on deposit, representing local collections.

The following items are paid out of trust funds: Food, ice, fuel, salaries and wages, office expenses, telephone, laboratory supplies, freight and express, laundry, and new parts, repairs to floating equipment and to generators, general upkeep, and repairs.

During the year only \$742 was collected as fees from scientists. This decline is largely due to the high cost of transportation to the Isthmus, which keeps many from coming. Despite the higher costs of food, wages, and other items, the laboratory has not increased its per diem charge to scientists, and continues to give a 25-percent discount to those who come from institutions that sustain table subscriptions.

The following institutions continued their support to the laboratory through the payment of table subscriptions:

Eastman Kodak Co.....	\$1, 000
University of Chicago.....	300
New York Zoological Society.....	300
American Museum of Natural History.....	300
Smithsonian Institution.....	300

It is again most gratifying to record donations from Dr. Eugene Eisenmann.

The Smithsonian Institution contributed \$4,500 from its private funds, in addition to its table fees. This is included in the \$10,609.04 in trust funds.

The sum of \$5,000 was made available by the Smithsonian Institution from appropriated funds, and of the amount \$4,988.97 was used for permanent improvements.

Respectfully submitted.

JAMES ZETEK, *Resident Manager.*

Dr. ALEXANDER WETMORE,
Secretary, Smithsonian Institution.

APPENDIX 11

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, 1950:

The primary obligation of the library in "the increase and diffusion of knowledge" is to make constantly available to the scientific and curatorial staff of the Smithsonian Institution the published records of work done or in progress throughout the world in the subject fields of the Institution's special activities and responsibilities. All the detailed procedures necessary to meeting this obligation are directed toward this end. None of them are ends in themselves, and records of them are at best only quantitative indications of growth and accomplishment. Mere numbers of publications acquired and handled mean little unless those publications have been selected with discrimination and, in terms of contemporary library parlance, "processed" for effective use, with the special requirements of the Smithsonian Institution always in mind. The final test of the quality of the library's work is the thoroughness with which an investigator has been able to canvass all the literature necessary to the successful completion or continuation of work on his particular piece of scientific research or curatorial assignment. No new scientific project, however unique, can be launched without dependence upon scientific literature.

The daily record of publications delivered to the library shows a total of 53,035 for the year, 5,102 of which were shipped from abroad through the International Exchange Service. As usual, these books, pamphlets, and serial publications came from all over the world and were written in many different languages. They covered all the subjects with which the work of the Institution is directly concerned, and many related ones as well.

The outstanding gift of the year was the fine library of some 4,000 books and pamphlets on Foraminifera collected by the late Dr. Joseph A. Cushman, which, with its own catalog, accompanied and is to be kept with the Cushman foraminiferal collection bequeathed by Dr. Cushman to the Smithsonian Institution. This library is probably unexcelled for current completeness, and additions are to be made to it in future.

Neil M. Judd's gift of his personal collection of some 500 books and papers on archeological subjects made it possible for the division of archeology to continue to have the use of this literature after Mr. Judd's retirement.

Acknowledgments for 7,392 gifts received were sent to many different donors to whom the library owes a lasting debt of gratitude for their generous contributions.

The first published appearance of information about new discoveries, inventions, and the progress of science, technology, and the arts in general is usually to be found in serial publications, which consequently are of the utmost importance in a scientific library. A great many of those the Institution regularly receives are sent by organizations and institutions with which it is in continuing exchange. Except for the issues represented by 287 paid subscriptions, most of the 16,961 parts of periodicals currently entered were exchange publications. In the course of the year 344 new exchanges were arranged, and 7,016 volumes and parts needed to complete sets, or for other purposes, were obtained in response to 604 special requests.

A good catalog is the key to the contents of the library, and good cataloging is a basic requirement of efficient library service. Upon its quality and completeness depends the ease or difficulty with which the resources of the library can be discovered. The classification and subject analysis of complex scientific publications, many of them written in foreign languages, is scholarly work. The cards filed in catalogs and shelflists are the clerical records of that work. During the past year 6,822 publications were fully cataloged, and 30,006 catalog and shelflist cards were filed. The work of correlating the central periodical records with those of the central catalog was continued, and 1,000 entries were checked and accurately unified. Neither the central catalog nor the individual catalogs of the different bureau libraries can be the fully effective instruments that they ought to be until the very large number of unclassified and incompletely cataloged publications throughout the Institution can be properly cataloged. This is so large an undertaking that a special corps of catalogers would be needed to complete it within a predictable period of time.

In all, 18,719 publications were sent to the Library of Congress. Of this number 6,053 volumes and parts were marked and recorded as permanent additions to the Smithsonian Deposit. Other publications included 1,303 doctoral dissertations, received chiefly from continental European universities. The remainder were foreign and domestic documents and miscellaneous books, pamphlets, and periodicals on subjects not of immediate interest to the Institution.

A considerable number of publications on special subjects were sent to other scientific libraries of the Government. Included among them were 776 medical dissertations and 2,058 other publications on medical subjects sent to the Army Medical Library, and 416 agricultural publications sent to the Department of Agriculture.

Records of binding show that funds were sufficient to permit 1,511 volumes, chiefly periodicals, to be sent to the Government Printing Office. Repairs to 1,023 volumes were made in the Museum library. The deterioration of completed volumes of periodicals that must wait for sufficient funds before they can be bound is one of the serious problems of the library, as is the care and repair of the many old books, some of them irreplaceable, that the Institution is so fortunate as to own. The library is in no sense a museum of fine books. It is an active working collection, but the very character of the Institution's responsibilities, especially in connection with the work of the National Museum, makes it inevitable that many old as well as new books should be in constant use as tools. That some of them happen to be also collectors' items is incidental but makes their care and protection doubly important.

It was not possible to undertake further work on the organization of the large collection of duplicates and unstudied material housed in the west stacks, but more than 36,000 pieces, mostly parts of periodicals previously checked and arranged, were sent to the United States Book Exchange to be used as opportunity offers in exchange for material drawn from the stockpile of that center.

No reliable figure showing over-all use of the library can be given. The large decentralization of its collections, especially in the Museum, where 30 of its sectional libraries are in the custodial charge of the curators, makes it impractical to attempt to keep statistical records of the intramural use of books and periodicals. Loan-desk records show that 12,522 publications were borrowed for use outside the library, 2,181 of which were interlibrary loans made to 104 different Government, university, and other institutional libraries throughout the country.

Loans are not made to individuals other than staff members and affiliates of the Institution, but the resources of the library are open to any individual who wishes to make reference use of them, either by coming in person or by telephoning or writing to the library. The library receives hundreds of requests for information in the course of the year, and whether the inquirer is a scholarly research worker or a casual sightseer, a foreign correspondent or a rural schoolboy, the staff makes every effort to see that his question is answered, either by finding and giving him the requested information or by referring him

to an appropriate authority elsewhere. This is by no means an unimportant part of the "diffusion of knowledge," and especially in terms of good will, is a richly rewarding one.

It is regrettable that no relief for the overcrowding of the library can be reported.

SUMMARIZED STATISTICS

Accessions

	Volumes	Total recorded volumes June 30, 1950
Astrophysical Observatory (including Radiation and Organisms).....	500	13, 573
Bureau of American Ethnology.....	119	34, 838
National Air Museum.....	86	12, 126
National Collection of Fine Arts.....	384	12, 175
National Museum.....	2, 735	246, 401
National Zoological Park.....	3	4, 196
Smithsonian Deposit at the Library of Congress.....	1, 629	582, 280
Smithsonian Office.....	375	33, 448
Total.....	5, 831	927, 037

Neither incomplete volumes of periodicals nor separates and reprints from periodicals are included in these figures.

Exchanges

New exchanges arranged.....	344
107 of these were assigned to the Smithsonian Deposit in the Library of Congress.	
Specially requested publications received.....	7, 016
1,026 of these were obtained to fill gaps in the Smithsonian Deposit sets.	

Cataloging

Volumes and pamphlets cataloged.....	6, 822
Cards added to catalogs and shelflists.....	30, 006

Periodicals

Periodical parts entered.....	16, 961
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Circulation

Loans of books and periodicals.....	12, 522
This figure does not include the intramural circulation of books and periodicals filed in the sectional libraries of the Museum.	

Binding

Volumes sent to the bindery.....	1, 511
Volumes repaired in the Museum.....	1, 023

Respectfully submitted.

LEILA F. CLARK, *Librarian.*

Dr. A. WETMORE,
Secretary, Smithsonian Institution.

APPENDIX 12

REPORT ON PUBLICATIONS

SIR: I have the honor to submit the following report on the publications of the Smithsonian Institution and its branches for the year ended June 30, 1950:

The Institution published during the year 12 papers in the Smithsonian Miscellaneous Collections, 1 Annual Report of the Board of Regents and pamphlet copies of 22 articles in the report appendix, 1 Annual Report of the Secretary, and a reprint of 1 special publication.

The United States National Museum issued 1 Annual Report, 22 Proceedings papers, 2 Bulletins, and 4 Contributions from the United States National Herbarium.

The Bureau of American Ethnology issued 1 Annual Report, 1 Bulletin, and 1 Publication of the Institute of Social Anthropology.

The National Collection of Fine Arts issued 1 catalog.

The Freer Gallery of Art issued 1 paper in its Oriental Studies series and 1 in its Occasional Papers series.

Of the publications there were distributed 150,612 copies, which included 26 volumes and separates of Smithsonian Contributions to Knowledge, 26,489 volumes and separates of Smithsonian Miscellaneous Collections, 28,248 volumes and separates of Smithsonian Annual Reports, 3,619 War Background Studies, 5,918 Smithsonian special publications, 40 reports and 211 sets of pictures of the Harriman Alaska Expedition, 57,938 volumes and separates of National Museum publications, 14,877 publications of the Bureau of American Ethnology, 4,239 publications of the Institute of Social Anthropology, 38 catalogs of the National Collection of Fine Arts, 1,178 volumes and pamphlets of the Freer Gallery of Art, 10 Annals of the Astrophysical Observatory, 1,318 reports of the American Historical Association, and 6,463 miscellaneous publications not printed by the Smithsonian Institution (mostly Survival Manuals).

In addition, 11,523 picture pamphlets, 80,751 guide books, 30,230 natural history and art post cards, 135 sets of North American Wild Flowers, and 5 volumes of Pitcher Plants were distributed.

SMITHSONIAN MISCELLANEOUS COLLECTIONS

In this series there were issued 10 papers in volume 111, whole volume 112, and whole volume 113, as follows:

VOLUME 111

No. 8. Some stages in the evolution of the nervous system and the fore-gut of the polychaet, by Frank Raw. 35 pp., 5 figs. (Publ. 3983.) Aug. 4, 1949.

No. 9. A new heron and a new owl from Venezuela, by Herbert Friedmann. 3 pp. (Publ. 3985.) July 21, 1949.

No. 10. A collection of fishes from Talara, Perú, by Samuel F. Hildebrand. 36 pp., 9 figs. (Publ. 3986.) Aug. 18, 1949.

No. 11. Larvae of the elaterid beetles of the tribe Lepturoidini (Coleoptera: Elateridae), by Robert Glen. 246 pp., 40 figs. (Publ. 3987.) Apr. 19, 1950.

No. 12. Note on Fowle's spectroscopic method for the determination of aqueous vapor in the atmosphere, by L. B. Aldrich. 6 pp., 1 pl., 2 figs. (Publ. 3989.) Sept. 20, 1949.

No. 13. Short periodic solar variations and the temperatures of Washington and New York, by C. G. Abbot. 8 pp., 2 figs. (Publ. 3990.) Oct. 4, 1949.

No. 14. The Abbot silver-disk pyrhelimeter, by L. B. Aldrich. 11 pp., 1 pl., 1 fig. (Publ. 3991.) Dec. 8, 1949.

No. 15. The roll call of the Iroquois chiefs. A study of a mnemonic cane from the Six Nations Reserve, by William N. Fenton. 73 pp., 12 pls., 3 figs. (Publ. 3995.) Feb. 16, 1950.

No. 16. The forms of the black hawk-eagle, by Herbert Friedmann. 4 pp., 1 pl. (Publ. 4013.) Feb. 28, 1950.

No. 17. Periodic influences on Washington and New York weather of 1949 and 1950, by C. G. Abbot. 8 pp., 3 figs. (Publ. 4015.) Mar. 22, 1950.

VOLUME 112 (WHOLE VOLUME)

Catalog of the termites (Isoptera) of the world, by Thomas E. Snyder. 490 pp. (Publ. 3953.) Nov. 1, 1949.

VOLUME 113 (WHOLE VOLUME)

Archeology of the Florida Gulf coast, by Gordon R. Willey. 599 pp., 60 pls., 76 figs., 20 maps. (Publ. 3988.) Dec. 29, 1949.

SMITHSONIAN ANNUAL REPORT

Report for 1948.—The complete volume of the Annual Report of the Board of Regents for 1948 was received from the Public Printer December 28, 1949:

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, 1948. ix+466 pp., 100 pls., 52 figs., 1 chart. (Publ. 3954.)

The general appendix contained the following papers (Pubs. 3955-3976):

The Astrophysical Observatory of the Smithsonian Institution, by C. G. Abbot.
Atomic energy in industry, by H. A. Winne.

- High-altitude research with V-2 rockets, by Ernest H. Krause.
 Roentgen rays against cancer, by John G. Trump.
 The optical glass industry, past and present, by Francis W. Glaze.
 The age of the earth, by Arthur Holmes.
 Petroleum resources of North America, by A. I. Levorsen.
 American meteorites and the National collection, by E. P. Henderson.
 Glacial varved clay concretions of New England, by Ray S. Bassler.
 Algal pillars miscalled geyser cones, by Roland W. Brown.
 Concepts in conservation of land, water, and wildlife, by Ira N. Gabrielson.
 The evolution and function of genes, by A. H. Sturtevant.
 The sense organs of birds, by R. J. Pumphrey.
 Insect control investigations of the Orlando, Fla., laboratory during World War II, by E. F. Knipling.
 The golden nematode invades New York, by W. L. Popham.
 The cork oak in the United States, by Victor A. Ryan and Giles B. Cooke.
 Remember the chestnut! by Amanda Ulm.
 The numbers and distribution of mankind, by C. B. Fawcett.
 Mexican calendars and the solar year, by Herbert J. Spinden.
 Surviving Indian groups of the eastern United States, by William Harlen Gilbert, Jr.
 Recently published Greek papyri of the New Testament, by Bruce M. Metzger.
 Japanese art—a reappraisal, by Robert T. Paine, Jr.

Report for 1949.—The Report of the Secretary, which included the financial report of the executive committee of the Board of Regents, and which will form part of the Annual Report of the Board of Regents to Congress, was issued December 29, 1949:

Report of the Secretary of the Smithsonian Institution and financial report of the executive committee of the Board of Regents for the year ended June 30, 1949. ix+149 pp. (Publ. 3992.)

SPECIAL PUBLICATIONS

Smithsonian Mathematical Tables. Hyperbolic functions. Sixth reprint. Prepared by George F. Becker and C. E. Van Orstrand. lii+321 pp. (Publ. 1871.) 1949.

PUBLICATIONS OF THE UNITED STATES NATIONAL MUSEUM

The editorial work of the National Museum has continued during the year under the immediate direction of the editor, Paul H. Oehser. There were issued 1 Annual Report, 22 Proceedings papers, 2 Bulletins, and 4 separate papers in the Contributions from the United States National Herbarium, as follows:

REPORT

Report on the progress and condition of the United States National Museum for the year ended June 30, 1949. iii+123 pp. Jan. 13, 1950.

PROCEEDINGS: VOLUME 97

Title page, table of contents, list of illustrations, and index. Pp. i-vii, 571-601. Jan. 26, 1950.

VOLUME 99

No. 3248. Additions to the echiuroid fauna of the North Pacific Ocean, by Walter Kenrick Fisher. Pp. 479-497, pls. 28-34. Aug. 10, 1949.

No. 3249. A remarkable new species of trypetid fly of the genus *Ceratitis* (sensu stricto) from East Africa in the collection of the United States National Museum, by H. K. Munro. Pp. 499-501, fig. 39. July 5, 1949.

No. 3250. A new marine annelid from Florida, by Olga Hartman. Pp. 503-508, fig. 40. Aug. 4, 1949.

No. 3251. A new species of apseudid crustacean of the genus *Synapseudes* from northern California (Tanaidacea), by Robert J. Menzies. Pp. 509-515, figs. 41-42. Aug. 4, 1949.

No. 3252. Redescription of the shrimp *Bathypalaemonella pandaloides* (Rathbun), with remarks on the family Campylonotidae, by L. B. Holthuis. Pp. 517-523, fig. 43. Aug. 25, 1949.

No. 3253. The Nearctic species of Evaniidae (Hymenoptera), by Henry Townes. Pp. 525-539, fig. 44. Sept. 1, 1949.

VOLUME 100

No. 3254. On a collection of Mallophaga from Guam, Marianas Islands, by M. A. Carriker, Jr. Pp. 1-24, figs. 1-5. Nov. 29, 1949.

No. 3255. Observations on flatworms and nemerteans collected at Beaufort, N. C., by A. S. Pearse. Pp. 25-38, figs. 6-9. Oct. 14, 1949.

No. 3256. Some Alaskan syrphid flies, with descriptions of new species, by C. L. Fluke. Pp. 39-54, figs. 10-11. Oct. 11, 1949.

No. 3257. Two new gynandromorphs, with a list of previously recorded sexual aberrations in the scolioid wasps, by Karl V. Krombein. Pp. 55-59, pls. 1-2. Nov. 16, 1949.

No. 3258. Fresh-water Ostracoda from Brazil, by Willis L. Tressler. Pp. 61-83, figs. 12-14. Jan. 8, 1950.

No. 3259. The Nearctic species of Gasteruptionidae (Hymenoptera), by Henry Townes. Pp. 85-145, figs. 15-16. Apr. 18, 1950.

No. 3260. Pycnogonida of the United States Navy Antarctic Expedition, 1947-48, by Joel W. Hedgpeth. Pp. 147-160, figs. 17-19. Jan. 23, 1950.

No. 3261. Copepods from Lake Erh Hai, China, by Sidney C. Hsiao. Pp. 161-200, figs. 20-30. Apr. 26, 1950.

No. 3262. Mosquitoes of the genus *Tripteroides* in the Solomon Islands, by John N. Belkin. Pp. 201-274, figs. 31-37. Mar. 30, 1950.

No. 3263. A revision of the American clupeid fishes of the genus *Harengula*, with descriptions of four new subspecies, by Luis René Rivas. Pp. 275-309, pls. 3-5, figs. 38-41. Mar. 28, 1950.

No. 3264. Moths of the genus *Cincia* and three new and closely related genera, by William D. Field. Pp. 311-326, pls. 6-9. Mar. 10, 1950.

No. 3265. Mammals of northern Colombia. Preliminary report No. 6: Rabbits (Leporidae), with notes on the classification and distribution of the South American forms, by Philip Hershkovitz. Pp. 327-375, figs. 42-43. May 26, 1950.

No. 3266. Some bird lice of the genera *Acidoproctus* and *Quadriceps* (Neotropical Mallophaga Miscellany No. 3), by M. A. Carriker, Jr. Pp. 377-386, figs. 44-45. Jan. 26, 1950.

No. 3267. A review of the American clupeid fishes of the genus *Dorosoma*, by Robert Rush Miller. Pp. 387-410. Mar. 7, 1950.

No. 3268. A contribution to the ornithology of northeastern Venezuela, by Herbert Friedmann and Foster D. Smith, Jr. Pp. 411-538, pls. 10-12, figs. 46-50. Mar. 10, 1950.

BULLETINS

197. Life histories of North American wagtails, shrikes, vireos, and their allies. Order Passeriformes, by Arthur Cleveland Bent. Pp. i-vii, 1-411, 48 pls. June 21, 1950.

198. Catalog of the automobile and motorcycle collection of the Division of Engineering, United States National Museum, by Smith Hempstone Oliver. Pp. i-iv, 1-62, 18 pls. May 9, 1950.

CONTRIBUTIONS FROM THE UNITED STATES NATIONAL HERBARIUM

VOLUME 29

Part 7. Studies in the Bromeliaceae, XV, by Lyman B. Smith. Pp. i-vii, 277-316, figs. 2-36. Dec. 28, 1949.

Part 8. Studies of South American plants, XII, by A. C. Smith. Pp. i-viii, 317-393. Jan. 23, 1950.

Part 9. New grasses from Mexico, Central America, and Surinam, by Jason R. Swallen. Pp. i-v, 395-428. Mar. 7, 1950.

VOLUME 30

Part 3. Additional phanerogams in the flora of Guam, with notes on unverified records, by Egbert H. Walker and Robert Rodin. Pp. i-vi, 449-468, pls. 8-9. Aug. 25, 1949.

PUBLICATIONS OF THE BUREAU OF AMERICAN ETHNOLOGY

The editorial work of the Bureau continued under the immediate direction of the editor, M. Helen Palmer. During the year there were issued 1 Annual Report, 1 Bulletin, and 1 Publication of the Institute of Social Anthropology, as follows:

REPORT

Sixty-sixth Annual Report of the Bureau of American Ethnology, 1948-1949. 34 pp.

BULLETIN

143. Handbook of South American Indians. Julian H. Steward, editor. Volume 5, The comparative ethnology of South American Indians. xxvi+818 pp., 56 pls., 190 figs., 22 maps. 1949.

PUBLICATIONS OF THE INSTITUTE OF SOCIAL ANTHROPOLOGY

No. 10. Nomads of the Long Bow: The Siriono of eastern Bolivia, by Allan R. Holmberg. 104 pp., 7 pls., 4 charts, 1 map. 1950.

PUBLICATIONS OF THE NATIONAL COLLECTION OF FINE ARTS

Centennial exhibition of paintings by Abbott Handerson Thayer, N. A. (1849-1921), August 12 through December 1949. 4 pp. 1949.

PUBLICATIONS OF THE FREER GALLERY OF ART

ORIENTAL STUDIES

No. 4. Shiraz painting in the sixteenth century, by Grace Dunham Guest. 70 pp., 50 pls., 15 figs. (Publ. 3978.) 1949.

OCCASIONAL PAPERS: VOLUME 1

No. 4. James McNeill Whistler: A biographical outline, illustrated from the collections of the Freer Gallery of Art, by Burns A. Stubbs. 29 pp., 28 pls. (Publ. 3994.) 1950.

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 by the act of incorporation of the Association. The following report volume was issued this year:

Annual Report of the American Historical Association, 1948. Vol. 1. Proceedings.

The following was in press at the close of the fiscal year:

Annual Report of the American Historical Association for 1949. Vol. 1. Proceedings.

REPORT OF THE NATIONAL SOCIETY, DAUGHTERS OF THE
AMERICAN REVOLUTION

The manuscript of the Fifty-second Annual Report of the National Society, Daughters of the American Revolution, was transmitted to Congress, in accordance with law, December 13, 1949.

APPROPRIATION FOR PRINTING AND BINDING

The congressional appropriation for printing and binding for the past year was entirely obligated at the close of the year. The appropriation for the coming fiscal year ending June 30, 1951, totals \$103,000, allotted as follows:

General administration (Annual Report of the Board of Regents; Annual Report of the Secretary)-----	\$18, 500
National Museum-----	36, 200
Bureau of American Ethnology-----	21, 500
National Air Museum-----	500
Service divisions (Annual Report of the American Historical Association; blank forms; binding; Museum print shop)-----	26, 300
	<hr/>
	103, 000

Webster P. True, who had been associated with the Institution as editor for nearly 36 years—19 years in charge of the consolidated editorial offices and since 1940 as Chief of the Editorial Division—retired on May 31, 1950.

Respectfully submitted.

PAUL H. OEHSER, *Chief, Editorial Division.*

Dr. A. WETMORE,

Secretary, Smithsonian Institution.

REPORT OF THE EXECUTIVE COMMITTEE OF THE BOARD OF REGENTS OF THE SMITHSONIAN INSTITUTION

FOR THE YEAR ENDED JUNE 30, 1950

To the Board of Regents of the Smithsonian Institution:

Your executive committee respectfully 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, freights, insurance, and other incidental expenses, together with payment into the fund of the sum, £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, including the original bequest, plus savings, are listed below, together with the income for the present year.

ENDOWMENT FUNDS

(Income for unrestricted use of the Institution)

Partly deposited in United States Treasury at 6 percent and partly invested in stocks, bonds, and other holdings.

Fund	Investment	Income present year
Parent fund (original Smithson bequest, plus accumulated savings).....	\$728,891.33	\$43,712.50
Subsequent bequests, gifts, and other funds, partly deposited in the U. S. Treasury and partly invested in the consolidated fund:		
Avery, Robert S., and Lydia, bequest fund.....	54,487.74	2,591.14
Endowment fund.....	346,910.62	14,753.47
Habel, Dr. S., bequest fund.....	500.00	30.00
Hachenberg, George P. and Caroline, bequest fund.....	4,122.41	178.29
Hamilton, James, bequest fund.....	2,913.78	167.87
Henry, Caroline, bequest fund.....	1,239.68	53.53
Hodgkins, Thomas G. (general gift).....	146,733.43	8,289.26
Porter, Henry Kirke, memorial fund.....	293,560.53	12,696.91
Rhees, William Jones, bequest fund.....	1,074.91	56.34
Sanford, George H., memorial fund.....	2,012.48	105.46
Witherspoon, Thomas A., memorial fund.....	132,279.68	5,721.29
Special fund, stock in reorganized closed banks.....	2,280.00	160.00
Total.....	988,115.26	44,803.61
Grand total.....	1,717,006.59	88,516.11

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	Income present year
Abbott, William L., fund, for investigations in biology	\$103,134.07	\$4,468.79
Arthur, James, fund, for investigations and study of the sun and lecture on same	40,994.19	1,773.04
Bacon, Virginia Purdy, fund, for traveling scholarship to investigate fauna of countries other than the United States	51,354.63	2,221.13
Baird, Lucy H., fund, for creating a memorial to Secretary Baird	24,679.35	1,057.41
Barstow, Frederick D., fund, for purchase of animals for Zoological Park	1,024.77	44.31
Canfield collection fund, for increase and care of the Canfield collection of minerals	39,204.24	1,695.61
Casey, Thomas L., fund, for maintenance of the Casey collection and promotion of researches relating to Coleoptera	10,401.67	406.62
Chamberlain, Francis Lea, fund, for increase and promotion of Isaac Lea collection of gems and mollusks	28,865.24	1,248.46
Eickemeyer, Florence Brevoort, fund, for preservation and exhibition of the photographic collection of Rudolph Eickemeyer, Jr.	10,996.44	230.03
Hillyer, Virgil, fund, for increase and care of Virgil Hillyer collection of lighting objects	6,736.68	291.34
Hitchcock, Dr. Albert S., library fund, for care of Hitchcock Agrostological Library	1,617.40	69.93
Hodgkins fund, 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, fund, to further researches in physical anthropology and publication in connection therewith	18,351.21	815.31
Hughes, Bruce, fund, to found Hughes alcove	19,620.33	848.57
Long, Annette and Edith C., fund, for upkeep and preservation of Long collection of embroideries, laces, and textiles	556.57	24.04
Maxwell, Mary E., fund, for care and exhibition of Maxwell collection	20,105.37	437.04
Myer, Catherine Walden, fund, for purchases of first-class works of art for the use and benefit of the National Collection of Fine Arts	19,430.11	840.35
Strong, Julia D., bequest fund, for benefit of the National Collection of Fine Arts	10,248.68	443.24
Pell, Cornelia Livingston, fund, for maintenance of Alfred Duane Pell Collection	7,597.97	328.62
Poore, Lucy T. and George W., fund, for general use of the Institution when principal amounts to \$250,000	126,446.10	5,573.40
Rathbun, Richard, memorial fund, for use of division of U. S. National Museum containing Crustacea	10,902.13	471.52
Reid, Addison T., fund, for founding chair in biology, in memory of Asher Tunis	30,416.71	1,530.14
Roebbling Collection fund, for care, improvement, and increase of Roebbling collection of minerals	123,708.61	5,350.58
Rollins, Miriam and William, fund, for investigations in physics and chemistry	96,247.31	4,160.11
Smithsonian employees' retirement fund	32,936.77	1,501.70
Springer, Frank, fund, for care and increase of Springer collection and library	18,381.62	795.00
Walcott, Charles D. and Mary Vaux, research fund, for development of geological and paleontological studies and publishing results thereof	384,948.48	13,403.72
Younger, Helen Walcott, fund, held in trust	46,610.54	1,382.45
Zerbe, Frances Brincklé, fund, for endowment of aquaria	972.27	42.03
Total	1,386,989.46	57,464.49

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 the construction of a building to house the collection, and finally in his will, probated November 6, 1919, he provided stock and securities to the estimated value of \$1,958,591.42, as an endowment fund for the operation of the Gallery.

The above fund of Mr. Freer was almost entirely represented by 20,465 shares of stock in Parke, Davis & Co. As this stock advanced in value, much of it was sold and the proceeds reinvested so that the fund now amounts to \$6,420,811.53 in selected securities.

SUMMARY OF ENDOWMENTS

Invested endowment for general purposes.....	\$1,717,006.59
Invested endowment for specific purposes other than Freer endowment.....	1,386,989.46
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Total invested endowment other than Freer endowment..	3,103,996.05
Freer invested endowment for specific purposes.....	6,420,811.53
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Total invested endowment for all purposes.....	9,524,807.58

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.....	\$747,993.56
Stocks.....	1,251,101.70
Real estate and first-mortgage notes.....	59,938.40
Uninvested capital.....	44,962.39
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Total investments other than Freer endowment.....	2,103,996.05
Investment of Freer endowment (cost or market value at date acquired):	
Bonds.....	\$3,539,132.19
Stocks.....	2,853,927.77
Uninvested capital.....	27,751.57
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Total investments.....	6,420,811.53
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Total investments.....	9,524,807.58

CASH BALANCES, RECEIPTS, AND DISBURSEMENTS DURING FISCAL YEAR 1950¹

Cash balance on hand June 30, 1949.....	\$530,330.73
Receipts, other than Freer endowment:	
Income from investments.....	\$156,125.11
Gifts and contributions.....	77,703.66
Sales of publications.....	34,488.82
Miscellaneous.....	31,538.15
Proceeds from real-estate holdings.....	2,038.67
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Total receipts other than Freer endowment.....	301,894.41

¹ This statement does not include Government appropriations under the administrative charge of the Institution.

Receipts from Freer endowment:

Income from investments.....	\$296, 293. 08	
Total receipts from Freer endowment.....		\$296, 293. 08
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Total.....		1, 128, 518. 22
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Disbursements other than Freer endowment:

Administration.....	\$49, 172. 30	
Publications.....	40, 605. 33	
Library.....	4, 272. 10	
Custodian fees and similar incidentals.....	3, 372. 70	
Miscellaneous.....	442. 43	
Researches.....	182, 364. 45	
S. I. Retirement System.....	3, 728. 28	
U. S. Govt. and other contracts (net).....	9, 618. 65	
Purchase and sale securities (net).....	50, 540. 69	
Payroll withholdings and refunds of advances (net).....	3, 729. 13	
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Total disbursements other than Freer endowment.....		347, 846. 06

Disbursements from Freer endowment:

Salaries.....	\$83, 214. 19	
Purchases for collections.....	155, 900. 00	
Custodian fees and similar incidentals.....	12, 578. 48	
Miscellaneous.....	43, 540. 86	
Purchase and sale of securities (net).....	5, 690. 11	
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Total disbursements from Freer endowment.....	300, 923. 64
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Investment of current funds in U. S. Bonds.....	100, 098. 39
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Total disbursements.....	748, 868. 09
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Cash balance June 30, 1950.....	379, 650. 13
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Total.....	1, 128, 518. 22
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ASSETS

Cash:

United States Treasury current account.....	\$266, 007. 26
In banks and on hand.....	113, 642. 87
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379, 650. 13

Less uninvested endowment funds.....	72, 713. 96
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\$306, 936. 17

Travel and other advances.....	24, 910. 28
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Cash invested (U. S. Treasury Notes).....	602, 953. 13
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\$934, 799. 58

Investments—at book value:

Endowment funds:

Freer Gallery of Art:

Stocks and bonds.....	\$6, 393, 059. 96
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Uninvested capital.....	27, 751. 57
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6, 420, 811. 53

Investments—at book value—Continued

Investments at book value

other than Freer:

Stocks and bonds.....	\$1,999,095.26	
Real estate and mortgage notes.....	59,938.40	
Uninvested capital.....	44,962.39	
Special deposit in U. S. Treasury at 6% interest.	1,000,000.00	
	<u>3,103,996.05</u>	\$9,524,807.58
		<u>10,459,607.16</u>

UNEXPENDED FUNDS AND ENDOWMENTS

Unexpended funds:

Income from Freer Gallery of Art endowment.....		\$402,032.72
Income from other endowments:		
Restricted.....	\$186,777.56	
General.....	94,331.88	
	<u>281,109.44</u>	
Gifts and grants.....		251,657.42
		<u>934,799.58</u>

Endowment funds:

Freer Gallery of Art.....	\$6,420,811.53	
Other:		
Restricted.....	\$1,386,989.46	
General.....	1,717,006.59	
	<u>3,103,996.05</u>	9,524,807.58
		<u>10,459,607.16</u>

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 \$696.21.

In many instances, 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 foregoing report relates only to the private funds of the Institution.

The Institution gratefully acknowledges gifts from the following:

- E. J. Brown, for purchase of bird specimens.
- Laura Welsh Casey, addition to capital of Thomas Lincoln Casey Fund.
- Florence Brevoort Eickemeyer Estate, for preservation and care of Rudolph Eickemeyer photographic collection.
- E. R. Fenimore Johnson, for researches in underwater photography.
- Mary E. Maxwell Estate, income for use in preservation of Maxwell Collection.
- National Academy of Sciences, for services in connection with a special mission.
- National Geographic Society, for balance of expenses of expedition to Arnhem Land.
- Alberto A. Eno, for establishment of Southwest Archeological Fund.

The following appropriations were made by Congress for the Government bureaus under the administrative charge of the Smithsonian Institution for the fiscal year 1950:

Salaries and expenses.....	\$2, 346, 000. 00
National Zoological Park.....	544, 700. 00

In addition, funds were transferred from other Departments of the Government for expenditure under direction of the Smithsonian Institution as follows:

International Information and Educational Activities (transferred to the Smithsonian Institution from the State Department)...	\$82, 510. 00
Working Fund, transferred from the National Park Service, Interior Department, for archeological and paleontological investigations in River Basins throughout the United States...	215, 886. 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.

The report of the audit of the Smithsonian private funds follows:

WASHINGTON, D. C., *September 18, 1950.*

TO THE BOARDS OF REGENTS,
SMITHSONIAN INSTITUTION,
Washington 25, D. C.

We have examined the accounts 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, 1950. 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, 1950 (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.

ROBERT V. FLEMING
VANNEVAR BUSH
CLARENCE CANNON
Executive Committee.



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