REPORT OF THE SECRETARY OF THE SMITHSONIAN INSTITUTION

AND

FINANCIAL REPORT OF THE EXECUTIVE COMMITTEE OF THE BOARD OF REGENTS

1947

SMITHSONIAN INSTITUTION
WASHINGTON, D. C.

REPORT OF THE SECRETARY OF THE SMITHSONIAN INSTITUTION

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FINANCIAL REPORT OF THE EXECUTIVE COMMITTEE OF THE BOARD OF REGENTS

FOR THE

YEAR ENDED JUNE 30

1947

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June 30, 1947

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

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REPORT OF THE SECRETARY OF THE SMITHSONIAN INSTITUTION

ALEXANDER WETMORE

FOR THE YEAR ENDED JUNE 30, 1947

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 bureaus during the fiscal year ended June 30, 1947. Appendixes 1 to 12 give detailed reports of the operations of the National Museum, the National Gallery of Art, the National Collection of Fine Arts, the Freer Gallery of Art, the Bureau of American Ethnology, the International Exchanges, the National Zoological Park, the Astrophysical Observatory, the National Air Museum, the Canal Zone Biological Area, the Smithsonian library, and of the publications issued under the direction of the Institution. On page 162 is the financial report of the executive committee of the Board of Regents.

The purpose of the Institution, as stated in the will of its founder, is "the increase and diffusion of knowledge among men." The increase of knowledge is accomplished by means of scientific research and exploration, the diffusion of knowledge by its several series of publications, its International Exchange Service, its museum and art gallery exhibits, and various other means. As the Institution operates chiefly through the bureaus that have grown up around it as a result of its early work, the year's research and exploration will be found recorded in the reports of those bureaus, particularly the National Museum, the Bureau of American Ethnology, and the Astrophysical Observatory. A complete account of the year's publications appears in the report of the chief of the editorial division, appendix 12.

The fiscal year here reported upon is the first in the Institution's second century of existence. At the beginning of a new era, it is gratifying to report that a large part of the normal research and field work that had to be suspended during the war is now being resumed and, in certain lines, expanded. This is the first annual account in which appear reports on the newly established National Air Museum and on the Canal Zone Biological Area, recently placed under the Institution's administration. The number of visitors to the National Museum, the Freer Gallery of Art, and the National Zoological Park

is back to prewar levels, as is the number of accessions to the Museum collections. The International Exchange Service has made large inroads into the great accumulation of material for foreign exchange that built up during the war years, and the service will soon be again on a wholly current basis.

The two greatest needs of the Institution as stated in my last report are for more personnel and more building space. New buildings must, of course, await more propitious economic conditions, but plans are already outlined and the future outlook is hopeful. Strong presentations of the personnel shortage, particularly in scientific positions, are being made to the Bureau of the Budget and to Congress, with promise of relief in this direction also.

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

During the year the following changes occurred in the personnel of the Board of Regents:

January 17, 1947: Chief Justice Vinson was elected Chancellor of the Institution.

January 27, 1947: Representative John M. Vorys, of Ohio, was appointed to finish the unexpired term of Representative B. Carroll Reece.

January 27, 1947: Representative Samuel K. McConnell, Jr., of Pennsylvania, was appointed to finish the unexpired term of Representative E. E. Cox.

The roll of regents at the close of the fiscal year June 30, 1947, was as follows:

Chief Justice Fred M. Vinson, Chancellor; members from the Senate, Alben W. Barkley, Wallace H. White, Jr., Walter F. George; members from the House of Representatives, Clarence Cannon, John M. Vorys, Samuel K. McConnell, Jr.; citizen members, Frederic A. Delano, Washington, D. C., Harvey N. Davis, New Jersey, Arthur H. Comp-

ton, Missouri, Vannevar Bush, Washington, D. C., and Frederic C. Walcott, Connecticut.

Proceedings.—The Board of Regents held its annual meeting on January 17, 1947, with the following members present: Senator Walter F. George, Representative Clarence Cannon, Dr. Vannevar Bush, Dr. Arthur H. Compton, Dr. Harvey N. Davis, Frederic A. Delano, the Secretary, Dr. Alexander Wetmore, and the Assistant Secretary, John E. Graf.

The Secretary presented his annual report covering the activities of the parent institution and of its several branches, including the financial report of the Executive Committee, for the fiscal year ended June 30, 1946, which was accepted by the Board. The usual resolution authorizing the expenditure by the Secretary of the income of the Institution for the fiscal year ending June 30, 1948, was adopted by the Board.

The gift of Miss Annie-May Hegeman was mentioned last year as amounting in total to $300,000, being one-half the amount from the sale of the Porter property at the corner of Sixteenth and Eye Streets NW. The Library Trust Fund Board of the Library of Congress, which handled this matter, during the year forwarded a check for $275,000 on this account, approximately $25,000 being held temporarily, pending settlement of claim for sales commission on the part of real-estate brokers.

John A. Roebling made a generous gift to the Institution in further support of the work of the Astrophysical Observatory.

On August 12, 1946, President Truman signed the act (Public Law 722) establishing the National Air Museum under the Smithsonian Institution. Under this act there is set up an advisory board composed of the Commanding General of the Army Air Forces, the Chief of Naval Operations, the Secretary of the Smithsonian Institution, and two citizens appointed by the President. General Spaatz, Chief of the Army Air Forces, has designated Maj. Gen. Edward M. Powers to represent him; Admiral Nimitz, Chief of Naval Operations, designated Rear Adm. H. B. Sallada; and the President, early in December, appointed Grover Loening and William B. Stout, both well known for their work in aviation, as the citizen members of the board. Subsequently, Admiral Nimitz assigned Rear Adm. Sallada to other duties and designated Rear Adm. A. M. Pride to represent him on the board.

The first meeting of the Advisory Board was held December 16, 1946, at which the Secretary of the Smithsonian Institution was elected Chairman. Discussions covered the scope, probable size, and location of the Museum. It was the opinion that these could be determined only after a complete survey of material of value for the Museum. The Chairman was instructed to prepare estimates for the $50,000

authorized by the act for a survey, this to cover the latter part of the fiscal year 1947, and the year 1948, and to include travel funds and necessary assistance. In view of the great growth in aviation the new agency is one of major importance for preservation of historical material in aeronautics, both for public display and for study and examination by engineers and students of aerodynamics.

Under Reorganization Plan No. 3 of 1946, which became effective July 16, 1946, the President placed under the direction of the Smithsonian Institution the biological laboratory known as the Canal Zone Biological Area located in the Canal Zone, Panamá. When Gatun Lake was formed during construction of the Panama Canal, the impounded waters flowed around hills that stood in the valley, changing certain of them to islands. One of these, which became known as Barro Colorado Island, was notable for its fine stand of primitive tropical forest, and for the animal life confined on it by the waters of the lake. On April 17, 1923, Gov. Jay J. Morrow of the Canal Zone set aside Barro Colorado Island as a reserve, and on it there was established a field laboratory at which investigators might live and work on scientific problems concerned with a tropical jungle. This laboratory has been supported by small contributions from various agencies, including Harvard College, the University of Michigan, the Smithsonian Institution, and various others.

So much valuable scientific work came from this laboratory that the Congress set it aside permanently as a reserve under the name Canal Zone Biological Area, in an act effective July 2, 1940, as an independent agency under a Board of Directors composed of the Secretaries of War, Agriculture, Interior, and the Smithsonian Institution, the President of the National Academy of Sciences, and three distinguished biologists appointed by the President of the National Academy as Chairman of the Board. In the process of unification of governmental agencies, the Canal Zone Biological Area has now become a part of the Smithsonian, where it will be administered under the office of the Secretary. The reorganization plan abolished the former Board as the controlling body, but it has seemed desirable to continue this as an advisory board composed of representatives of the departments originally concerned, to secure desired support and cooperation for the activity.

Barro Colorado Island has been the site of a wide variety of studies and tests under tropical conditions. Those under way at the present time include an extensive set-up for testing termite-proofing of wood samples, tropical deterioration of plywoods, textiles, and packaging containers, and the effect of fungi on optical glass. Biologists come regularly to the island to make studies of the fauna and flora. Some 400 publications have been issued on research carried on here in the

fields of entomology, forestry, and medicine, with special reference to the control of termites, fruit flies, and mosquitoes.

The annual report of the Smithsonian Art Commission was presented by the Secretary and accepted by the Board. The Commission, at its meeting on December 6, 1946, accepted several works of art, including 23 miniatures. A resolution was adopted to reelect the following members for 4-year terms: John Taylor Arms, Gifford Beal, and Gilmore D. Clarke. Vacancies on the commission were caused by the resignations of Louis Ayres and Frank J. Mather. The names of William T. Aldrich and Lloyd Goodrich, recommended by the Commission, were approved to fill the above vacancies. The following officers were reelected for the ensuing year: Chairman, Paul Manship; Secretary, Alexander Wetmore.

The bill that was introduced in the House of Representatives (H. R. 2015 and H. Res. 139, 78th Cong., 2d sess.) for the relief of the estate of John Gellatly and/or Charleyne Whiteley Gellatly, his widow, was referred by the House, mentioned above as House Resolution 139, to the Court of Claims to ascertain the facts and make recommendations. The Court of Claims in an opinion dated May 5, 1947, stated that "there is no basis in law or in equity to set aside the gift or transfer and no basis in law or equity to allow a recovery in behalf of the Gellatly estate."

The Secretary brought to the attention of the Board the proposition to request the Civil Service Commission to extend the provisions of the Federal Classification Act to Smithsonian employees paid from trust funds. This proposal was approved by the Board under certain conditions.

APPROPRIATIONS

Funds appropriated to the Institution for the fiscal year ended June 30, 1947, totaled $1,632,912, allotted as follows:

General administration	$88,366
National Museum	530,068
Bureau of American Ethnology	76,366
Astrophysical Observatory	67,596
National Collection of Fine Arts	24,264
International Exchange Service	55,632
Maintenance and operation	632,377
Service divisions	154,749
Unobligated	3,494
Total	1,632,912

In addition, $883,920 was appropriated to the National Gallery of Art, a bureau of the Institution but administered by a separate board of trustees; and $432,500 was provided in the District of Columbia appropriation bill 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, 1947, a total of $139,589 for the following purposes: Operation of the Institute of Social Anthropology, including the issuance of publications resulting from its work; publication of a Spanish edition of Compendium and Description of the West Indies, by Antonio Vázquez de Espinosa; and assistance in the publication of the Handbook of South American Indians.

From the Navy Department, $12,920 for scientific work in the Bikini area in connection with Operation Crossroads.

From the National Park Service, Interior Department, $91,500 for archeological projects in connection with River Basin Surveys. Of this total, $64,500 was originally transferred to the Park Service by the Bureau of Reclamation, and $37,000 by the Corps of Engineers, U. S. Army.

SMITHSONIAN CENTENNIAL

In my last annual report I reviewed rather fully the features that marked the Institution's one-hundredth anniversary on August 10, 1946. These included a commemorative Smithsonian postage stamp; an illustrated publication entitled "The First Hundred Years of the Smithsonian Institution"; a convocation and reception at the Institution on October 23, 1946, to mark the occasion in a more formal manner; a public statement released to the press by President Harry S. Truman, who is ex-officio Presiding Officer of the Institution; and a Smithsonian Centennial issue of the journals, Science and The Scientific Monthly. In addition, many leading magazines and newspapers carried full accounts of the Institution's history and achievements, and this type of public notice of the Centennial continued well into the fiscal year 1947.

It has been particularly gratifying to the officials of the Institution to receive on the occasion of the Centennial so many letters of congratulation from distinguished scientists and educators in this country and abroad. It is satisfying to feel that there is a general recognition of the Institution's earnest efforts to carry out its founder's stipulation for "the increase and diffusion of knowledge among men," and such recognition tends to stimulate greater zeal in furthering James Smithson's purpose.

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 162.

TRUST FUNDS' EMPLOYEES INCLUDED UNDER FEDERAL RETIREMENT SYSTEM

For many years employees of the Institution have been divided into two categories: The first, and by far the larger group, consists of civil-service employees paid from Federal appropriations; the second, now numbering some 35 employees, consists of employees paid wholly or in part from Smithsonian trust funds. The first group, of course, has been covered by the Federal Retirement System; the second group had up to 1939 no provision whatever for retirement. On July 1, 1939, the Smithsonian Retirement System was put into effect to provide retirement benefits for those employees paid from trust funds, but the number of members was so small that the system was unable to offer anything like as liberal benefits as the Federal System as amended in 1942.

During the fiscal year 1947, the Civil Service Commission took under advisement the inclusion of trust funds' employees under the Federal System, and pending a decision, the Board of Regents of the Institution at its annual meeting on January 17, 1947, passed the following resolution:

Resolved, That the Board of Regents of the Smithsonian Institution do hereby consent to the officers and members of the Smithsonian Institution paid from trust funds accepting the benefits and privileges of the Federal Retirement System, as well as assuming the obligations and duties legally applicable to them under that system as presently constituted; *Provided further*,

That the Board of Regents of the Smithsonian Institution does not consent to the application of the Federal civil-service laws, nor the Federal Classification Act of 1923, as amended, to such officers and members paid from trust funds, nor to the application of any other laws which would in any way contravene the act of Establishment of the Smithsonian Institution approved on August 10, 1846, with amendments thereto.

Resolved, That the Regents of the Smithsonian Institution, if and when officers and members of the Smithsonian Institution paid from trust funds are placed under the Federal Retirement System, approve in principle the use of the funds now held in the Smithsonian Retirement Fund for the benefit of the employees in question, to secure for said employees the maximum protection under the Federal Retirement Act to which their length of service in the Smithsonian Institution, respectively, entitles them; and that the Secretary be authorized to work out the necessary plans to carry this into effect, with the approval of the executive committee, to which is given full power to act in this matter.

A decision was reached by the Commission on May 16, and on May 22 I sent the following memorandum to the members of the Smithsonian Retirement System:

The Civil Service Commission has decided under date of May 16, 1947, that Smithsonian employees paid from trust funds of the Institution are eligible for inclusion under the Federal Retirement System. In accordance with the approval of the Board of Regents, the Smithsonian Retirement System is therefore abolished, effective at the close of business May 17, 1947, except insofar as it

affects payments to members in annuity status on that date, which payments will be continued by the Institution as provided by the Smithsonian Retirement System.

Beginning May 18, 1947, retirement deductions from the pay of the Smithsonian employees in question will be made at the rate of 5 percent (the rate of the Federal Retirement System) instead of 3.5 percent (the rate of the former Smithsonian Retirement System).

Adjustment for back time on behalf of the individual members of the Smithsonian Retirement System will be determined with the approval of the executive committee, as provided by resolution adopted by the Board of Regents on January 17, 1947.

On June 30, the last day of the fiscal year 1947, I submitted to the executive committee of the Board of Regents a detailed recommendation regarding the conversion to the Federal Retirement System, so that final action on adjustment for previous service will be deferred until the next fiscal year. However, all employees of the Institution are now on the same footing as to retirement benefits, thus remedying a situation of long standing.

VISITORS

An increase of 237,784 visitors to the Smithsonian buildings was recorded over the previous year, the totals being 2,353,377 for 1947 and 2,115,593 for 1946. August 1946 was the month of largest attendance, with 318,325 visitors; April 1947, the second largest with 298,724. A summary of attendance records is given in table 1:

TABLE 1.—*Visitors to the Smithsonian buildings during the year ended June 30, 1947*

	Smithsonian Bldg.	Arts and Industries Bldg.	Natural History Bldg.	Aircraft Bldg.	Freer Gallery of Art	Total
1946						
July	51,955	118,106	64,553	21,964	10,504	267,082
August	62,254	137,857	81,674	24,005	12,535	318,325
September	45,152	93,356	55,256	18,525	9,339	221,628
October	32,052	63,843	49,016	13,428	8,939	167,278
November	28,538	58,667	42,804	13,054	7,961	151,024
December	20,292	34,640	28,335	8,331	5,865	97,463
1947						
January	18,492	34,019	34,553	8,919	4,121	100,104
February	16,285	33,240	28,329	7,876	4,053	89,783
March	20,037	47,114	37,797	11,336	7,003	123,287
April	55,236	127,665	76,488	23,541	15,794	298,724
May	42,372	111,480	68,480	19,318	11,625	253,275
June	47,292	116,179	70,632	21,803	9,498	265,404
Total	439,957	976,166	[1] 637,917	192,100	107,237	2,353,377

[1] Not including 13,943 persons attending meetings after 4:30 p. m.

PHOTOGRAPHIC LABORATORY

In connection with the research and exploration of the Institution, there is involved a large amount of photographic work which is handled for the Institution and its branches by the Photographic Labora-

tory, located in the Arts and Industries Building of the National Museum. To show the quantity of work produced I will give a few statistics: Negatives made, 2,449; prints, 14,521; enlargements, 2,082; lantern slides, 264; cloth mounts, 174; also a smaller number of other types of work involving photographic processes.

In addition to the routine operations of the laboratory, the staff spent considerable time in assisting scientists of the Institution in obtaining photographic illustrations for their publications, as well as in aiding representatives of other governmental agencies and private individuals in their search for needed photographs.

The photographer in charge served as the Institution's representative on the photograph supplies committee, Federal Specifications Board. He attended monthly board meetings and conducted special investigations for various subcommittees of the Board. While representing the Institution at the annual convention of the Photographers' Association of America in Chicago, the photographer in charge visited the Chicago Natural History Museum in the search for improved methods of photographing art objects, silverware, and glassware.

The greatest needs of the laboratory are a complete catalog of file prints, so that the large and valuable collection of negatives would be more readily accessible to the Institution's staff as well as to the general public; certain items of modern photographic equipment; and the fitting up of a room to be devoted to color photography.

BUILDINGS AND EQUIPMENT

Repairs and alterations.—Among important projects in connection with the several buildings, the following were completed during the year:

Smithsonian Building: The metal finials on top of the northeast and southeast towers were removed and new copper finials were installed; removal of the wooden louvres on four sides of the flag tower (begun in 1946) was completed and new copper louvres were installed in their place; the rooms formerly occupied by the property clerk were dismantled and converted into additional space for the accounting office.

Arts and Industries Building: Provision was made for office rooms for the National Air Museum by partitioning off room 30, formerly occupied by the division of engineering; major alterations and repairs were made in the southwest and west south ranges to provide exhibit areas for the section of manufactures and the section of aeronautics (now the National Air Museum); a photographic dark room was constructed in the section of photography; the coin hall ceiling and walls were repaired and repainted and all exhibit cases were revarnished.

Natural History Building: All alcoves in the foyer, where all special exhibitions are held, were re-covered with monks cloth and all exposed woodwork repainted; to provide storage and working space for the coral collection, a section of the second floor at the northwest corner was remodeled, including changing partition walls, erection of a gallery, and painting of walls, ceiling, and storage cases.

Freer Gallery of Art: The photographic studio and dark room were constructed by remodeling a section of one of the existing storage rooms.

Heat, light, and power.—Electric current used during the year amounted to 1,664,710 kilowatt-hours. This figure represents an increase of 120,571 kilowatt-hours over 1946 despite the "brown-out" during the period November 23 to December 9, 1946, for the purpose of conserving coal during the miners' strike. However, this increase is not considered excessive because additional fixtures were added and other improvements were made during the year.

Steam consumption was held to the absolute minimum requirements during the year, and despite the fact that heating temperatures were reduced 5° twice each day during the period November 23 to December 9, 1946, steam consumption increased 1,502,900 pounds over 1946. This increase was due to lower outside temperatures during the heating season. Total steam consumption for the fiscal year was 54,902,700 pounds.

Ice production.—The Smithsonian ice plant produced 186.7 tons of ice at a cost of $1.16 per ton, exclusive of labor. The plant was closed down 10 days during May 1947 for overhauling.

Fire protection.—The fire hose, couplings, nozzles, and hose racks purchased during fiscal year 1946 were received and installed in the Smithsonian Building. Plans have been made to install a central control station for valving the standpipe lines in this building during the fiscal year 1948. Inspections of apparatus were made each month, and all soda and acid extinguishers were discharged and recharged.

Respectfully submitted.

A. 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 operation of the United States National Museum for the fiscal year ended June 30, 1947.

COLLECTIONS

Nearly 757,000 specimens, about twice as many as last year, came to the Museum's collections during the year, these being divided among the various departments as follows: Anthropology, 9,445; biology, 533,098; geology, 205,549; engineering and industries, 5,239; history, 3,539. 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 19,561,872.

Anthropology.—Archeological material came from many parts of the world, especially noteworthy being about a hundred items from Adak Island in the Aleutians; nearly 1,600 specimens from Montgomery County, Md.; a tripod bowl from a ruin near Oaxaca, Mexico; 2 earthenware bowls from the Taino site of La Caleto, Province of Trujillo, Dominican Republic; 2 Roman or Franko vessels from Speicher, Germany; and 14 stone implements and fragments from Larimer County, Colo.

In ethnology, the year's accessions included collections from the North American tribes of Alaska and the Aleutians, Eastern Woodlands, Great Plains, and the Southwest; the Indian tribes of México, Panamá, Venezuela, Colombia, Bolivia, and Brazil; the Oceanian peoples of Hawaii and New Guinea; the aboriginal tribes of Australia; the Indonesians of Java, Sumatra, and Bali; the Asiatic peoples of India and Mongolia; and the African tribes of the Belgian Congo and neighboring parts of West Africa. A collection of major importance was received as a result of the bequest of the late Princess Abigail W. Kawananakoa of Honolulu, comprising a well-documented group of masterpieces of Hawaiian handicrafts which were heirlooms of the Hawaiian royal family. A valuable collection of American historical Staffordshire china was received from an anonymous donor.

The most unusual accession in physical anthropology consisted of unpublished anthropometric and other data collected by German anthropologists in Poland during World War II, together with some of their anthropological measuring instruments. The data had been assembled for the Institut für Deutsche Ostarbeit and were transferred to the National Museum as a permanent loan by the War Department. The material includes information on 356 Ukrainians, 1,466 Poles, and 162 Huzuls, with full measurements, photographs, and personal, medical, and family histories of each subject.

Biology.—The most important mammalian accession was a series of about 600 glass slides of sectioned hairs, collected and presented by Dr. Ned Dearborn, expert on fur-bearing animals, who has made a special study of mammalian hair. The W. L. Abbott fund made possible three noteworthy avian accessions: 1,758 skins and skeletons of birds from Colombia, collected by M. A. Carriker, Jr.; 453 bird skins and 7 skeletons of Panama birds, collected by Dr. A. Wetmore and W. M. Perrygo; and 556 birds from India, collected by Sálim Ali Also from India came 1,500 bird skins resulting from the Smithsonian Institution-Yale University Expedition, containing many forms new to the Museum. Foremost among the year's herpetological acquisitions were 25 rare Brazilian frogs, 112 reptiles from Bikini, and 5 series of reptiles and amphibians from Colombia, Bolivia, Haiti, and Guatemala.

Two large and outstanding collections of fishes were received as a result of the Smithsonian's participation in two federally sponsored projects—about 38,700 fishes (representing over 300 species) taken during Operation Crossroads at Bikini and in the northern Marshall Islands by Dr. Leonard P. Schultz and Capt. Earl S. Herald, and 28,000 Guatemalan fishes obtained by Associate Curator Robert R. Miller in continuation of the survey of the fishery resources of Guatemala begun last year under the auspices of the Guatemalan Government, the United States Fish and Wildlife Service, and the Smithsonian Institution. The Pacific material, because of its extent, will make it possible for the first time to make a study of anatomical variations among the various island fish populations, while the Guatemalan material is one of the best collections of fresh-water fishes ever made in Central America. In addition, smaller but important lots of fishes came from Argentina, Baja California, Cuba, and the Tropical Pacific.

About 12,000 insects, in three accessions, came to the Museum as a direct result of the war: 1,500 from the Philippines and New Guinea, collected by Carl O. Mohr; 4,500 from the Philippines, collected by Dr. Frank M. Young; and 6,000 mosquitoes, resulting from the investigations in the South Pacific by the Naval Medical Research Unit No. 2. Another large insect accession was the gift of the H. G. Bar-

ber collection of Hemiptera, amounting to 35,000 specimens and including some types and paratypes. Other important entomological material included over 2,500 insects from Colombia, collected by Curator E. A. Chapin in 1946; about 2,000 insects collected by Dr. J. P. E. Morrison as a part of Operation Crossroads biological investigations; nearly 400 aquatic insects collected in Guatemala by Dr. Robert R. Miller; about 16,000 specimens of Mexican and Canal Zone insects collected by N. L. H. Krauss; and 65,000 specimens transferred from the United States Department of Agriculture.

A great variety of marine invertebrates was received but the largest accession in this division was the gift of the Horton H. Hobbs private collection of crayfishes. Comprising about 11,000 specimens, it is by far the most important series of these crustaceans ever collected from the southeastern United States. The Operation Crossroads investigations yielded over 8,000 miscellaneous marine invertebrates from the Marshall Islands. A desirable personal collection of nearly 3,000 worms and crustaceans from various localities came as a gift from the collector, Leslie Hubricht. The type collection of Foraminifera was increased by 706 slides, bringing the total in this collection to 10,640 slides. In the division of mollusks the largest and most important of the year's accessions comprised about 200,000 specimens collected by Associate Curator Morrison in the biological reconnaissance of the Marshall Islands in connection with Operation Crossroads. The Naval Medical Research Unit No. 2 turned over to the Museum 25,000 specimens, mainly of land and fresh-water mollusks, from China, the Philippines, and the Marianas. Dr. A. R. Loeblich, Jr., now a member of the staff of the department of geology, donated 1,200 marine shells from Okinawa.

Accessions in the division of plants (including diatoms) aggregated nearly 44,000 specimens, from many parts of the world. About 4,800 plants came as a result of Associate Curator Morton's botanical field work in St. Vincent, Lesser Antilles, a region heretofore but scantily represented in the National Herbarium. In transfers from the United States Department of Agriculture, the Museum received 5,500 grasses from Brazil, collected by Jason R. Swallen, and 1,500 specimens of bamboos, collected by Dr. F. A. McClure. Several other large lots came from South America, the West Indies, Japan and Formosa, the South Pacific, and several parts of North America.

Geology.—The department of geology received about 4½ times as many specimens as last year, this increase being due largely to a great influx of invertebrate fossils to the number of about 200,000.

Additions in mineralogy and petrology were somewhat fewer than usual, though gifts, exchanges, and purchases brought some fine new minerals, gems, and meteorites to the collections. Twenty-one meteor-

ites not previously represented in the Museum were received during the year. Forty-four mineral specimens were purchased through the Canfield fund.

Collecting trips by Dr. G. A. Cooper and Dr. A. R. Loeblich, Jr., yielded over 36,000 Paleozoic fossils for the invertebrate collections. Several gifts received were important in helping to fill the study series in invertebrate paleontology and paleobotany. Among these were 85 Mississippian ammonoids from Arkansas, numerous Lower Permian specimens from New Mexico, extensive collections of Middle Devonian invertebrates, excellent Eocene echinoids from Florida, 120 blocks of Cambrian and Ordovician limestone with choice silicified brachiopods from the Arbuckle Mountains, 275 Tertiary fossils from Florida, extensive sets of Paleozoic and Cretaceous inverterbrates, including many micro-organisms and bryozoans, 375 specimens of unusual Cambrian and Lower Ordovician fossils from Quebec, 4,000 Upper Devonian fossils from New Mexico, and 2,000 Paleozoic invertebrates from Virginia, and a similar collection from Georgia.

Resumption of field work following the war also brought increased material to the division of vertebrate paleontology. Outstanding was the discovery in one block in the Bridger Eocene beds of the skulls and portions of the skeletons of two unusually large rodents of the genus *Paramys*. Among other rarities in the season's finds were jaws and skeletal parts of the artiodactyl *Helohyus*, about five examples of the minute insectivore *Nyctitherium*, and remains of the marsupial *Peratherium*. Other additions to the Bridger collections made by Dr. C. L. Gazin were skulls of the large six-horned mammal *Uintatherium*, the titanothere *Palaeosyops*, and the rhinoceros *Hyrachyus*. Among the materials transferred from the United States Geological Survey was a nearly complete skull and jaws of a Triassic reptile, a phytosaur, from the Petrified Forest of Arizona.

Engineering and industries.—In the division of engineering an outstanding accession was the motor tricycle designed and built at Pittsburgh in 1897 by Louis S. Clarke, automobile pioneer, and claimed to be the first Autocar. Several ship models received enhanced the watercraft collection. Two accessions in the field of microscopy are of unusual interest: The curious ruling machine with which Charles Fasoldt, in the mid-nineteenth century, produced the ruled slides and gratings prized over all others by many well-known microscopists; and a group of microscopes and accessories collected by the late Dr. Richard Halsted Ward, first president or the American Microscopical Society, and his son, the late Dr. Henry Baldwin Ward, parasitologist.

A historically important accession in the division of crafts and industries was one of the two original rubber masticators developed by Thomas Hancock in England prior to 1830. The machine was in

continual use in rubber manufacture in England for more than 75 years. To the section of textiles there came many outstanding examples of new fabrics and fabric application and an exhibit showing the manufacture and uses of nylon. In wood technology 964 exotic woods were received as an exchange from the Forest Products Research Laboratory of Great Britain, most of them heretofore unrepresented in the section's collections. In addition, 182 wood specimens were received from the New York State College of Forestry and 561 photomicrographic prints of sections of Japanese woods from the War Department.

In the division of graphic arts the most notable accession of the year was a microengraving machine capable of engraving the Lord's Prayer 781,250 times within a square-inch area. This miraculous contrivance was constructed by the Rev. J. C. Crawford after the original machine invented by W. Peters in London in 1852. Outstanding pieces of motion-picture equipment received included a 60-mm. camera invented in 1893 by George Demeny of France and manufactured by the Gaumont Co. around 1896; a 16-mm. Bell & Howell gun-type camera adopted and used by the Navy to photograph the earth from a German V–2 rocket fired at the Army Ordnance Proving Grounds, White Sands, N. Mex., October 10, 1946; and a 1911 Pathé Frères 35-mm. hand-operated projector. Sixty glass negatives taken in the late nineteenth century by the photographer Robert Stead and 143 lantern slides taken by the photographer Titus B. Snoddy, Sr., came as gifts to the Museum. Five more etched copper plates were added to the Charles W. Dahlgreen group for printing under the Dahlgreen fund.

Several interesting and desirable additions were received for the division of medicine and public health, the most valuable one of the year being a series of specially prepared transparencies illustrating the subject of hospitalization. These were made and contributed by the American Hospital Association as a memorial to the late Dr. S. S. Goldwater (1873–1942). Historically important is a "Grosse Flamme" X-ray machine with tube and tube stand, one of the earliest American-made machines of its kind.

A number of desiderata found their way to the aeronautical collections, the most outstanding in point of historic importance being the collection of parts remaining of original gliders devised by John J. Montgomery between 1905 and 1911. From the standpoint of relationship to air warfare and particularly the devastating effect of bombing as practiced in World War II, the Norden bombsight used in directing the first atomic bomb dropped over Japan constitutes an important accession. A series of 82 interesting scale-model World War II airplanes were transferred from the Navy Department. Three other aircraft models received were of an XFL–1 Bell "Airabonita"

made by Leroy McCallum, an F–6–F Grumman "Hellcat" made in the Navy Department, and a rotary-winged craft named "Hiller-copter" made by Stanley Hiller, Jr.

History.—Several interesting additions made to the costumes collection include a waistcoat and knee breeches of mauve satin and a dark blue and white silk waistcoat worn by Simon Serre in Cette, France, as a page boy about the mid-eighteenth century; a child's dress and pair of shoes of about 1850; a black silk dress of about 1860, a trousseau of 1875; and a white satin dress worn in the White House by Mrs. John Quincy Adams during her husband's administration as President. Added to the military collections were early nineteenth-century chapeaux, epaulets, sash, coat, and trousers; a United States Marine Corps officer's sword of the early part of the present century; and two Chinese scrolls that had been presented to Gen. James H. Doolittle in commemoration of the American air raid on Tokyo in 1942. From the White House there was transferred a historic passenger elevator installed in 1902. The numismatic collection was increased by 30 specimens of 1946 United States bronze, nickel, and silver coins and by 400 pieces of German paper currency of the World War I period. About 3,000 stamps were added to the philatelic collection, about 1,300 more than last year. Of particular interest was a sheet of 50 3-cent Smithsonian Centennial commemoratives, formally presented to the Institution by the Post Office Department at a special ceremony on August 10, 1946.

EXPLORATION AND FIELD WORK

One of the most encouraging phases of the Museum's work during the year was an opportunity to resume field work, interrupted by the war.

Under a grant from Ernest N. May, it was possible for the curator of ethnology, Herbert W. Krieger, to renew investigations of fifteenth-century historic Indian village sites and some of the early Spanish settlements in the West Indies. This Caribbean program developed from an earlier Antillean project sponsored by the late Dr. W. L. Abbott which began in 1928 and was terminated in 1938. Dr. Abbott's interest was aroused by the earlier discoveries there by W. H. Gabb in 1869–71 of kitchen middens containing deposits of animal bones and aboriginal pottery fragments. While engaged in the development of the ensuing Smithsonian project for the excavation of these cave middens and of other former Indian village sites in the Greater Antilles and in the Bahamas, the need became apparent to the curator for a chronological culture-trait analysis and for a more complete orientation as to the location of historic Indian village sites, and also for a study of Spanish settlements associated with the early colonial

period of the area. The cooperation of scientists and the governments of the Bahama Islands, Haiti, Cuba, and the Dominican Republic was readily obtained in the carrying out of the details of the project. From January 16 to May 5, 1947, Mr. Krieger visited and made test excavations at Indian village sites referred to by Christopher Columbus in the journal of his first voyage of discovery. Mr. Krieger also examined the probable site of the first Spanish settlement, that of the sailors of the wrecked *Santa María* at La Navidad near the town of Cap Haïtien on the north coast of Haiti. He later revisited La Isabela, the first planned Spanish colony in the Western Hemisphere. The ruins of the stone buildings of the town are still visible although most of the stone walls of the large warehouse, church, fort, and other buildings have been removed to the city of Puerto Plata, where they have been used in the construction of modern buildings.

During the first 2 weeks of August 1946 Mr. Krieger attended, as a delegate of the Smithsonian Institution, the First International Conference of Archeologists of the Caribbean, which was convened under the auspices of the Government of the Republic of Honduras. The plenary sessions of the conference were held at the capital city of Tegucigalpa, but as the work progressed meetings were held most pleasantly under towering trees at the ruins of the eighth-century Maya city of Copan, on the stone seats of the south section of the Court of the Hieroglyphic Stairway. Ample facilities were provided by the Honduras Government for the attending delegates, 60 in number, representing 14 American Republics and 36 educational and scientific institutions. Visits were made by airplane to widely separated sites where the prolific remains of Maya and other aboriginal cultures are still visible in the form of pyramids, mounds, and ruins of abandoned Indian villages in the upland valleys of western Honduras.

The late Dr. Aleš Hrdlička, formerly curator of physical anthropology, had planned to visit Guatemala in December of 1943 to take measurements and observations on the Highland Maya, but he died in September of that year. Dr. T. Dale Stewart finally undertook this work during the first 3 months of 1947 under a grant from the Department of State and in cooperation with scientists from Guatemala and the Carnegie Institution of Washington. In addition to studying the living, Dr. Stewart examined also the available prehistoric skeletal remains, especially those recovered from the archeological sites known as San Agustín Acasaguastlán, Kaminaljuyú, and Zaculeu.

The main objective of Dr. Stewart's trip was to obtain information about the living Highland Maya which would enable him to make comparisons with the Lowland Maya of Yucatán. These two groups, although rather widely separated geographically and exhibiting dif-

ferences in material culture, nevertheless belong to the same linguistic stock. This linguistic stock, moreover, is remarkably homogeneous. Since language is fairly resistant to change (more so than material culture), considerable interest attaches to the question whether this linguistic homogeneity reflects a similar status in physical type.

Dr. Stewart undertook the collection of data that would supplement those already available and at the same time allow their fuller interpretation. Since in Guatemala the municipio, being endogamous, is the basic unit for ethnic study, he restricted his study to two municipios within the Cakchiquel linguistic subgroup. First at Sololá in the Department of Sololá, then later at Patzún in the Department of Chimaltenango, he secured comparable series of males—82 to 72, respectively—and at Patzún, a series of 35 females. Altogether this is the largest series from one highland linguistic group thus far studied. In addition to the routine anthropometric measurements, observations, and photographs, the records obtained this season include blood group (A, B; M, N), taste sensitivity to phenyl thiocarbamide, palm and finger prints, and hair samples. In view of the success of this first season, it is hoped that the experience thus gained can be utilized for the extension of these observations elsewhere. It is important, for example, to learn also to what extent in the highlands the barrier of language is an aid in the formation of physical types. Furthermore, if the records are made by one observer, they will be more uniform and less subject to multiple personal biases.

Upon his return from Guatemala Dr. Stewart was detailed to stop over in Mexico City in order to examine the recently recovered skeleton of Tepexpan man. This important skeleton, found in what is considered by paleontologists as a Pleistocene stratum, may represent one of the most complete skeletons dating from this early period in North America. Subsequent to his visit the entire skeleton has been brought to the United States National Museum by Señor Javier Romero, who is to work with Dr. Stewart in the restoration and reconstruction of the skeletal parts. At the close of the fiscal year some progress has been made in the restoration of the facial bones.

Dr. Waldo R. Wedel, associate curator of archeology, was on detail to the River Basin Surveys and in charge of the Missouri River Basin Survey from July 8 to October 18, 1946. He left Washington May 20, 1947, to resume this work. Joseph R. Caldwell, scientific aid, likewise was detailed to the River Basin Surveys from November 12, 1946, to April 1, 1947. (See appendix 5 for details.)

Members of the staff of the department of biology participated in several important expeditions and a number of smaller field trips, all of which returned valuable material to the collections. From other expeditions in which the Museum personnel did not take part but which were financed by the Smithsonian Institution or private con-

tributors, many additional specimens were received. Foremost among the expeditions was Operation Crossroads under the auspices of the United States Navy to the northern Marshall Islands and Bikini. Taking part in the biological investigations of this operation and representing the Smithsonian Institution were Drs. Leonard P. Schultz and J. P. E. Morrison, curator of fishes and associate curator of mollusks, respectively, and Capt. Earl S. Herald, whose detail the Navy requested from the Army to relieve Dr. Schultz. Dr. Schultz returned to Washington by plane on July 22, having left Washington on the preceding February 13. Captain Herald returned to Washington in mid-September. As ichthyologists, Dr. Schultz and Captain Herald were especially concerned with the relative abundance of fishes on the reefs and in the tidal zone before and after dropping the experimental atomic bombs. In connection with the investigation they preserved over 38,000 specimens for study and for the national collections. Dr. Morrison, who left Washington on February 20 and returned August 25, gave his attention to both the vertebrate and invertebrate animal life of the area, excepting the fish. He obtained specimens and data concerning the arboreal, terrestrial, and intertidal animal communities and populations. Particularly complete was the series of birds frequenting Bikini and the collections of mollusks of this and other of the Marshall Islands group. On June 28, 1947, 2 days before the close of the fiscal year, Drs. Schultz and Morrison accompanied by Frederick M. Bayer, assistant curator of marine invertebrates, started on a return trip to Bikini for a resurvey of the faunal elements of the area with which they were particularly concerned.

In continuation of the survey of the fishery resources of Guatemala begun last year under the joint auspices of the Guatemalan Government, the United States Fish and Wildlife Service, and the Smithsonian Institution, Dr. Robert R. Miller, associate curator of fishes, spent some 10 weeks, March 7 to May 17, in Guatemala. Extensive series of fish and associated animal life were obtained, the fish collected to form the basis of an account of the fishes of that country.

On March 15, 1947, C. V. Morton, associate curator of plants, left for a 12-week trip to St. Vincent, British West Indies, on a botanical survey of that island with funds generously provided by Ernest May, of Wilmington, Del. Although St. Vincent has an interesting flora, it has been relatively neglected by collectors. Owing to the mountainous terrain, there is still a great deal of untouched forested land which provided ideal conditions for plant collecting. Mr. Morton obtained 4,800 specimens on which he plans to base a checklist of the flowering plants and ferns of the island.

The W. L. Abbott fund financed three different field parties during the past year: M. A. Carriker, Jr., continuing field work in Colombia, working for half the year in areas complementary to those already

covered previously, obtaining 1,758 bird skins; Sálim Ali of Bombay collecting birds in Gujerat and other areas in India, supplementing the work of the Smithsonian-Yale University Expedition to India and obtaining 556 birds; and Dr. A. Wetmore and W. M. Perrygo making a rather short trip to the interior of Darién, Panamá, and returning with 453 bird skins, beautifully supplementing collections made last year by the same collectors in adjacent areas.

The Smithsonian Institution-Yale University Expedition to India under the direction of S. Dillon Ripley, assisted by E. C. Migdalski, spent 6 months in various parts of India and in Nepal and made a collection of approximately 1,500 birds, which added very significantly to the Museum's resources in the Asiatic field and will be of great scientific value as much of it comes from old classical type localities.

Foster D. Smith, of the Socony Oil Co., Caracas, Venezuela, returned to Venezuela early in the fiscal year and will again collect birds for the Museum as time and opportunity allow; no reports regarding his present efforts have yet been received.

Locally, in connection with a biological survey of the Patuxent Research Refuge maintained by the Fish and Wildlife Service, Emery C. Leonard, associate curator of plants, carried on field work on the lower cryptogams, spending 6 days on the project and collecting about 800 specimens. This work will be continued during the coming year, the collections to serve as a basis for a report on the cryptogamic flora of the refuge. During August 1946, Drs. Remington Kellogg and David C. Johnson, the curator and the associate curator, division of mammals, collected fossil cetacean material from the Miocene beds at Scientists' Cliffs, Calvert County, Md. Paul S. Conger, associate curator, section of diatoms, spent 2 months at the Chesapeake Biological Laboratory, Solomons, Md., continuing a survey of the Chesapeake Bay diatoms, certain experiments on the growth of single diatoms under natural conditions, and a study of diatoms as oyster food. In order to secure material for the rearing of Hemiptera for the purpose of tracing the development of structures useful in taxonomy and in the determination of phylogenetic relationships, W. E. Hoffmann, associate curator, division of insects, carried on considerable field work in and about the city of Washington.

The first field expedition of the year in the division of invertebrate paleontology and paleobotany was carried on by Curator G. A. Cooper, during the three summer months, in company with Dr. P. E. Cloud, Jr., of Harvard University. Several days at Batesville, Ark., yielded excellent Silurian and Mississippian fossils. After a short time at Muskogee, Okla., collecting Mississippian fossils, the party journeyed to Marathon, Tex., where some 10 days were spent in getting out blocks

for etching of Permian limestone from the Glass Mountains. Next, at Alamagordo and Silver City, N. Mex., Devonian fossils were obtained, and from here the party proceeded to Eureka, Nev., to join Dr. T. B. Nolan, of the United States Geological Survey, in mapping the Goodwin formation in Goodwin Canyon. The Devonian and Lower Ordovician beds of some of the ranges west of Eureka were visited and the field work ended at Salt Lake City.

Upon Dr. Cooper's return, Dr. A. R. Loeblich, Jr., was engaged for 6 weeks in collecting Ordovician fossils in southern Virginia and eastern Tennessee, in the region west of Nashville, and the Silurian and Devonian in the classic areas of the valleys of the Tennessee River in west Tennessee. On a short detail in August 1946 he spent several days conferring with Dr. William H. Shideler at Miami University, Oxford, Ohio, and a like period collecting Middle Ordovician and Lower Devonian fossils in the Arbuckle Mountains, Okla. In late April 1947, at the invitation of the Oklahoma Geological Survey, he was occupied for 2 weeks in that State on stratigraphic work examining and collecting from the Silurian and Lower Devonian of the Arbuckle Mountains.

In addition to the above field investigations, four short trips were made by Drs. Cooper and Loeblich into the nearby Appalachians, which resulted in good collections and blocks containing silicified fossils for etching. The localities visited included the fine Middle Ordovician exposures about 5 miles north of Harrisonburg, Va., the Lower Devonian exposures on United States Highway No. 40 about 2¼ miles west of Indian Springs, Md., the Middle Ordovician at Strasburg, Va., and the Silurian and Devonian at Keyser, W. Va., and Cumberland, Md.

The 1946 summer field expedition in vertebrate paleontology, starting in late May, continued well into the present year. The party, composed of Curator C. Lewis Gazin and F. L. Pearce, first reexamined the Paleocene and Cretaceous beds of central Utah and then devoted the greater part of the field season to prospecting and collecting fossil mammal remains from the Middle Eocene beds in the Bridger Basin of southwestern Wyoming. Collecting from the Bridger formation is part of a research program on the Middle Eocene faunas begun prior to the war. As a result of these expeditions, the National Museum is building up one of the best research collections of Middle Eocene mammals in the country and has succeeded in obtaining some striking exhibition material representing this very primitive stage of mammalian evolution. The party was successful in getting much good material of the smaller, less-well-known insectivores, primates, rodents, carnivores, and artiodactyls, as well as good skulls of such animals as *Hyrachyus*, *Palaeosyops*, and *Uintatherium*.

The last 2 weeks of the season were spent in going over Lower Eocene beds in the Wind River Basin of central Wyoming and in examining and making a collection from an isolated occurrence of Duchesne River, Upper Eocene, beds in the northern part of the Wind River Basin.

Associate Curator D. H. Dunkle, accompanied by F. L. Pearce, left for field work near Lamy, N. Mex., prior to the close of this fiscal year. There, assisted by G. F. Sternberg, they began quarry operations at a Triassic locality for an exhibition slab of ancient amphibian skulls and other skeletal parts belonging to the genus *Buettneria*. This has now been quarried out and is ready for shipment to the Museum. If the season permits, they expect to examine other localities and formations of still greater age for fossil fish and primitive tetrapods in the general region of east-central New Mexico, with the hope of building up a more representative collection of these forms for our study collection.

The 5-month sojourn in Japan of Curator W. F. Foshag and Associate Curator E. P. Henderson may well be considered a field trip, since, whenever time permitted, studies were made on mineralogical subjects, local universities were visited, and arrangements for exchange of material were concluded.

PUBLICATIONS

Fourteen publications were issued during the year: One Annual Report, three Bulletins, two Contributions from the National Herbarium, and eight Proceedings papers. A list of these is given in the complete report on Smithsonian publications, appendix 12.

The distribution of volumes and separates to libraries and other institutions and to individuals aggregated 34,952 copies.

MEETINGS AND SPECIAL EXHIBITS

The Smithsonian continued to make available the auditorium and lecture room of the Natural History Building to educational, scientific, welfare, and governmental organizations and groups for meetings and lectures. During the year 275 groups availed themselves of this opportunity. The foyer and adjacent space in the Natural History Building were in constant use during the year for a series of 15 special exhibits sponsored by various groups, including the Smithsonian Centennial exhibit, which ran from August 10 to September 27, 1946. In addition, 23 special exhibits were held by the division of graphic arts—12 of etchings, lithographs, and other prints by various artists, and 11 of photographs.

CHANGES IN ORGANIZATION

Through a reorganization in the department of engineering and industries, a new unit under the division of crafts and industries—the section of manufactures—was established effective September 16, 1946. The section of aeronautics was changed to a division on January 6, 1947, and at the same time the division of medicine and public health was made an independent division reporting to the head curator of the department.

Respectfully submitted.

ALEXANDER WETMORE, *Director.*

The SECRETARY,
Smithsonian Institution.

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APPENDIX 2

REPORT ON THE NATIONAL GALLERY OF ART

SIR: I have the honor to submit, on behalf of the Board of Trustees of the National Gallery of Art, the tenth annual report of the Board, covering its operations for the fiscal year ended June 30, 1947. 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 AND STAFF

During the fiscal year ended June 30, 1947, the Board consisted of the Chief Justice of the United States, the Secretary of State, the Secretary of the Treasury, the Secretary of the Smithsonian Institution, ex officio, and five general trustees, Samuel H. Kress, Ferdinand Lammot Belin, Duncan Phillips, Chester Dale, and Paul Mellon.

At its annual meeting held on May 6, 1947, the Board reelected Samuel H. Kress as President, and Ferdinand Lammot Belin as Vice President, to serve for the ensuing year. The executive officers continuing in office during the year were:

Huntington Cairns, Secretary-Treasurer.
David E. Finley, Director.
Harry A. McBride, Administrator.
Huntington Cairns, General Counsel.
John Walker, Chief Curator.
Macgill James, Assistant Director.

Donald D. Shepard continued to serve during the year as Adviser to the Board.

On July 1, 1946, Lamont Moore was appointed Curator in charge of education and resumed his duties in the Gallery after an absence of 3 years. During that time he served in the Army of the United States in the European Theater and as Assistant Secretary to the American Commission for the Protection and Salvage of Artistic and Historic Monuments in War Areas.

The three standing committees of the Board, provided for in the bylaws, as constituted at the annual meeting of the Board, held May 6, 1947, were:

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.
Paul Mellon.
Chester Dale.

ACQUISITIONS COMMITTEE

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

The permanent Government positions on the Gallery staff are filled from registers of the United States Civil Service Commission, or with its approval. On June 30, 1947, the permanent Government staff of the Gallery numbered 305 employees, as compared with 298 employees on June 30, 1946.

Throughout the year a high standard of operation and maintenance of the Gallery building and grounds, and protection of the Gallery's collections of works of art, has been sustained.

APPROPRIATIONS

For salaries and expenses for the upkeep and operation of the National Gallery of Art, the protection and care of works of art acquired by the Board of Trustees, and all administrative expenses incident thereto pursuant to the provisions of section 4 (a) of Public Resolution No. 14, Seventy-fifth Congress, first session, approved March 24, 1937 (50 Stat. 51), the Congress appropriated for the fiscal year ended June 30, 1947, the sum of $883,920. This amount included the regular appropriation of $772,490, a supplemental appropriation of $101,000 primarily to meet the Gallery's obligations under the Federal Employees Pay Act of 1946, and an additional appropriation of $10,430 to make up other deficiencies in the 1947 appropriation caused mainly by the higher salaries paid returning veterans over war service incumbents, in-grade promotions, and reallocations of positions by the Civil Service Commission in 1946 and 1947.

From these appropriations the following expenditures and encumbrances were incurred:

Personal services	$771,508.54
Printing and binding	3,999.72
Supplies, equipment, etc.	108,382.23
Unencumbered balance	29.51
Total	883,920.00

In addition to the above-mentioned appropriations, the Gallery received the sum of $21,600 from the Department of State to cover expenses during the fiscal year of the Inter-American Office of the Gallery, for the promotion of art activities between the United Sates and the Latin-American Republics.

ATTENDANCE

During the fiscal year 1947, there were 1,448,038 visitors to the Gallery building, an average daily attendance of 3,989. This attendance figure shows a decline as compared with last year, when the total number of visitors was 1,947,668. The decrease is undoubtedly due to the fact that during the first 6 months of the fiscal year there were fewer men and women from the armed services in the city and normal tourist traffic had not yet been resumed. Attendance during the last 3 months of the year has risen nearly to the 1946 level, visits of groups of school children being unusually numerous.

The Sunday evening openings, featuring concerts in the Gallery's East Garden Court without admission charge, have continued to be exceedingly popular throughout the year.

CARE AND MAINTENANCE OF THE BUILDING

It was necessary during the year to overhaul completely two of the large refrigeration machines, and this was successfully accomplished by the Gallery staff.

Considerable improvement has been made in the care of the grounds, including the extension of the irrigation system, and the Gallery staff is now growing a large portion of the smaller plants used for the decoration of the two garden courts.

The staff also produced all the special exhibition cases and several pedestals for the exhibition of Indigenous Art of the Americas (Bliss Collection), as well as the special lighting effects required for this exhibition.

INSTALLATION OF ADDITIONAL AIR-CONDITIONING EQUIPMENT

As stated in the annual report for the fiscal year 1946, the gradual opening of additional spaces in the Gallery building and the construction of six new galleries made it necessary to augment the air-conditioning equipment. This was made possible by funds donated for the purpose, and the installation of a fourth refrigeration machine is now in the final stage of completion. It was anticipated that this contract would be completed during the fiscal year 1946, but owing to various difficulties the date of completion was necessarily delayed. It is now expected that the installation should be completed and all equipment ready for operation by November 1947.

PUBLICATIONS

The publishing program of the National Gallery of Art, under the direction of the Custodians of the Publications Fund, has continued its expansion. During the fiscal year the third edition of Masterpieces of Painting from the National Gallery of Art, by Huntington Cairns and John Walker, was published. Arrangements also were made for the publication of an English edition. The Gallery has initiated a series of National Gallery of Art handbooks, two of which were issued during the year. These are: How to Look at Works of Art: The Search for Line, by Lois A. Bingham, and Chinese Porcelains of the Widener Collection, by Erwin O. Christensen. Also issued during the year was a small volume of color reproductions, entitled "Favorite Paintings from the National Gallery of Art," with accompanying texts prepared by the Curatorial and Educational Departments.

Various articles by members of the Gallery staff were published during the year. An article on Hobbes' Theory of Law, by Huntington Cairns, appeared in the 1946 issue of Seminar, and one on Leibniz's Theory of Law in the Harvard Law Review for December 1946. A lecture by Mr. Cairns, delivered at Harvard University on May 3, 1947, as part of a 3-day Symposium on Music Criticism, and entitled "The Future of Musical Patronage in America," will be published by Harvard University Press in book form. Mr. Cairns also contributed an article, "Philosophy as Jurisprudence," to Essays in Honor of Roscoe Pound, published by Oxford University Press. A comprehensive article on the National Gallery, its collections, installations, and history, prepared by J. B. Eggen, was issued at the close of 1946 as volume 57–58 of the International Museum Journal, Mouseion, Paris, France.

An article on American Painters and British Critics, by John Walker, was published in the Gazette des Beaux-Arts, and a series of 12 brief articles on American paintings in the Tate Exhibition, also by Mr. Walker, appeared in The Ladies' Home Journal. Charles Seymour, Jr., published an article on Thirteenth-Century Art, and another in collaboration with Hanns Swarzenski on A Madonna of Humility and Quercia's Early Style, both appearing in the Gazette des Beaux-Arts. James W. Lane contributed to Art in America, The College Art Journal, The Catholic World, and other publications. Members of the curatorial staff under Mr. Seymour's direction also edited the handbook of the Bliss Collection of Pre-Columbian Art, entitled "Indigenous Art of the Americas," the text for which was supplied by Samuel Lothrop.

Books by members of the staff in preparation or in press at the end of the fiscal year included The Limits of Art, by Mr. Cairns, an extensive compilation of selections of poetry and prose that have been held to be

the greatest of their kind in critical literature from Aristotle to recent times. A fully illustrated volume on the Gallery's sculpture, designed as a companion volume to Masterpieces of Painting, by Messrs. Cairns and Walker, is being prepared by Mr. Seymour for publication next year under the title "Sculpture in the National Gallery of Art." A book by Elizabeth Mongan on the Gallery's print collection will appear in 1949. A thesis on Jan Mandijn, by Charles M. Richards, will also be published. A work entitled "Three Centuries of American Painting" has been prepared by James W. Lane. A comprehensive work on the Index of American Design, tentatively entitled "Made in America," is being compiled by Mr. Christensen for publication in the near future. Another book by Mr. Christensen scheduled to appear jointly in the United States and England is entitled "Popular Art in the United States." A picture book on the paintings and sculpture in the Widener Collection is now on the press, and five handbooks on the Widener Collection of Decorative Arts have been prepared by Mr. Christensen.

Work on the revision and amplification of the Gallery's original preliminary catalog, published in 1941, has continued. For the revised catalog of paintings, notes have been prepared on more than three-fourths of the new paintings not previously cataloged. The sculpture catalog, being prepared by Mr. Seymour, is also moving rapidly to completion.

Other forthcoming publications by members of the Gallery staff include an article by Huntington Cairns on Robert Briffault and the Rehabilitation of the Matriarchal Theory for An Introduction to the History of Sociology, to be published by the University of Chicago Press, and also an article on The Future of Musical Patronage, to appear in the Atlantic Monthly. A second series of short articles by Mr. Walker, on paintings in the Chester Dale Collection, will appear in The Ladies' Home Journal. An article on Houdon by Mr. Seymour is scheduled for publication in the Gazette des Beaux-Arts, and an article on American Folk Art as Revealed in the Index of American Design, by Mr. Christensen, will be published in Art in America.

Miss Mongan has been made an editor of the Graphic Art section of a new edition of the Encyclopaedia Britannica. Mr. Christensen has reassembled and organized unbound copies of the Widener tapestry catalog into portfolios for sale in the Information Rooms and distribution to colleges.

The Publications Fund has continued to supply color reproductions of fine quality but moderately priced, and it is rather interesting to note that in one item—postcards of works of art—nearly 3,000,000 copies have been sold since the Gallery was opened in 1941.

Publishers of large collotype reproductions of paintings in the National Gallery have added 14 new titles to their lists during the fiscal year 1947, and the Publications Fund is now able to offer a total of 52 of these large reproductions to the public.

CUSTODY OF GERMAN SILVER

Under date of February 21, 1947, the Secretary of War requested the National Gallery of Art to provide space and safe storage for the Hohenzollern silver service, following a ruling by the War Department with the concurrence of the Treasury Department that the silverware is the property of the United States. On April 11, 1947, the Gallery received from the War Department 44 sealed cases, weighing approximately 7 tons, said to contain silverware and glassware, and placed the cases in a storage room for indefinite custody and storage.

ACQUISITIONS

GIFTS OF PAINTINGS AND SCULPTURE

On August 8, 1946, the Board of Trustees accepted the following group of 19 French paintings from Samuel H. Kress and the Samuel H. Kress Foundation:

Artist	*Title*
Boucher, Francois	Allegory of Painting.
Boucher, Francois	Allegory of Music.
Boucher, Francois	Madame Bergeret.
Drouais, Francois-Hubert	Group Portrait.
Fragonard, Jean-Honore	A Game of Horse and Rider.
Fragonard, Jean-Honore	A Game of Hot Cockles.
Fragonard, Jean-Honore	The Visit to the Nursery.
Greuze, Jean-Baptiste	Monsieur de la Live de Jully.
Watteau, Antoine	Italian Comedians.
Chardin, Jean-Baptiste Simeon	Portrait of an Old Woman.
Le Nain, Louis	Landscape with Peasants.
Lorrain, Claude (Gellee, Claude)	The Herdsman.
Nattier, Jean-Marc	Madame de Caumartin as Hebe.
Poussin, Nicolas	The Baptism of Christ.
Rigaud, Hyacinthe	President Hebert.
Vigee-Lebrun, Elisabeth	Marquise de Laborde.
Watteau, Antoine	"Sylvia" (Jeanne-Rose Guyonne Benozzi).
Ingres, Jean-Auguste-Dominique	Madame Moitessier.
Pater, Jean-Baptiste-Joseph	Fete Champetre.

The Board of Trustees on November 25, 1946, accepted from Samuel H. Kress and the Samuel H. Kress Foundation the painting, "The Laocoon," by El Greco, and the portrait of Monsignor Diomede Falconio, by Thomas Eakins, from Stephen C. Clark. On January 7, 1947, the Board of Trustees accepted from an anonymous donor a

portrait of Gen. Dwight D. Eisenhower, by Thomas E. Stephens, to be held for a National Portrait Gallery. On May 6, 1947, the Board of Trustees accepted two paintings, "Love as Conqueror" and "Love as Folly," by Jean-Honore Fragonard, from Miss Jean Simpson; a portrait of Captain Charles Stewart, by Thomas Sully, from Mrs. Maude Monell Vetlesen; and also resolved to accept a bust of John Muir, by Edwin Keith Harkness, from Mrs. Ione Bellamy Harkness, to be held for a National Portrait Gallery. The Board of Trustees also on May 6, 1947, recorded their prior acceptance from Mrs. Frederica R. Giles of a painting entitled "Ships in the Scheldt Estuary," by Abraham Storck.

GIFTS OF DECORATIVE ARTS

On November 25, 1946, the Board of Trustees accepted from Mrs. Lessing J. Rosenwald a miniature painting, on ivory, of Maria Miles Heyward, by Edward Greene Malbone, which was accompanied by a pin with a painting of an eye of Maria Miles Heyward, by Malbone.

GIFTS OF PRINTS AND DRAWINGS

The Board of Trustees, on August 8, 1946, accepted a collection of 273 prints and drawings bequeathed by Mrs. Addie Burr Clark, a further gift of 255 prints and drawings from Lessing J. Rosenwald, and 3 prints, En Ballade, by Constantine Guys, Head and Bust of a Woman, by Sir Joshua Reynolds, and Le Stryge, by Meryon, from Myron A. Hofer. On November 25, 1946, the Board of Trustees accepted from Myron A. Hofer a print, Morgue, by Meryon. On January 7, 1947, the Board of Trustees accepted a further gift of 399 prints and drawings from Lessing J. Rosenwald, and an engraved portrait of Charles I of England, by Vorsterman, from Willis Ruffner. The Board of Trustees on May 6, 1947, accepted from an anonymous donor a mezzotint entitled "The Mill," by Charles Turner, after Rembrandt.

GIFTS TO THE INDEX OF AMERICAN DESIGN

The Board of Trustees, on May 6, 1947, accepted from Albert Lewin 40 water-color drawings by Perkins Harnly for the Index of American Design.

EXCHANGE OF WORKS OF ART

The Board of Trustees during the fiscal year 1947 accepted the offer of Lessing J. Rosenwald to exchange an engraving by Schongauer entitled "Crucifixion," two lithographs by Whistler entitled "Study" and "Lady Haden," and an engraving by Brosamer entitled "Christ on Cross," for superior impressions of like engravings and lithographs now included in the Rosenwald Collection at the National Gallery of Art.

LOAN OF WORKS OF ART TO THE GALLERY

During the fiscal year 1947 the following works of art were received on loan:

Particulars	*Artist*
From Mrs. Ailsa M. Bruce, New York, N. Y.:	
2 tapestries.	
The Raising of Tabitha	Tournai, c. 1460.
The Conversion of the Centurion Cornelius	Tournai, c. 1460.
From George Matthew Adams, New York, N. Y.:	
124 drawings and etchings.	
From Charles B. Harding, Laura Harding, and Catharine H. Tailer, New York, N. Y.:	
Portrait of Victor Guye	Goya.
From Mrs. Huttleston Rogers, New York, N. Y.:	
The Tricycle	Monet.
Roses	Renoir.
The Artist and the Widow	Forain.
Chemin dans le Brouillard	Monet.
Le Tribunal de Pontoise	Pissarro.
Le Jour d'Hiver	Sisley.
Roses in a Chinese Vase and Sculpture by Maillol	Vuillard.
Maternity	Gauguin.

LOANED WORKS OF ART RETURNED

During the year the following works of art loaned to the Gallery were returned to the lenders:

Particulars	*Artist*
To the French Government:	
The entire collection of French paintings on loan, with the exception of Mlle. DuBourg (Mme. Fantin-Latour)	Degas.
To the Belgian Government:	
12 of the 14 paintings on loan, leaving 2 pictures belonging to M. Stuyck del Bruyere.	
To the J. H. Whittemore Co., Naugatuck, Conn.:	
Avant la Course	Degas.
To Col. Axel H. Oxholm, Washington, D. C.:	
Martha Washington	Attributed to Ralph E. Earl.
To Mrs. Huttleston Rogers, New York, N. Y.:	
Roses	Renoir.
The Artist and the Widow	Forain.
Chemin dans le Brouillard	Monet.
Le Tribunal de Pontoise	Pissarro.
Le Jour d'Hiver	Sisley.
Roses in a Chinese Vase and Sculpture by Maillol	Vuillard.
Maternity	Gauguin.

LOAN OF WORKS OF ART BY THE GALLERY

During the fiscal year 1947, the Gallery loaned the following works of art for exhibition purposes:

Particulars	*Artist*
To The Art Institute of Chicago, Chicago, Ill.:	
3 rugs.	
To M. Knoedler & Co., New York, N. Y.:	
Ralph Waldo Emerson	Thomas Sully.
To the National Collection of Fine Arts, Washington, D. C.:	
4 miniatures:	
Louis de Bourbon, Prince de Conde	Petitot.
Henri Jules, Duc d'Albert	Petitot.
Maria Miles Heyward	Malbone.
Pin with painting of an eye of Maria Miles Heyward	Malbone.
To the Wildenstein Galleries, New York, N. Y.:	
Breezing Up	Winslow Homer.
To the Society of the Cincinnati, Washington, D. C.:	
Alexander Hamilton	John Trumbull.
To the J. B. Speed Memorial Museum, Louisville, Ky.:	
Henry Clay	John James Audubon.
Henry Laurens	John Singleton Copley.
Andrew Jackson	Ralph E. Earl.
DeWitt Clinton	John Wesley Jarvis.
Jane Cutler Doane	Samuel King.
William Rush	John Neagle.
General William Moultrie	Charles Willson Peale.
George Washington	Rembrandt Peale.
Mrs. George Pollock	Gilbert Stuart.
Governor Charles Ridgely	Thomas Sully.
James Monroe	John Vanderlyn.
Self-Portrait	Benjamin West.
Mary Walton Morris	John Wollaston.
To the Tate Gallery, London, England:	
150 examples from the Index of American Design.	
To the U. S. Department of State, Blair-Lee House, Washinton, D .C.:	
Daniel Webster	George P. A. Healy.
To the White House, Washington, D. C.:	
Men of Progress	Schussele.
George Washington (porthole portrait)	Rembrandt Peale.
Andrew Jackson	Ralph E. Earl.

EXHIBITIONS

The following exhibitions were held at the National Gallery of Art during the fiscal year ended June 30, 1947:

Life of Christ as depicted in the etchings of Rembrandt. Prints from the Rosenwald Collection and an anonymous lender, from May 14 to September 8, 1946.

Audubon prints, "Birds of America." Elephant folio set by John James Audubon, from May 26 to July 28, 1946.

Music in prints. Prints from the Rosenwald Collection, from June 18 to December 8, 1946.

Made in America. One hundred and eleven water colors from the Index of American Design, from August 4 to September 15, 1946.

American etchings, woodcuts, and lithographs. Prints from the collection of the National Gallery of Art, from September 11 to October 2, 1946.

New acquisitions in the Rosenwald Collection. Additional prints and drawings acquired by Lessing J. Rosenwald, from September 22 to December 1, 1946.

Sculpture, drawings, and prints by Rodin. From the collections of Mrs. John W. Simpson and Lessing J. Rosenwald, from October 6 to December 12, 1946.

Paintings looted from Holland by the Nazis, returned through the efforts of the United States Armed Forces. Forty-six paintings circulated under the supervision of the Albright Art Gallery, Buffalo, N. Y.; scheduled for showing at various museums throughout the country; shown at National Gallery from December 7, 1946, to January 1, 1947.

Liber Studiorum, by J. M. W. Turner. Prints from the National Gallery of Art collections, from December 10, 1946, to April 27, 1947.

The Christmas Story in prints. Prints from the National Gallery of Art collections, from December 13, 1946, to February 5, 1947.

Prints and drawings by Alphonse Legros. Prints and drawings from the collection of George Matthew Adams, of New York, from January 12 to February 16, 1947.

American paintings. Portraits from the collection of the National Gallery of Art, from February 23 to March 30, 1947.

Woodcuts, lithographs, and etchings by Paul Gauguin and Edvard Munch. Prints by Gauguin lent anonymously, prints by Munch from the Rosenwald Collection, from April 6 to May 30, 1947.

Indigenous Art of the Americas. Pre-Columbian art from the collection of the Honorable Robert Woods Bliss, of Washington, D. C., from April 18, 1947, to continue for an indefinite period.

Prints and drawings by William Blake. Prints from the National Gallery of Art collections and loans, from April 29 to June 8, 1947.

Chiaroscuro woodcuts from the sixteenth through the eighteenth centuries. Lent anonymously. Opened June 8, 1947.

Prints by James Abbott McNeill Whistler. Prints from the collection of the National Gallery of Art, opened June 13, 1947.

TRAVELING EXHIBITIONS

Index of American Design. Exhibitions from this collection of water colors, drawings, etc., have been shown during the fiscal year 1947 at the following places: Lyman Allyn Museum, New London, Conn.; Seamen's Bank for Savings, New York, N. Y.; Hood College, Frederick, Md.; Dallas Museum of Fine Arts, Dallas, Tex.; Northwestern University, Evanston, Ill.; Library of Congress, Washington, D. C.; Lakeside Press Galleries, Chicago, Ill.; Philadelphia Museum of Art, Philadelphia, Pa.; Massillon Museum, Massillon, Ohio; College of Wooster, Wooster, Ohio; McMurray College for Women, Jack-

sonville, Ill.; Salt Lake City Junior League, Salt Lake City, Utah; Palette Club, Ogden, Utah; Rockford Art Association, Rockford, Ill.; Speed Memorial Museum, Louisville, Ky.; N. W. Ayer Gallery, Philadelphia, Pa.; and the American Federation of Arts, Washington, D. C., for circulation throughout the United States.

Rosenwald prints. During the fiscal year 1947 special exhibitions of prints from the Rosenwald Collection were circulated to the following places:

The Art Institute of Chicago, Chicago, Ill.:
William Hogarth collection of engravings. October to November, 1946.
Duke University, Durham, N. C.:
Daumier loan exhibition. December 1946.
Philadelphia Museum of Art, Philadelphia, Pa.:
Survey of water color. Nine water colors, four miniatures, including Blake, Fragonard, Gauguin, Rembrandt, Cameron, and McBey. February to March, 1947.
The Mint Museum of Art, Charlotte, N. C.:
Daumier loan exhibition. February 1947.
California Palace of the Legion of Honor, San Francisco, Calif.:
Nineteenth-century French exhibition of drawings by Manet, Delacroix, Daumier, Degas; from the Rosenwald and Hofer Collections. March 1947.
The University of North Carolina, Chapel Hill, N. C.:
Daumier loan exhibition. March 1947.
Detroit Institute of Arts, Detroit, Mich.:
Six centuries of prints. May to August, 1947.

Four exhibitions of Rosenwald prints were arranged and held at Alverthorpe Gallery, Jenkintown, Pa.

VARIOUS GALLERY ACTIVITIES

During the period from July 1, 1946, through June 30, 1947, a total of 52 Sunday evening concerts were given in the East Garden Court of the Gallery. The concerts were free to the public, and were attended by over 50,000 persons. During March 1947 five concerts were devoted to American composers, comprising the Gallery's Fourth American Music Festival.

A total of 4,056 copies of press releases, 130 special permits to copy paintings in the Gallery, and 107 special permits to photograph in the Gallery were issued during the year.

Of the seven 16-mm. sound prints of the film, National Gallery of Art, originally owned by the Gallery, three have been sent to foreign countries. The first gift was to the National Gallery of Victoria, Melbourne, Australia; another print was deposited with the American Embassy in Paris on indefinite loan, and later was given to the Embassy; a third print was given to the American Embassy in Lisbon, Portugal.

The film was made available to 16 institutions and individuals during the year. One of the 16-mm. prints was on loan in South Carolina for several months during the winter, in which time it was viewed by approximately 3,000 people.

INDEX OF AMERICAN DESIGN

For the period from July 1, 1946, to June 30, 1947, reproductions of Index material were used in a number of magazines, including Fortune, Life, Antiques, The American Collector, Architectural Review, and Art in America. There were 118 new users of the Index this year, and 24 people revisited the collection. The great majority of them made a special trip to Washington for the purpose of studying Index material. They included a university class in American art, designers, manufacturers, artists interested in design motifs, authors, editors, publishers, etc. A total of 1,048 photographs of Index designs were sold for use in commercial design by individuals and by firms, for hobbies, for publications, for teaching purposes, for publicity, and for reference and exhibitions. During the year 449 new slides were made of Index material for use in lectures.

INTER-AMERICAN OFFICE

During the fiscal year 1947 the Inter-American Office of the National Gallery of Art has continued to devote its efforts to the circulation of exhibitions in the other American Republics. These exhibitions, two of original works of art and six consisting of photographic panels, have been very well received in Latin America.

CURATORIAL DEPARTMENT

During the past year there were 1,510 new accessions by the Gallery as gifts, loans, or deposits, including paintings, sculpture, prints, and the decorative arts. These accessions were registered and the great majority placed on exhibition, or in the case of prints, placed on file and available to the public. A total of 161 works of art were brought to the Gallery for expert opinion, and 92 visits were made to collections of private individuals in connection with offers of gift or loan, or possible acquisitions for the Gallery. The curatorial staff made 290 written and 293 verbal replies to questions from the public requiring research. During the year 17 lectures and 3 lecture courses were given by members of the curatorial staff.

Other activities of the Curatorial Department include the following: The collections of paintings and drawings belonging to the French and the Belgian Governments were packed and dispatched to Europe during this year; the collection of American paintings assembled by

the Gallery for exhibition at the Tate Gallery in England was received, unpacked, inspected, and returned to its original owners; a collection of 46 paintings from Dutch sources was received, exhibited, and dispatched on its tour of the United States; and the Bliss Collection of Pre-Columbian Art was exhibited in a special installation arranged by the curatorial staff at the entrance of the central gallery. The cataloging and filing of photographs in the Richter Archive is now four-fifths finished.

RESTORATION AND REPAIR OF WORKS OF ART

With the authorization of the Board and the approval of the Chief Curator the necessary restoration and repair of works of art in the Gallery's collection were made by Stephen S. Pichetto, Consultant Restorer to the Gallery. All work was completed in the Restorer's studio in the Gallery.

EDUCATIONAL PROGRAM

The survey tours of the whole collection continue to be a vital part of the Educational Department's program, satisfying the demand of the many sightseers and newcomers to Washington who feel the need for a general introduction to the Gallery as a whole. More than 10,000 persons attended the General, Congressional, and Wing Tours, while over 27,000 attended the Gallery Talks and the Picture of the Week. Approximately 28,000 came to hear the lectures and other programs in the auditorium. Special appointments, tours, and conferences were arranged for 2,169 persons. The Educational Department has continued the publication of a printed monthly announcement of all the Gallery's activities. It has a circulation of 5,900 copies.

LIBRARY

A total of 1,076 books, 467 pamphlets, and 596 periodicals were given to the National Gallery of Art; 20 books were purchased and 27 periodicals were subscribed to. A total of 59 books, 119 pamphlets, and 393 bulletins were received on exchange from other institutions; 204 photographs and 80 slides were presented as gifts to the library. Outstanding among the gifts were 75 American history books, particularly useful as background material for the Index of American Design. This year, 2,054 books were borrowed and returned, 1,986 of which were borrowed from the Library of Congress. For the remaining 68, the Gallery is indebted to museum and university libraries and public libraries.

PHOTOGRAPHIC DEPARTMENT

During the year the photographic laboratory of the Gallery made 17,111 prints, 506 black-and-white slides, and 1,729 color slides, in

addition to 2,170 negatives, and 87 X-rays, infrared photographs, ultraviolet photographs, and color separation negatives.

OTHER GIFTS

During the year gifts of books on art and related material were made to the Gallery Library by Paul Mellon, David K. E. Bruce, the Victoria and Albert Museum, Chester Dale, Miss Fernande L. Herrman, and Dr. Herbert Friedmann. Gifts of money during the fiscal year 1947 were made by Paul Mellon, Mrs. Maude Monell Vetlesen, and David E. Finley. A sum of money was anonymously given with the provision that the income therefrom will be available for the acquisition of contemporary works of art by American artists, and for prizes and awards to American artists.

AUDIT OF PRIVATE FUNDS OF THE GALLERY

An audit has been made of the private funds of the Gallery for the fiscal year ended June 30, 1947, 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, 1947:

THE SMITHSONIAN ART COMMISSION

The twenty-fourth annual meeting of the Smithsonian Art Commission was held on Friday, December 6, 1946, having been postponed from its regular date, the first Tuesday in December. The members assembled at 10:30 a. m., in the Smithsonian Building to pass on the works of art which had been offered during the year. The following action was taken:

Accepted for the National Collection of Fine Arts

Oil painting, Self Portrait, by G. P. A. Healy (1813–94). Gift of Ruel P. Tolman.

Oil painting, A Morning in Summer, by Leonard Ochtman, N. A. (1854–1934). Henry Ward Ranger bequest.

Plaster bust of Charles Henry Niehaus, by Adolph Alexander Weinman, N. A. (1870–). Gift of Miss Marie J. Niehaus.

Plaster plaque of Joseph Pennell, by John Flanagan (1865–). Gift of Miss A. Margaretta Archambault.

Raku tea bowl, made by Yanagisawa Kien (1703–58). Gift of Miss Catharine McE. Ames.

Miniature, Portrait of a Man, by George Catlin (1796–1872). Gift of Bernard N. Burnstine:

Twenty-two miniatures and one silver medal. Gift of Mrs. Henry DuPrè Bounetheau:

Mrs. Arthur Middleton (1791–1840) (Alicia Hopton Russell), by Henry B. Bounetheau (1797–1877), after the original by Andrew Robertson, 1836.

Peter Bounetheau in Magistrate's Robes (1742–98), father of the artist, by Henry B. Bounetheau, after head of the Benbridge miniature.

Peter Bounetheau (1742–98), by Henry Benbridge (1744–1812).

Mrs. John Middleton (Mary Burroughs), by Henry B. Bounetheau, after an English artist.

Self Portrait, 1867, after picture when 50 years old, by Henry B. Bounetheau.

Mrs. Henry B. Bounetheau (1822–69) (Julia Clarkson DuPrè), by Henry B. Bounetheau.

Henry DuPrè Bounetheau, 1849 (1842–1901), by Henry B. Bounetheau.

Mme. Julia DuPrè, about 1830, mother of Mrs. Henry B. Bounetheau, by a French artist.

Henry Gourdin, of Charleston, godfather of the artist's son, by Henry B. Bounetheau.
Portrait of an Unknown Man, painted about 1838–42, by Henry B. Bounetheau.
Portrait of an Unknown Woman, painted about 1840–60, by Henry B. Bounetheau.
Portrait of an Unknown Woman, by an English artist.
Napoleon as General, by Henry B. Bounetheau, after Sully, after Appiani.
King Lear in the Storm, by Henry B. Bounetheau, after Sir Joshua Reynolds.
George Washington, by Henry B. Bounetheau, after Gilbert Stuart.
Henry B. Bounetheau's Aunt, c. 1804, by Edward Greene Malbone (1777–1807).
Portrait of an Unknown Woman, by an unknown artist.
Frances Anne Kemble (1809–93), by Henry B. Bounetheau, after Thomas Sully.
General George Washington, by Henry B. Bounetheau, after the Trumbull at Charleston, S. C.
Napoleon Bonaparte, by Henry B. Bounetheau, after Favre.
Unmasked, by Henry B. Bounetheau, after a colored engraving by W. Nicholas, after the painting by Mrs. Pierson, published in London, April 1, 1831, by J. Brookes.
Sleeping Beauty, by Henry B. Bounetheau.
Silver medal awarded to Mr. Bounetheau for the best miniatures on ivory, by The South Carolina Institute, 1849.

Accepted for the Smithsonian Institution

Bronze statue, Ecstasy, by Francisco Albert. Gift of the sculptor.
Celadon vase, made by Makuzu Kōzan. Gift of Milo E. Emmerson.

The members then met in the Regents Room, adjacent, for further proceedings of the annual meeting. The meeting was called to order by the chairman, Mr. Manship, at 11 : 25 a. m.

The members present were : Paul Manship, chairman ; Dr. Alexander Wetmore, secretary (member, ex officio) ; and Robert W. Bliss, John N. Brown, George H. Edgell, David E. Finley, George H. Myers, Archibald G. Wenley, and James E. Fraser. Ruel P. Tolman, Director of the National Collection of Fine Arts, also attended.

The resignation of Louis Ayres was submitted and accepted with regret. The secretary was instructed to write Mr. Ayres expressing the appreciation of the Commission for his valuable services while a member.

The resignation of Frank J. Mather, a charter member, was submitted and accepted with regret. The secretary was instructed to invite Mr. Mather to all future meetings, and to inform him that the Commission would consider him a member emeritus.

The Commission recommended to the Board of Regents the name of William T. Aldrich to succeed Mr. Ayres, and Lloyd Goodrich to succeed Mr. Mather.

The Commission recommended the re-election of John Taylor Arms, Gifford Beal, and Gilmore D. Clarke for the usual 4-year period.

The following officers were 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, and Gilmore D. Clarke. 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 CATHERINE WALDEN MYER FUND

Nine miniatures, water color on ivory unless otherwise stated, were acquired from the fund established through the bequest of the late Catherine Walden Myer, as follows:

55. Portrait of an Officer, signed "Rockstuhl, fec."; from James W. Lane, Chevy Chase, Md.

56. Portrait of a Young Man, by unknown artist; from James W. Lane, Chevy Chase, Md.

57. Portrait of a Gentleman, by Henry Inman, N. A. (1801–46), water color on paper; from Mrs. Dorothy Draper Hamlen Sale, Parke-Bernet Galleries, Inc., New York City.

58. Portrait of a Gentleman, by Thomas Seir Cummings (1804–94); from Mrs. Dorothy Draper Hamlen Sale, Parke-Bernet Galleries, Inc., New York City.

59. Joseph W. Faber of Charleston, S. C., by Charles Fraser (1782–1860); from Mrs. Dorothy Draper Hamlen Sale, Parke-Bernet Galleries, Inc., New York City.

60. Alexander Rose, by John Ramage (before 1763–1802); from Mrs. Dorothy Draper Hamlen Sale, Parke-Bernet Galleries, Inc., New York City.

61. Harriet Hampton, by Charles Fraser (1782–1860); from Mrs. Dorothy Draper Hamlen Sale, Parke-Bernet Galleries, Inc., New York City.

62. Roger Brooke Taney (1777–1864), by unknown artist; from Mamie C. Faulconer, Alexandria, Va.

63. Little Girl with Doll, by John Carlin (1813–91); from Edmund Bury, Philadelphia, Pa.

LOANS ACCEPTED

Two enamel miniature portraits of Louis de Bourbon, Prince de Conde, and Henri Jules, Duc d'Albret, by Jean Petitot, the Younger (b. 1653), with frames by Gilles Legare de Chaumont (1610–c1653), and two miniatures on ivory, a Portrait of Maria Miles Heyward (Mrs. William Drayton), and her "Eye," by Edward Greene Malbone, about 1803, were lent by the National Gallery of Art, with the permission of the donor, Lessing J. Rosenwald, on March 6, 1947.

One miniature on ivory, Portrait of Robert Goodloe Harper (1765–1825), by Benjamin Trott, was lent by the family of Robert Goodloe Harper Speed, on June 27, 1947.

WITHDRAWALS BY OWNERS

Two Bohemian glass vases, lent in 1928, were withdrawn by the owner, Mrs. Robert Lee Preston, on August 2, 1946.

A collection of 22 pieces of porcelain and bronzes, lent in 1918, was withdrawn by the owner, Mrs. Geraldine L. Hitchcock, on April 3, 1947.

An oil painting, Portrait of Mrs. Stephen Decatur (Susan Wheeler), by Gilbert Stuart, and four crayon drawings on paper, by Saint Memin, of Ann Decatur Pine, Capt. James McKnight, Capt. Stephen Decatur, Sr., and Ann Pine McKnight Decatur, lent in 1943, were withdrawn by the owner, Mrs. William F. Machold, on April 15, 1947.

An oil painting, Portrait of Hon. Charles Evans Hughes, by George Burroughs Torrey, lent in 1936, and a marble bust of Hon. Charles Evans Hughes, by Bryant Baker, lent in 1943, were withdrawn by the owner, Mr. Hughes, on May 21, 1947.

Five oil paintings, Hildegarde, Poinsettia, Maternity, The Old Miniature, and Study of a Young Woman, by Wallace Bryant, and a photomechanical reproduction of The Age of Innocence, lent in 1916, were withdrawn by the owner, Wallace Bryant, on June 6, 1947.

An oil painting, Portrait of Lt. Gen. Mark W. Clark, by M. Arnold Nash, lent in 1944, was withdrawn by the owner, Mrs. Mark W. Clark, on June 9, 1947.

LOANS TO OTHER MUSEUMS AND ORGANIZATIONS

An oil painting, Portrait of Stephen Decatur, by Gilbert Stuart, was lent to M. Knoedler & Co., Inc., New York City, for their Washington Irving Exhibition, October 8 to 26, 1946. (Returned October 29, 1946.)

Two oil paintings, Old Church at Giverny, and La Vachere, by Theodore Robinson, were lent to the Brooklyn Museum, Brooklyn, N. Y., to be included in an exhibition of the work of the artist, November 12, 1946, to January 5, 1947.

Two plaster busts (bronzed), George Washington, and Thomas Jefferson, by Houdon, and four vases, were lent to The White House December 3, 1946, for an indefinite period.

An oil painting, Portrait of Herbert Hoover, by Edmund C. Tarbell, was lent to The Century Association for an exhibition of portraits of members who were Presidents of the United States, January 9 to February 16, 1947. (Returned February 27, 1947.)

Two oil paintings, Entrance to the Harbor, and Groton Long Point Dunes, by Henry Ward Ranger, and four miniatures, Mrs. Putnam

Catlin and Portrait of a Man, by George Catlin, and John Trumbull Ray and Portrait of a Gentleman, by Thomas S. Cummings, were lent to the Lyman Allyn Museum, New London, Conn., to be included in their Fifteenth Anniversary Exhibition, Eighty Eminent Painters of Connecticut, March 9 to April 20, 1947. (Returned April 28, 1947.)

An oil painting, The Signing of the Treaty of Ghent, 1814, by Sir Amedee Forestier, was lent April 3, 1947, to the Committee on Un-American Activities, to be hung in its committee room for an indefinite period.

Two oil paintings, At Nature's Mirror, and Sunset, Navarro Ridge, California Coast, by Ralph Albert Blakelock, were lent to the Whitney Museum of American Art, New York City, to be included in an exhibition of paintings by the artist, April 21 through May 29, 1947. (Returned June 6, 1947.)

LOANS RETURNED

An oil painting, Fired On, by Frederic Remington, lent to The White House, June 7, 1945, was returned July 17, 1946.

THE HENRY WARD RANGER FUND

No. 69. South Dakota Evening, by Jes W. Schlaikjer, A. N. A. (1897–), previously assigned to Vassar College, Poughkeepsie, N. Y., was reassigned November 21, 1946, to San Joaquin Pioneer and Historical Society, Stockton, Calif.

The following two paintings were recalled for action on the part of the Smithsonian Art Commission, in accordance with the provision in the Ranger bequest. The Smithsonian Art Commission decided not to accept the paintings and they were returned to the museums to which they were originally assigned:

No. 7. The Shrine of the Rain Gods, by E. Irving Couse, N. A. (1866–1936), assigned to the Toledo Museum of Art, Toledo, Ohio.

No. 112. Medieval Art, by Edwin H. Blashfield, N. A. (1848–1936), assigned to the William Rockhill Nelson Gallery of Art, Kansas City, Mo.

THE NATIONAL COLLECTION OF FINE ARTS REFERENCE LIBRARY

A total of 405 publications (255 volumes and 150 pamphlets) were accessioned. This number includes 162 volumes and 41 pamphlets purchased, the priced auction catalogs of the Parke-Bernet Galleries accounting for 44 volumes and 32 pamphlets. The other accessions were publications received by exchange, gift, or transfer. The year's additions brought the total library accessions to 10,540, plus the volumes of serials formerly accessioned by the Museum Library for the National Gallery of Art, now the National Collection of Fine Arts.

SPECIAL EXHIBITIONS

June 28 through July 21, 1946.—Exhibition of 33 pieces of sculpture in bronze, marble, obsidian, wood, and stone, by Francisco Albert, of Mexico, held under the patronage of His Excellency, Señor Dr. Don. Antonio de los Monteros, the Mexican Ambassador to the United States. A catalog was privately printed.

July 3 through 21, 1946.—Exhibition of 72 Swedish wartime cartoons, sponsored by the American Scandinavian Foundation and the Sverige-Amerika Stiftelsen.

August 10 through September 25, 1946.—Smithsonian Centennial Exhibition. The National Collection of Fine Arts endeavored to honor those who had contributed to its collections, with examples of their gifts. About 50 specimens, covering 100 years, were shown.

October 3 through November 3, 1946.—An oil painting, Portrait of President Harry S. Truman, by John Slavin, of Richmond, Va., was shown in Gallery 2.

October 9 through 29, 1946.—The Fifty-sixth Annual Exhibition of the Society of Washington Artists, consisting of 103 specimens of paintings and sculpture.

November 6 through 29, 1946.—The Ninth Metropolitan State Art Contest, held under the auspices of the District of Columbia Chapter, American Artist's Professional League, assisted by the Entre Nous Club, consisting of 299 specimens of paintings, sculpture, prints, ceramics, and metalcraft.

December 12, 1946, through January 12, 1947.—The Forty-fifth Annual Exhibition of Miniatures by The Pennsylvania Society of Miniature Painters, consisting of 73 miniatures. Reprint of catalog used in Philadelphia.

March 7 through 30, 1947.—The Fifty-first Annual Exhibition of the Washington Water Color Club, consisting of 258 paintings and prints. A catalog was privately printed.

March 7 through 30, 1947.—The Fourteenth Annual Exhibition of The Miniature Painters, Sculptors and Gravers Society of Washington, D. C., consisting of 144 examples. A catalog was privately printed.

April 10 through 30, 1947.—Exhibition of 18 paintings, 4 pieces of sculpture, and photographs, by Hugh Almaraz, of Bolivia, was held under the patronage of His Excellency, the Ambassador of Bolivia and Señora de Martinez Vargas, and the Pan American Union. A catalog was printed by the Pan American Union.

June 4 through 29, 1947.—Exhibition of 29 Hawaiian Flower Panels in pastel, by Maurice Kidjel, was held under the patronage of the Delegate to Congress from Hawaii and Mrs. Joseph R. Farrington. A catalog was privately printed.

The writer, who for some years had been Acting Director, was appointed Director of the National Collection of Fine Arts on July 28, 1946.

Respectfully submitted.

R. P. Tolman, *Director.*

Dr. A. Wetmore,
Secretary, Smithsonian Institution.

APPENDIX 4

REPORT ON THE FREER GALLERY OF ART

SIR: I have the honor to submit the twenty-seventh annual report on the Freer Gallery of Art for the year ended June 30, 1947.

THE COLLECTIONS

Additions to the collections by purchase were as follows:

BRONZE

46.18. Chinese (Ordos), Han dynasty (207 B. C.–A. D. 220). Hemispherical bowl with slightly everted lip; brown patina with areas of malachite and earthy encrustation; welded to one side is a flat horizontal handle on which stands the figure of a mule cast in the round. 0.106 x 0.182 x 0.128.

46.31. Chinese, Shang dynasty (1766–1122 B. C.). Ceremonial vessel of the type *ting*, light grayish-green patina with some encrustation; areas of malachite, azurite, and cuprite inside; decorated with casting in intaglio and relief; inscription of three characters. (Illustrated.) 0.354 x 0.282.

47.1. Chinese, 4th–3d century B. C. Folding bronze tripodal stand in three parts; decorated with gold and silver inlay. 0.574 (over all, folded).

GLASS

46.29. Chinese, T'ang dynasty (A. D. 618–906). Oblate bowl with broad base smaller mouth, thickened lip, and deeply concave base; thick green glass, surface ground on outside except for small transparent area in center of base; inside roughened and iridescent with deterioration; rust stain on base. 0.080 x 0.147.

GOLD

46.20–46.21. Chinese, T'ang dynasty (A. D. 618–906). Pair of Apsarases modeled in the round in flying position with flowing robes; scarves and jeweled streamers in filigree work around bodies; crowns and floral necklaces; extended hands hold lotus flowers; ears pierced for earrings; each on an intricate filigree cloud pattern support. 0.037 x 0.088 x 0.027; 0.037 x 0.081 x 0.024.

46.22. Chinese, Six dynasties period (A. D. 265–589). Pair of plaques, each a thin sheet of gold with a winged horse in repoussé relief; vine patterns in background and double border of V pattern; fragments of plaster adhering to reverse side of each. 0.075 x 0.120 x 0.019; 0.075 x 0.120 x 0.016.

JADE

47.10. Chinese, 5th–3d century B. C. Cylindrical covered cup of Kotan nephrite; supported on three small feet; annular handle on one side; decoration carved in relief and intaglio; three small coiled dragons on cover. (Illustrated.) 0.170 x 0.098.

MANUSCRIPT

46.12. Persian, A. D. 1556–1565. *Haft Awrang* ("Seven Thrones"), the seven *mathnavī* poems of Jāmī; book of 303 folios plus 1 added folio; 28 miniature paintings in gold and color; illuminated headpieces, tailpieces, and space fillers; margins of various colors with bird and flower patterns in red and gold; repairs on some pages; lacquered binding 19th century. 0.342 x 0.232 (page size).

47.2. Armenian, A. D. 10th century. Page from a Gospel manuscript on parchment; canon tables on both sides; brown-black writing and decorations in red, yellow, and purple; torn and stained on edges. 0.328 x 0.246.

47.3. Armenian, A. D. 10th century. Page from a Gospel manuscript on parchment; on reverse: canon table; on obverse: the four evangelists standing in arches; brown-black writing and decorations in red, yellow, and purple; torn and stained on edges. 0.334 x 0.251.

47.4 Armenian, A. D. 10th century. Page from a Gospel manuscript on parchment; canon tables on both sides; brown-black writing and decoration in red, yellow, and purple; torn and stained on edges. 0.329 x 0.248.

47.6 Persian, A. D. 1557. Leaf from *Yūsuf u-Zulaikhā* by Jāmī; Persian text in small *nasta'līq* script; manuscript leaf inlaid in larger leaf of red-brown paper with border designs in gold; *recto*: horses in rock landscape; *verso*: floral scrolls with feline heads devouring antelopes; wormholes and small tears along two edges. 0.251 x 0.248.

47.7 Persian, A. D. 1557. Leaf from *Yūsuf u-Zulaikhā* by Jāmī; Persian text in small *nasta'līq* script; manuscript leaf inlaid in larger leaf of grayish-brown paper with border designs in gold; *recto*: floral scrolls and arabesques; *verso*: lions, foxes, and birds in landscape; wormholes. 0.252 x 0.149.

PAINTING

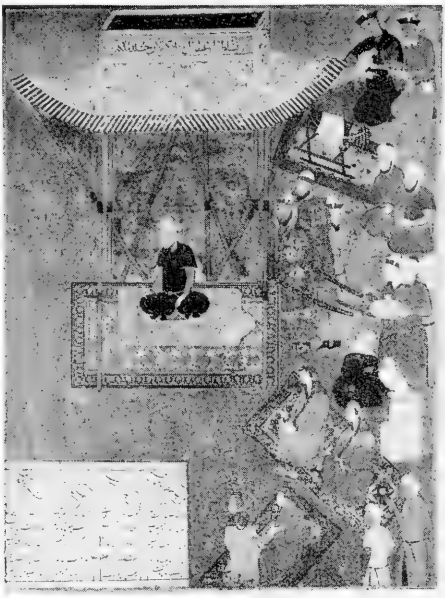
46.13. Persian, A. D. middle 16th century. Winter scene: Sūfī and courtier conversing at a shrine; color; three lines of *nasta'līq* script in upper left corner; set in an old album mount with floral designs and writing in red *nasta'līq* script. 0.328 x 0.226.

46.14 Persian, A. D. 1341, Mongol (Īl-Khān) period, Īnjū school. Leaf from a manuscript of *Mu'nis al-Ahrār fī Daqā'iq al-Ash'ār*: The Moon and Fish; 12 different kinds of birds in two registers; text in black *naskhī* script; paper torn and colors rubbed in places; old repairs and modern margin. 0.195 x 0.134.

46.16 Persian, A. D. middle 14th century, Mongol (Īl-Khān) period, Īnjū school. Leaf from a *Shānāmah*: Arzū, the jeweler's daughter plays before Bahrām Gūr; colors and gold; paint on three faces rubbed off; text in black *naskhī* script; red rulings; marginal additions in *nasta'līq*. 0.290 x 0.209.

46.17. Indian, Akbar period (A. D. 1556–1605), Mughal. Lion hunt in a mountainous landscape; colors and gold; cut-out passages in *nasta'līq* script around painting; on reverse: four lines of Persian poetry in *nasta'līq* script; slightly torn; bits of paint chipped off. 0.186 x 0.106.

46.26 Persian, Tīmūrid period (A. D. ca. 1425–1450), Samarquand school, Ulugh Beg with ladies of his harem and retainers; colors and gold; six lines of Persian poetry in *nasta'līq* script in lower left corner; cuts and breaks in paper. (Illustrated.) 0.317 x 0.241.



46.26

46.30

RECENT ADDITIONS TO THE COLLECTION OF THE FREER GALLERY OF ART

47.10

46.31

RECENT ADDITIONS TO THE COLLECTION OF THE FREER GALLERY OF ART.

46.27. Indian, Rājput period (A. D. 17th century), Rājasthānī, probably Jaipur school. Woman holding a *vīnā* and flower under a tree with a deer, attracted by the music, in front of her; drawing in black on yellowish paper; on reverse: small drawing of bust of a woman in black and gold; small stains, tears, and some flaking. 0.166 x 0.113.

46.28 Indian, Mughal period (A. D. ca. 1619), school of Jahāngīr. Durbar scene of Jahāngīr; colors and gold; mounted on an album leaf; two inscriptions and identification notes; slight flaking. 0.169 x 0.123.

47.5. Arabic (Mesopotamia), A. D. 1224. Baghdad school. Illustration from an Arabic manuscript of the *Materia Medica* of Dioscorides; the Greek physician Erasistratos lying on a low bench with an assistant standing in front of him; opaque colors and gold; text on both sides in *naskhī* script; a few wormholes and tears. 0.322 x 0.248.

PAINTING AND MANUSCRIPT

46.15. Persian, A. D. 16th-17th century. Composite leaf consisting of a drawing of Dancing Sūfīs by Ustād Muhammadī of Herāt, a painting of A Cluster of Primroses by Murād, a page of prose in *nasta'līq* script, and a page of poetry in *nasta'līq* by Shāh Mahmūd; old album mounting with floral decoration in gold. 0.450 x 0.303.

POTTERY

46.24. Chinese, Ch'ing dynasty, Yung-chêng period (A. D. 1723–1736). Small bottle-shaped vase with tall neck and flaring lip; white porcelain covered with pale opaque blue-gray glaze called "claire de lune"; brown dressing on raw footrim; four-character mark in underglaze blue on base. 0.101 x 0.070.

46.25. Chinese, Yüan dynasty (A. D. 1279–1368), Lung-ch'üan. Vase with octagonal body, spreading foot, swelling body, and short tapering neck; grayish-white porcelain covered with thick opaque gray-green crackled glaze inset with 24 panels of reddish-brown biscuit showing human figures and floral patterns molded in relief. 0.275 x 0.175.

46.30. Egyptian, Fātimid period (A. D. 11th-12th century). Bowl on low foot rim; soft, fine-grained reddish clay covered with white tin glaze; decorated, inside: a dancing girl in yellow gold luster; outside: irregular circles and markings in reddish luster now partly rubbed off; repairs, five missing sherds replaced by painted plaster. (Illustrated.) 0.067 x 0.261.

47.8. Mesopotamian, A. D. 12th century, Rakka. Bowl with wide everted rim and low foot; coarse whitish clay covered with transparent green glaze; decorations under glaze painted in black on white slip showing a heron; repairs, two pieces of rim missing. 0.076 x 0.266.

47.9. Persian, Mongol period (about A. D. 1300), Sultanabad. Deep bowl with wide horizontal rim flange and foot rim; grayish medium-grained clay covered with clear transparent glaze over decoration in black outline and brown slip showing a running gazelle; lower body and foot unglazed; two small repairs on rim flange. 0.148 x 0.270.

SILVER

46.19. Chinese, Han dynasty (207 B. C.–A. D. 220). Plaque of solid, low-grade silver; rough and tarnished; obverse shows a leaping wolflike dog cast in relief; reverse is rough and pitted with bits of earth and malachite in some cavities. 0.099 x 0.157 x 0.013.

The work of the staff members has been devoted to the study of new accessions, of objects submitted for purchase, and to general research work within the collections of Chinese, Japanese, Arabic, Persian, and Indian materials. The preparation of materials for publication has continued. Reports, oral or written, were made upon 3,679 objects and 1,511 reproductions of objects submitted for examination; and 353 Oriental language inscriptions were translated.

REPAIRS TO THE COLLECTIONS

A total of 27 objects were remounted or repaired as follows:

Chinese calligraphy remounted	1
Chinese paintings remounted	7
Japanese paintings remounted	12
East Christian painting remounted	1
Persian miniature remounted	1
Greek manuscript pages repaired	2
Indian painting repaired	1
Japanese painting repaired	1
Persian painting repaired	1

CHANGES IN EXHIBITIONS

Eight hundred forty-four changes in exhibitions were made as follows:

American arts:	
Etchings	15
Lithographs	15
Byzantine arts:	
Gold	24
Rock crystal	3
Bactrian arts: Metalwork	4
Chinese arts:	
Bamboo wood carving	6
Bronze	101
Gold	11
Iron and gold	2
Jade	49
Lacquer	3
Painting	124
Pottery	230
Silver	2
Stone sculpture	4
Textile	2
Christian arts:	
Armenian manuscripts	25
Armenian manuscript pages	8
Coptic manuscript pages	6
Greek manuscripts	10
Greek manuscript pages	18
Greek painting	13

Indian arts:	
Bronze	1
Manuscript pages	2
Paintings	101
Stone sculpture	3
Japanese arts: Painting	6
Korean arts: Pottery	23
Persian arts:	
Gold	2
Metalwork	14
Syrian arts:	
Brass	5
Glass	13

In connection with the Centennial celebration of the Smithsonian Institution a special exhibition showing representative examples of Chinese art from the Neolithic age to the eighteenth century was assembled in Gallery XIII from the material in the collections. A special Gallery Book accompanied this exhibition.

In connection with the Symposium on Byzantine Studies held at the Dumbarton Oaks Research Library and Collection a special exhibition of late classical and early Christian art was assembled in Gallery VI from materials in the collections.

STUDY COLLECTIONS

A notable addition to the study collections of the Smithsonian Institution was the material given by Dr. Ernst Herzfeld, of Princeton, N. J. This gift, known as the Herzfeld Archive, was made to the Smithsonian Institution with proviso that it be deposited in, and held under the direction of, the Freer Gallery of Art, but not to be considered a part of the Freer Collection. Dr. Herzfeld's letter of transmittal to Dr. Wetmore was dated April 24, 1946, and the material reached the Gallery on June 6; but the time required to unpack the cases and make a preliminary check of the contents prevented its inclusion in the annual report dated July 1, 1946.

The material was collected by Dr. Herzfeld between the years 1903 and 1936 in the course of archeological expeditions to the Near East which included excavations at Samarra, Sistan, Pasargadae, and Persepolis. While a detailed catalog has yet to be completed, the following brief list suggests the scope and nature of the Archive:

1. 80 wooden boxes containing 50 negatives each. Catalog of the negatives. 16 files of blueprints.
2. Several hundred large drawings, water colors, plans and maps of Oriental buildings, sculpture, objects of art, etc. A number of squeezes of inscriptions.
3. 45 sketchbooks of original surveys made in the field. A number of box files with notes, texts of inscriptions, inventories, dummies for publications, etc.

4. 95 objects including pottery and metalwork of no special material value, but of some scientific interest.

It is the donor's wish that these materials be used for study and publication by members of the Institution staff and other qualified scholars, and that the objects be available for exhibition in the Institution at the discretion of the Director of the Freer Gallery of Art.

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 107,237. The weekday total was 80,031, and the Sunday total was 27,206. The average weekday attendance was 256, the average Sunday attendance, 523. The highest monthly attendance was in April with 15,794 visitors; the lowest, in February with 4,053 visitors.

There were 1,915 visitors to the main office during the year; the purposes of their visits were as follows:

For general information		1,559
To see staff members		96
To read in the library		250
To make sketches and tracings from library books		9
To see building and installations		18
To make photographs in Court and sketches in the exhibition galleries		27
To examine, borrow, or purchase photographs and slides		389
To submit objects for examination		471
To see objects in storage:		
Washington Manuscripts	49	
Far Eastern paintings and textiles	74	
Near Eastern paintings and manuscripts	28	
Tibetan paintings	5	
Indian paintings and manuscripts	9	
American paintings	28	
American pottery	3	
Whistler prints	19	
Oriental pottery, jade, bronze, lacquer, and bamboo	83	
Gold treasure and Byzantine objects	15	
All sculpture	10	
Syrian and other glass	4	
		327

DOCENT SERVICE, LECTURES, MEETINGS

By request, 10 groups met in the exhibition galleries for instruction by staff members. Total attendance was 183.

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

1947

Jan. 29—Mr. Pope read a paper on A Chinese Lacquer Statue in the Nepalese Style (45.4) before the Far Eastern Section of the College Art Association at the Metropolitan Museum of Art, New York. Attendance: 100.

Mar. 10—Dr. Ettinghausen lectured on Basic Facts about Oriental Rugs at the Women's Community Club, Kensington, Md. Attendance: 121.

Mar. 17—Dr. Ettinghausen lectured on Persian Miniature Painting at the Foxcroft School, Middleburg, Va. Attendance: 115.

Mar. 25—Dr. Ettinghausen lectured on Islamic Art: New Approaches in Research at the Princeton University Bicentennial Conference on Near Eastern Culture and Society, Princeton, N. J. Attendance: 65.

Apr. 10—Mr. Pope lectured on The Freer Gallery of Art and its Collections at the American Association of University Women, Washington, D. C. Attendance: 30.

The Auditorium was used for meetings as follows:

1946

Oct. 9—Bureau of Economics, U. S. Department of Agriculture. Attendance: 250.

Oct. 10—Bureau of Economics, U. S. Department of Agriculture. Attendance: 275.

Oct. 11—Bureau of Economics, U. S. Department of Agriculture. Attendance: 260.

Nov. 20—Office of the Attorney General, Conference on the Control of Juvenile Delinquency. Attendance: 63.

Nov. 21—Office of the Attorney General, Conference on the Control of Juvenile Delinquency. Attendance: 50.

Dec. 3—Dr. John L. Keddy, Assistant Secretary, Smithsonian Institution. Attendance: 28.

1947

Apr. 15—American Oriental Society, Annual Meeting. Attendance: 106.

Apr. 16—American Oriental Society, Annual Meeting. Attendance: 83.

Apr. 17—American Oriental Society, Annual Meeting. Attendance: 46.

Members of the staff traveled outside of Washington for professional purposes as follows:

1946

Sept. 30–Oct. 23—Mr. Pope in Chicago, Kansas City, Minneapolis, Ann Arbor, Boston, Cambridge, and New York to examine objects belonging to museums, private collections, and dealers.

Nov. 4–13—Mr. Wenley in Chicago, Kansas City, Minneapolis, and Ann Arbor to examine objects belonging to museums, private collections, and dealers.

1947

Jan. 28–Feb. 9——— Dr. Ettinghausen in New York and Boston to examine objects belonging to museums and dealers.

Mar. 17–21——— Mr. Wenley in New York to examine objects belonging to dealers.

Mar. 24–28——— Dr. Ettinghausen attended Near Eastern Conference of the University Bicentennial Celebration at Princeton University.

Mar. 31–Apr. 3——— Mr. Wenley attended the Conference on Far Eastern Art and Culture at the Bicentennial Celebration of Princeton University where he served as Chairman of the Conference on Chinese Painting.

Mar. 31–Apr. 3——— Mr. Pope attended the Conference on Far Eastern Art and Culture at Princeton.

Apr. 3——— Mr. Acker attended the Conference on Far Eastern Art and Culture at Princeton.

Apr. 21——— Dr. Ettinghausen in New York to examine objects belonging to dealers.

Apr. 22–23——— Dr. Ettinghausen in Princeton, N. J., to attend conference on Research in Fine Arts.

Apr. 24——— Dr. Ettinghausen in Baltimore to attend opening of exhibition of Byzantine Art at Baltimore Museum.

May 14——— Dr. Ettinghausen at Walters Art Gallery, Baltimore, to examine objects in the collection.

May 23——— Mr. Pope in Philadelphia to examine objects in the Philadelphia Museum of Art.

June 9–13——— Mrs. Usilton, Librarian, attended annual convention of Special Libraries Association, Chicago, Ill.

June 19–20——— Mr. Pope at Fogg Museum of Art, Cambridge, Mass., to study bronze forgeries and examine objects in the collection.

June 29–July 4——— Mrs. Usilton attended annual convention of American Library Association, San Francisco, Calif.

John A. Pope, Associate in Research, was appointed Assistant Director, July 1, 1946.

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, 1947, conducted in accordance with the Act of Congress of June 27, 1944, which provides "* * * for continuing ethnological researches among the American Indians and the natives of Hawaii and the excavation and preservation of archeologic remains. * * *"

SYSTEMATIC RESEARCHES

Dr. M. W. Stirling, Chief of the Bureau, spent the greater part of the fiscal year in Washington, attending to administrative duties and completing for publication reports on archeological field work in southern Mexico. Two papers were completed entitled "An Archeological Reconnaissance of the State of Tabasco, Mexico," and "Piedra Parada, a Chiapas Highland Site." Considerable progress was also made on a paper entitled "Additional Stone Monuments of Southern Mexico."

Several lectures were given during the year on anthropological subjects. In April 1947 Dr. Stirling went to Houston, Tex., as representative of the Smithsonian Institution at the Inauguration of Dr. Wm. Vermillon Houston as President of Rice Institute.

Dr. Frank H. H. Roberts, Jr., Associate Chief of the Bureau and Director of the River Basin Surveys, devoted the major part of his time during the fiscal year to directing the program of the River Basin Surveys. The latter is a cooperative project between the Smithsonian Institution, the National Park Service, the Bureau of Reclamation, and the Corps of Engineers, United States Army. Its purpose is the recovery of such archeological and paleontological information and materials as will be lost through the construction of dams and the creation of large reservoirs in many of the river valleys of the United States.

In directing the survey work Dr. Roberts recruited personnel, arranged for supplies and equipment, established cooperation with local institutions in various parts of the country, prepared over-all plans for a Nation-wide archeological program, wrote progress reports for the cooperating agencies, and aided in the preparation of preliminary reports on the results of surveys in various reservoir

areas. He went to Atlanta, Ga., July 23–25, 1946, to confer with representatives of the National Park Service and engineers in the office of the Division Engineer for the South Atlantic Division, Corps of Engineers, about the problems in that area. He went to Lincoln, Nebr., September 24 to October 4, to meet the incoming field parties from the Missouri Basin. At that time he received reports on the explorations, discussed plans for future investigations, and assisted in making arrangements for carrying on the work at the field headquarters during the fall and winter months. While at Lincoln he made two trips to Omaha to confer with officials of the National Park Service, Region 2, and engineers from the office of the Division Engineer, Missouri River Division, Corps of Engineers. From December 26 to 31, he was in Chicago, Ill., to take part in a symposium on river valley archeology in which there were representatives from the National Park Service, the American Anthropological Association, the Society for American Archeology, the Committee for the Recovery of Archeological Remains, and several universities. Dr. Roberts' report on the activities of the River Basin Surveys appears in subsequent pages.

During the course of the year Dr. Roberts wrote several book reviews for anthropological journals, annotated four books for the United States Quarterly Book List, prepared a number of popular articles on the work of the River Basin Surveys, and served as a consultant on manuscripts on anthropology and archeology for several encyclopedias.

Dr. Roberts was the General Department Representative on the Efficiency Rating Board of Review for the Smithsonian Institution. In this connection he attended the Civil Service Commission Institute of Efficiency Rating Boards of Review. He represented the Smithsonian Institution at a meeting held in Washington, D. C., April 15, 1947, for the purpose of organizing a National Council for Historic Sites and Buildings.

From July 1, 1946, to June 30, 1947, Dr. Roberts served as a member of the executive committee of the Division of Anthropology and Psychology, National Research Council.

During the absences of the Chief, Dr. Roberts was Acting Chief of the Bureau.

The beginning of the fiscal year found Dr. John P. Harrington, ethnologist, at Searchlight, Nev., from which point he traveled with Murl Emery to a point above Cottonwood Island in one of the wildest portions of the Colorado River where, according to Indian tradition, is the house of Matavilya, principal deity of the lower Colorado region. The house of Matavilya was discovered to be a natural formation consisting of a butte about 200 feet high on the western side of the river, and opposite this butte another, perhaps 500 feet in height, on the

eastern side of the river. These two buttes are interpreted by the ancient Indians of the region as being what remains of the doorposts of the house of Matavilya, and Indian tradition has evidently attached itself to this place for many generations, probably for many centuries.

The interesting myth was obtained which recounts the destruction of the house at the time of the cremation of Matavilya. Considerable time was spent in checking with surviving ancient Indians in regard to the discovery of this important site, Dr. Harrington going as far as Tehachapi, Calif., for this purpose.

On November 6, 1946, Dr. Harrington returned to Washington, D. C., and the entire remainder of the fiscal year was spent in sorting over and preparing various articles for publication.

The first of these undertakings was the preparation of an article on the State Names of Mexico. This paper covers not only the state and territory names of Mexico, but also the country names of Central America and South America. Several of the etymologies are new, notably that of the name of the Mexican State of Yucatan, which is here seen to be derived perhaps from a hypothetical form Yucahtan.

The next item completed was an article on the Tewa language of New Mexico. A paper on the Province Names of Canada was next finished. Compilation for this work had long been in progress, part of it done in Canada.

An extensive paper on the Aleutian language was next written, embodying the results of previous field work in Alaska. Another paper was prepared consisting of a detailed ethnogeographic description of the projecting rocks and islands off the coast of California.

A manuscript was completed with the title "Quirix is the Native Name of San Felipe Pueblo." This paper sets forth the unique thesis that Bandelier is wrong in assuming that Quirix, which gives its name to the Keresan linguistic stock, is Bernalillo, or any site in the vicinity of Bernalillo, but that the recorded form is a Spanish spelling of the Indian name of San Felipe. The Tewa of the Castañeda account of the Coronado Expedition would then be Isleta, and Isleta is still called Tewa in Keresan.

A number of short papers were also written, the titles being as follows:

The Name Yucatan.
The Name Colorado.
The Three Earliest Mentions of the Turquoise Mines of New Mexico.
The Name Chuckwalla.
Rita, a Short-Cut for Saying Riito.
De Alarcón has the Name of Zunyi Salt Lake.
Olivella River, the Old Name of Santa Fe Creek.
Trail Holder.
H'aak'o, Original Keresan Name of Acoma.

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Dr. Henry B. Collins, ethnologist, continued his investigations in Eskimo anthropology. During the winter he completed the numbering and cataloging of his collection of some 7,000 archeological specimens excavated at Cape Prince of Wales and other prehistoric Eskimo village sites around Bering Strait.

At the February meeting of the Board of Governors of the Arctic Institute of North America, Dr. Collins was elected vice chairman of the Institute. His article, The Origin and Antiquity of the Eskimo, tracing the Old World affiliations of the Eskimo culture and race type, will appear as one of the chapters of a general book on the Arctic to be published by the Arctic Institute.

In May Dr. Collins was appointed Chairman of the Directing Committee for the Arctic Bibliography and Roster, two separate projects which the Arctic Institute of North America is carrying out under contract for the Office of Naval Research of the Navy Department. In these projects the Arctic Institute is receiving active cooperation and assistance from the Library of Congress and the National Research Council. Officials of the latter organizations, and representatives of the Navy, Army, and Board of Governors of the Arctic Institute comprise the directing committee, which serves as a policy and advisory body with the responsibility of organizing and supervising the work on the two projects. The bibliography project will be conducted by four experienced bibliographers, with clerical assistants, working in the principal libraries in the United States and Canada. It will have as its objective the compilation of an annotated, fully indexed bibliography covering the descriptive, geographical, and other scientific literature on the Arctic from the earliest historical writings to those of the present time. It is estimated that the bibliography project will require at least 3 years for completion. The Roster of Arctic Specialists, a 2-year project, is to be conducted by a staff of three workers, headed by a former official of the National Roster of Scientific and Specialized Personnel. The roster will be patterned after the National Roster and the World Roster of Area and Language Specialists compiled by the Ethnogeographic Board during the war. Its purpose will be to assemble a comprehensive record of the experience and specialized knowledge of scientists, explorers, writers, and Arctic residents who possess first-hand information of value concerning the Arctic and sub-Arctic regions.

Dr. Collins wrote the article Anthropology for the 1947 Encyclopaedia Britannica Book of the Year. He also served as anthropological consultant for the Encyclopedia Arctica, which is being edited by Dr. Vilhjalmur Stefansson for the Navy Department. In this capacity he organized the anthropological sections of the Encyclopedia and contributed several articles on archeological subjects.

In June Dr. Collins left Washington for Martha's Vineyard, Mass., to conduct a 6 weeks' archeological survey of the island.

Returning to a study of the social organization and ceremonial life of the Seneca Nation commenced before the war, Dr. William N. Fenton, ethnologist, established field quarters on the Allegany Reservation between July 1 and September 18, when he returned to Washington. Observations made 10 years ago were repeated at meetings of two orders of the Medicine Society, and observing the Green Corn Festival for the fifth time afforded information on social and cultural change. At the behest of one of the chiefs, Dr. Fenton recorded from Fannie Stevens, matron of the Heron clan, several hundred personal names belonging to the eight Seneca clans. Recordings made in 1945 for a forthcoming album of Seneca music were played repeatedly to the singers and interpreters to assure accuracy of texts. With a possible documentary film in mind, 700 feet of 16-mm. Kodachrome moving pictures were taken of various activities in the Coldspring community. An additional week of field work from October 7 to 12 permitted verifying some of the personal names in genealogies taken in 1933.

Cultural affinities between the northern Iroquoians and their southern cousins, the Cherokee of the Great Smoky Mountains, have occupied the attention of Bureau ethnologists since Mooney's time. At the invitation of Lester M. Hargrett, of Washington, the bibliographer of Indian Laws, Dr. Fenton motored to Cherokee, N. C., in early December. We owe a brief and intensive introduction to Cherokee ethnology to Will West Long, who was 17 when James Mooney came to Cherokee and whose name is associated with the work of every field ethnologist who ventured into Big Cove settlement from 1887 until March 14, 1947, when Will passed away.

Dr. Fenton obtained information for contrasting the Boogah Dance of the Cherokee with masked performances of the Iroquois False-face Society, and some additional details were collected on the Eagle Dance, a variant of the calumet ritual, which reached the Iroquois during the eighteenth century by one documented line of diffusion from the Catawba and Cherokee of the Southeast. When recordings of Cherokee and Seneca Eagle Dance songs are compared, it will develop that they are derived from a common source. Photographs were made of the Cherokee mask-making process, and some portraits of Mr. Long in characteristic Eagle Dance postures. A report of these findings has been prepared for publication.

Two collections of Americana seen on this trip deserve mention. The MacGregor Collection in the Library of the University of Virginia contains some notable early items on American Indians. Dr. T. H. Spence, Librarian of the Historical Foundation of the Presbyterian

Reformed Church, Montreat, N. C., called attention to an extremely rare pamplet which describes Chickasaw and Choctaw towns, locates certain mounds, and contains notes on pigeon roosts (A Brief History of the Mississippi Territory; to Which is Prefixed a Summary View of the Country between the Settlements on Cumberland River, and the Territory, by Rev. James Hall, A. M., Salisbury (N. C.) : 12 mo., pp. (2) 70, printed by Francis Coupée, 1801).

The second conference on Iroquois research, which Dr. Fenton organized in 1945, was again the outstanding event in Iroquois studies. The conference, held October 4, 5, and 6, in cooperation with the Allegany State Park Commission at Red House, N. Y., brought together anthropologists and historians interested in the Iroquois from the Northeastern States, Canada, and the Middle West. Charles E. Congdon of Salamanca, N. Y., and Merle H. Deardorff of Warren, Pa., were cohosts to the conference.

Dr. Fenton gave several lectures during the year on topics related to his work; on September 10 to the L. H. Morgan Chapter, New York State Archaeological Association, Rochester; October 15 to the Anthropological Society of Washington; December 12 to the Arts Club of Washington.

A chapter was completed for a forthcoming report of the American Folklore Society: "Research in American Folklore: Plains, Eastern Woodlands, and Contact Folklore between Indians and Colonial Settlers." Seneca Songs from Coldspring Longhouse was prepared as program notes to an album of records which the Library of Congress is publishing. Work was continued on a final draft of a report for the Smithsonian Miscellaneous Collections, A Cayuga Condolence Cane with Pictographs Denominating the Founders of the Iroquois League, a study which Dr. Fenton commenced several years ago at the request of the Cranbrook Institute of Science.

As a member of the Committee on International Cooperation in Anthropology, National Research Council, Dr. Fenton attended two meetings in Washington, and prepared a report on Anthropology during the War, VII: The Arab World (American Anthropologist, 1947, pp. 342–343). He relinquished secretaryship of the Anthropological Society of Washington, becoming vice president, and continued to give considerable time to the Journal of the Washington Academy of Sciences, as senior editor during 1947.

Publications.—Place names and related activities of the Cornplanter Senecas, V: The path to Conewango (Pennsylvania Archaeologist, vol. 16, pp. 42–56, April 1946).

Twi-yendagon (Woodeater) takes the heavenly path; on the death of Henry Redeye (1864?–1946), Speaker of the Coldspring Seneca

Longhouse (American Indian, American Association on Indian Affairs, vol. 3, No. 3, pp. 11–15, 1946).

Integration of Geography and Anthropology in Army Area Study Curricula (Bulletin American Association of University Professors, vol. 32, No. 4, pp. 696–706, winter, 1946).

Area studies in American universities (Commission on Implications, Armed Services Educational Programs, American Council on Education, xi+89 pp., Washington, 1947).

In addition, several reviews were prepared and published in the United States Quarterly Book List, and in other journals.

Dr. Philip Drucker, anthropologist, returned to his official station at Washington from Mexico at the beginning of the fiscal year. While awaiting the arrival of the collections from San Lorenzo Tenochtitlan, he began a study of the La Venta ceramic collections, excavated by the National Geographic Society-Smithsonian Institution expedition in the spring of 1942.

During the ensuing months he classified some 24,000 sherds from the site of La Venta, recording descriptive data and stratigraphic distributions which will be embodied in the final report on the culture represented at this key site of Olmec culture. At the conclusion of his study of these materials he prepared a brief paper entitled "Some Implications of La Venta Ceramics," for the Smithsonian Miscellaneous Collections.

On February 8, 1947, he proceeded from Washington to Mexico on a joint expedition of the National Geographic Society and the Smithsonian Institution. The purpose of this expedition was to make an archeological survey of the Pacific coast of the state of Chiapas, Mexico. From the time of his arrival in Tapachula, Chiapas, on February 16, until his departure from Tonalá, Chiapas, on May 24, he tested 15 archeological sites, obtaining from each collections of sherds ranging from 2,000 to 4,000 pieces on the average. Among these sites were several whose ceramics indicated a relationship with the Mixteca-Puebla area of the Highland, and which are probably to be attributed to the late pre-Conquest intrusions of the Nahuatl-speaking Pipil, colonies of whom penetrated as far southeastward as Nicaragua. Other sites yielded wares that indicate affiliation with more ancient horizons, one such linking very definitely with the oldest ceramic complex yet known from Guatemala Highland and coast: the Miraflores horizon. One of the outstanding finds of the survey was the discovery of a midden deposit over 3 meters in depth, containing pottery in the upper 1.2 m., and no trace of ceramics below this point. This site requires more extensive excavation than was possible during the survey, but it is quite possible that it may contain the earliest remains yet known from southern Mexico and Central America—perhaps pre-

ceramic and early ceramic horizons whose existence up to now has only been suspected but never demonstrated.

In the month of March, during the survey work, Dr. Drucker made a brief visit to Guatemala City where, through the courtesy of Drs. R. E. Smith and Edwin Shook of the Carnegie Institution, he was permitted to study pottery collections from the Guatemala Highlands and coast, in the Carnegie Institution Laboratory.

From Tonalá, Dr. Drucker proceeded to Mexico City to arrange for the exportation of the collections.

On June 9 Dr. Drucker arrived in Washington, D. C., where he was detailed to the River Basin Surveys project, under the direction of Dr. Frank H. H. Roberts, Jr., Associate Chief of the Bureau of American Ethnology. After a series of conferences with Dr. Roberts, Dr. Drucker proceeded on June 16 to the Pacific coast to take charge of archeological work in areas to be inundated by Bureau of Reclamation and Corps of Engineers dams in that area.

From July 1 through September 1 Dr. Gordon R. Willey, anthropologist, continued his field investigations, begun in March of 1946, as a member of the Virú Valley Expedition to northern Peru. The Virú program was a cooperative attempt, on the part of a group of anthropologists and a geographer, to study thoroughly a single valley of the Peruvian coast as a living unit through some 3,000 years of time. Archeological, geographical, and modern community studies were embraced in the project, which was under the direction of a steering committee of the Institute of Andean Research. As one of the major participants, Dr. Willey represented the Bureau on the steering committee. His own share of the research consisted of a survey of the prehistoric settlement patterns of the valley.

At the close of field operations in August over 300 sites had been studied from the point of view of community plan or settlement pattern. These sites were selected from all sections of the valley, and it is estimated that they represent a 25-percent sample of the total sites in the valley. All types of sites were included in the sample—cemeteries, dwelling units, fortifications, temples, and palaces. In addition particular attention was paid to prehistoric irrigation canals, evidences of past land utilization, and ancient roads. Preliminary analysis shows eight cultural periods to be represented. The survey was accomplished with the aid of jeep transportation and large-scale air photo-maps. A technique of site mapping, involving the use of an epidiascopic projector, was worked out with the air photos. The final report on this survey is now in preparation.

In addition to the settlement survey Willey also excavated at two burial sites, one in the upper and one in the lower valley. A report on the first of these sites has recently been published.

Early in August Willey took part in the Conference on Peruvian

Archeology held at Hacienda Chiclín. At this time he presented a preliminary summary of his field results.

After the work in Virú was terminated, Dr. Willey made a brief visit to the Lambayeque Valley, north of the city of Trujillo, and examined collections in the important but little-known Bruning Museum. Returning south to Lima, he began a protracted trip by automobile, going from Lima to Caamaná and from there inland to the Lake Titicaca region. From Puno, on the lake, he proceeded north to Cuzco, Ayacucho, Huancayo, and returned to Lima. During this trip, which consumed some 2 to 3 weeks during the month of September, he visited numerous archeological sites. The most significant of these was the great architectural cluster at Huari near Ayacucho, the presumed center for the Middle Period Tiahuanacoid diffusion throughout Peru.

Upon his return to the United States in October Dr. Willey prepared several short papers and began the initial work of organizing notes, maps, and photographs on the Virú settlement-pattern study. He was engaged in this until April of 1947. For the last 3 months of the fiscal year he transferred his research interests toward the completion of a large monograph on the archeology of the Florida Gulf coast. This latter work, which embraces earlier field work of the author, as well as past field studies made by the Bureau in the Florida Gulf area, is intended as an over-all archeological summary of the region.

During the year Dr. Willey also served as assistant editor to the professional journal, American Antiquity, and submitted various news items on recent researches in archeology in South America. He held a similar position with the Handbook of Latin American Studies for which he prepared bibliographic extracts on some 50 titles dealing with South American archeology and wrote a general summary of recent archeological activities for the South American Continent during the year 1945.

In April Dr. Willey visited the Public Museum at Rochester, N. Y., where he delivered a lecture on the Virú work before the annual meeting of the New York State Archeological Society.

The following articles were written by Dr. Willey during the fiscal year 1946–47:

1. The Virú Valley Program in Northern Peru. Acta Americana, vol. 4, No. 4, 1946.
2. A Middle Period Cemetery in the Virú Valley, Northern Peru. Journ. Washington Acad. Sci., vol. 37, No. 2, 1947.
3. Ecuadorean Figurines and the Ceramic Mold in the New World. (In press.)
4. Growth Trends in New World Cultures. (In press.)
5. An Interpretative Analysis of Horizon Styles in Peruvian Archeology. (In press.)

In addition, one book review was prepared for Science.

INSTITUTE OF SOCIAL ANTHROPOLOGY

The Institute of Social Anthropology was created in 1943 as an autonomous unit of the Bureau of American Ethnology to carry out cooperative training in anthropological teaching and research with the other American Republics. During the past year it was financed by transfers from the State Department, totaling $113,150, from the appropriation "Cooperation with the American Republics, 1947." The major activities of the Institute of Social Anthropology during the fiscal year 1947 are as follows:

Washington office.—The Institute of Social Anthropology maintains headquarters in Washington for general planning, direction, and servicing of field projects. Dr. Julian H. Steward, founder and first Director of the Institute, resigned in September 1946 to accept a professorship at Columbia University. He was succeeded by Dr. George M. Foster, previously stationed in Mexico as social anthropologist of the Institute of Social Anthropology.

Brazil.—Cooperation with the Escola Livre de Sociologia e Politica began October 1, 1945, when Dr. Donald Pierson was assigned as representative of the Institute of Social Anthropology to Brazil. In February 1946 Dr. Kalervo Oberg was assigned as cultural anthropologist to cooperate with the Escola Livre.

In effect, the Institute has taken over and expanded a program which was begun under Dr. Pierson in 1940 and which has helped make the Escola Livre one of the most important social-science centers in South America.

During the fiscal year 1947 Institute of Social Anthropology scientists have given seven courses in sociology and anthropology, to supplement other courses given by local professors in the general field of the humanities. Advanced students have been given field training both in Mato Grosso among Indian groups, and among the rural peoples in the State of São Paulo, some distance from the city. This represents a very considerable educational advance, since for the first time advanced Brazilian students in anthropology and sociology, as a part of their regular courses, have been required to supplement theoretical classroom training with actual field experience. A number of papers by Smithsonian personnel and local students have been published in scientific series or journals other than Smithsonian volumes. Two monographs based on field work in 1947 are being prepared for publication by Smithsonian personnel in Smithsonian series, and Brazilian students also are preparing field notes for publication in Portuguese.

Smithsonian staff members have continued to guide the program of translating 200 articles and 13 books from English into Portuguese,

mentioned in last year's report. This work, financed by outside funds, is of great importance as an aid to teaching.

Colombia.—Cooperation with the Instituto Etnológico of the University of Cauca in Popayán began December 1, 1946. The Institute of Social Anthropology is represented by Dr. John H. Rowe who is engaged in cooperating with local personnel in the organization of this new institution and in giving three courses in anthropology to students. A short survey of the habitat of the Guambiano Indians has indicated that this is a satisfactory region for field work, which begins on a cooperative basis during the summer of 1947, with the participation of Colombian professors and students.

Mexico.—Cooperation with the Escuela Nacional de Antropología, a dependency of the Ministry of Education, began June 1, 1944. Dr. George M. Foster, social anthropologist, was replaced by Dr. Isabel Kelly, when the former was transferred to Washington. Dr. Stanley S. Newman, linguist, and Dr. Robert C. West, cultural geographer, are the other two Institute of Social Anthropology representatives in Mexico.

During the fiscal year 1947 these scientists have given five courses in social anthropology, linguistics, and cultural geography. The scene of field research was shifted in January 1947 from the Tarascan area, described in last year's report, to the Totonac Indian area east of Mexico City. Two monograph-length papers dealing with the Tarascans have been submitted by Smithsonian personnel for publication in the series of the Institute of Social Anthropology. A number of student papers have appeared in Mexican sources, and longer monographs in Spanish are ready for publication.

Peru.—Work began in Peru in January 1944, when that country had no institution devoted essentially to social science teaching and research. Subsequently a national center of social science, the Instituto de Estudios Etnológicos, of the Ministry of Education, has been established. Institute of Social Anthropology personnel cooperate with this Institute. During 1947 the Institute of Social Anthropology was represented in Peru by F. Webster McBryde, cultural geographer, and Dr. Allan Holmberg, social anthropologist, who arrived in July 1946 to succeed Dr. Harry Tschopik, Jr.

A party of six students and one professor accompanied Institute of Social Anthropology personnel to the Virú Valley in northern Peru for ethnographical and geographical field work during the months January to April 1947. Under the guidance of the Smithsonian scientists this material is now being prepared for publication. Courses also are being given in the Instituto de Estudios Etnológicos. In addition, the cultural geographer has aided in the reorganization of the

Geographical Society of the University of San Marcos in Lima, and in establishing the teaching curriculum of this department.

Publications.—One monograph of the series Publications of the Institute of Social Anthropology appeared in June 1947—Publication No. 3, Moche, a Peruvian Coastal Community, by John Gillin. Publication No. 4, Cultural and Historical Geography of Southwest Guatemala, by Felix Webster McBryde, Publication No. 5, Highland Communities of Central Peru: A Regional Survey, by Harry Tschopik, Jr., and Publication No. 6, Empire's Children: the People of Tzintzuntzan, by George M. Foster, were in proof. Publication No. 7, Cultural Geography of the Modern Tarascan Area, by Robert C. West, and Publication No. 8, Sierra Popoluca Speech, Mary L. Foster and George M. Foster, were edited and sent to the printer. Mrs. Eloise B. Edelen of the editorial staff of the Bureau of American Ethnology, did the editorial work on these publications.

RIVER BASIN SURVEYS

The River Basin Surveys were instituted in the fall of 1945 as a unit of the Bureau of American Ethnology. They were organized to carry into effect a memorandum of understanding between the National Park Service and the Smithsonian Institution. This memorandum provided for surveys to determine the extent and nature of archeological and paleontological remains occurring in areas to be flooded by the construction of dams by the Bureau of Reclamation and the Corps of Engineers, United States Army. The memorandum was signed on August 7, 1945, by Newton B. Drury, Director of the National Park Service, and on September 8, 1945, by Alexander Wetmore, Secretary of the Smithsonian Institution, and was approved by Harold L. Ickes, Secretary of the Interior, on October 9, 1945.

The first actual field work got under way in July 1946. A transfer of $20,000 at the end of May 1946, by the Bureau of Reclamation through the National Park Service, provided the necessary funds for starting survey parties in the Missouri Basin. An additional $40,000 subsequently was made available by the Bureau of Reclamation for work in this area during fiscal 1947. In September 1946 $27,000 was transferred by the Corps of Engineers, through the National Park Service, for surveys outside of the Missouri Basin, and in March 1947 $4,500 was transferred by the Bureau of Reclamation for surveys in the Columbia-Snake Basin. The Missouri Basin funds were for use in both Bureau of Reclamation and Corps of Engineers projects. The money provided by the Corps of Engineers was for Corps of Engineers projects only, while the Columbia-Snake Basin money was for use only in Bureau of Reclamation projects.

The first survey parties were started in the Missouri Basin. These were followed by investigations in Georgia, Virginia-North Carolina, Texas, California, and the Columbia-Snake Basin. Supervision and direction of the surveys in Georgia, Virginia-North Carolina, Texas, and California were carried on from the main office in Washington. Direction of the work in the Missouri Basin was from a field office located at Lincoln, Nebr., and the Columbia-Snake Basin investigations were based on a field office established at Eugene, Oreg.

The Bureau of Reclamation and the Corps of Engineers made the entire salvage program possible through the transfer of funds, but in addition both agencies contributed in no small degree to the successful inception of the surveys through their cooperation in other ways. Division and District Engineers and Bureau of Reclamation personnel did much to facilitate the work of the survey men in the field. In some areas transportation was provided, in others, necessary labor was furnished to aid in emergency excavations, and elsewhere temporary office space and storage facilities were made available at project headquarters. The genuine interest and desire to assist on the part of all with whom the members of the River Basin Surveys staff were associated in the various reservoir areas greatly aided the progress of the investigations. The planning of a Nation-wide archeological survey on a scale hitherto not believed possible became feasible with the transfer of funds. The cooperation of the National Park Service has been of marked benefit to the program and much credit is due to its officials for the obtaining of the the necessary funds and for the pleasant relationship existing between all the agencies involved in the program.

Washington office.—Throughout the fiscal year the main office of the River Basin Surveys continued under the direction of Dr. Frank H. H. Roberts, Jr. Carl F. Miller, archeologist, joined the staff on November 6, 1946. Miss Madeleine A. Bachand was appointed clerk-stenographer on March 3, 1947, and continued to serve throughout the year.

Mr. Miller was preparing to leave for the Pearl River project at Bogalusa, La., on November 13, 1946, when a request was received from the district engineer to postpone this work indefinitely because the project had been stopped. Mr. Miller was then assigned to the study of proposed projects in the Middle Atlantic Division of the Corps of Engineers. He devoted his time to searching the literature for information about sites which might be involved by construction programs in Pennsylvania, Virginia, North Carolina, and West Virginia. During this period he also assisted the director in obtaining information about proposed projects of the Bureau of Reclamation in various parts of the country outside the Missouri Basin. On February 11,

1947, he left Washington for Richmond, Va., to confer with the officials at the Region 1 office of the National Park Service. From Richmond he proceeded to Norfolk, Va., on February 13, to confer with the district engineer, Corps of Engineers, about a survey of the Buggs Island project on the Roanoke River. He left Norfolk on February 14 and went to South Hill, Va., where he established headquarters. From that date until May 4 he surveyed all the Virginia and part of the North Carolina portion of the reservoir basin. He then returned to Washington and devoted the remainder of the fiscal year to preparing a preliminary report on the results of the survey and making recommendations and estimates for an excavation program in that area.

Missouri Basin.—The first steps in initiating investigations in the Missouri Basin were the establishment of field headquarters at Lincoln, Nebr., and the assembling of personnel to undertake the field surveys. Dr. Waldo R. Wedel, associate curator of archeology, United States National Museum, who had been detailed to the River Basin Surveys for that purpose, left Washington for Lincoln, Nebr., on July 8, 1946, and upon his arrival there began instructing the personnel recruited for the project and assembling equipment needed in the field. Through the courtesy of the University of Nebraska, office space was provided at the University's Laboratory of Anthropology. Later, additional space was made available for a laboratory. This arrangement continued throughout the year, and on June 30, 1947, both the field office and the project laboratory were housed in the basement of the Love Memorial Library on the university campus.

Actual reconnaissance started on August 3, 1946, and continued for a period of 7 weeks, at the end of which weather conditions made it necessary for the men to return to field headquarters. During this time, 3 parties of 2 men each, limited because of inadequate transportation, covered more than 13,000 miles and made preliminary investigations at 28 top priority Bureau of Reclamation projects and at 5 Corps of Engineers reservoirs. Since complete coverage of each reservoir basin was in no case possible, additional surveys were recommended for most of the units visited. One field party returned to the Harlan County Reservoir, Nebr., for a period of 5 weeks, October 16 to November 23, 1946, and with the aid of local labor tested a number of sites and removed material which was being damaged by erosion or being excavated by unauthorized collectors.

Dr. Waldo R. Wedel returned to Washington and to his regular duties at the National Museum on October 18, 1946. At this time Paul L. Cooper was designated as acting director for the Lincoln office and continued to serve in that capacity until May 21, 1947, when Dr. Wedel, who had again been detailed to the Surveys, returned to Lincoln and resumed his supervision of the Missouri Basin program.

During the fall and winter months at Lincoln the staff members prepared and completed preliminary appraisal reports covering 25 of the projects visited during the 1946 field season. By June 30 most of these reports had been distributed to the National Park Service, the Bureau of Reclamation, and the Corps of Engineers, or were ready to be mailed. A general paper entitled "Prehistory and the Missouri Valley Development Program: Summary Report on the Missouri River Basin Archeological Survey in 1946," written by Dr. Wedel, was published in April in the Smithsonian Miscellaneous Collections, volume 107, No. 6. Throughout this period the field laboratory cleaned and cataloged more than 10,000 archeological specimens gathered from 208 different sites, and in addition processed 426 photographic negatives and prepared approximately 2,200 prints for use in the reports. Maps were drawn showing the location of sites in each reservoir area, and the reports were mimeographed, assembled, and made ready for distribution.

Field work was resumed in the latter part of April when three archeological parties consisting of four men each and one paleontological party consisting of one man, started for various reservoir projects. The paleontologist subsequently was joined by a student assistant. In addition to further investigations in reservoir areas visited during the 1946 field season, other projects were added to the list, and by the end of the fiscal year a total of 44 Bureau of Reclamation and 6 Corps of Engineers projects had been surveyed. They are located in the States of Kansas, Nebraska, South Dakota, North Dakota, Wyoming, and Montana. All parties were in the field on June 30 and expected to continue throughout the summer. During this period Dr. Wedel directed operations in the Lincoln office and made several visits to the field parties at the locations where they were working. He also attended conferences between the regional officers of the National Park Service and Bureau of Reclamation and Corps of Engineers representatives.

The survey findings to date indicate that the Wyoming-Montana area contains few pottery-bearing sites. There, as in the western Dakotas, stone circles or "tipi-rings" are to be found in great numbers. Numerous outcrops of artifacts in strata exposed by stream cuttings are plentiful and occur at varying depths below the surface. Some of them give promise of containing material belonging to early occupations, possibly even those of the Paleo-Indian, and they may supply much needed data on that phase of Plains prehistory. Throughout northern Kansas and northwestern Nebraska pithouse villages attributed to semisedentary peoples predominate. Pottery-bearing sites as well as "tipi-rings" occur on the tributaries of the Missouri in North and South Dakota. Groups of mounds, village remains, and former camp sites suggesting a more sedentary type of

occupation than that west of the Missouri occur in the Jamestown-Devils Lake-Sheyenne area. Along the main stream of the Missouri in the Dakotas are some of the largest and best preserved and most impressive fortified Indian village sites in the United States. They contain much of the story of the development of Arikara, Mandan, and other upper Missouri cultures.

In many of the sites there is evidence of stratification and a sequence of cultures or a series of stages in cultural development. Others contain the record of prehistoric floods, of silting and soil erosion, of recurrent droughts, and fluctuation in climate. The excavation and the interpretation of the data contained in such sites will contribute greatly, not only to the story of the growth and development of the Plains Indians, but to our understanding of conditions similar to those met and overcome by the aboriginal peoples. For this reason the excavation and testing of several sites in three Bureau of Reclamation reservoirs was recommended for the fiscal year 1948, and for two important sites at one Corps of Engineers project.

J. Joseph Bauxar, archeologist, joined the Missouri Basin staff on July 15, 1946. From that date until August 3 he devoted his time to obtaining information on archeological remains in the Dakotas, from reports on previous excavations and surveys in that area, and in making preparations for work in the field. From August 3 until September 22, in company with Paul L. Cooper, he engaged in a preliminary reconnaissance of reservoir projects in Nebraska, South Dakota, North Dakota, and Montana. In these reservoir basins a total of 68 sites were examined, site locations and descriptions being recorded and surface collections made. During the laboratory period, from September 22 until April 24, 1947, Mr. Bauxar prepared preliminary reports for seven of the reservoirs, Angostura, Box Butte, Bronco, Crosby, Deslacs, Fort Randall, and Jamestown, and prepared a technical report entitled "Notes on the Archeology of the Upper James and Sheyenne River Valleys and the Devils Lake Area." From April 24 until May 7 he joined Wesley L. Bliss in preliminary surveys of three reservoirs in Kansas, one in Colorado, and five in Nebraska. During this period 25 sites, none of which had been recorded previously, were visited. From May 7 to June 2 the time was spent in collaborating with Wesley L. Bliss and Theodore E. White on a report entitled "Preliminary Appraisal of Archeological and Paleontological Resources of the Proposed Reservoirs in the Republican River Basin." On June 2 Mr. Bauxar left Lincoln, as a member of the field party under the direction of Paul L. Cooper, to make a reconnaissance of the Fort Randall Reservoir in South Dakota. This work was still in progress at the end of the fiscal year.

Wesley L. Bliss was appointed to the Missouri Basin staff as an archeologist on July 17, 1946. From July 17 to August 4 he was occupied in making preparations for field reconnaissance in Wyoming and Montana. He left Lincoln on August 4 and returned on September 22. In this period his party made preliminary surveys in six reservoir areas in Wyoming, one which lies both in Wyoming and Montana, and three in Montana. A total of 74 archeological and paleontological sites were found and recorded, and surface collections were made from each. The fall and winter months, September 22, 1946, until April 24, 1947, were spent at the Lincoln headquarters doing laboratory and library research and in writing preliminary reports. Reports were prepared for the Boysen, Tiber, and Medicine Lake Reservoirs. In addition, Mr. Bliss prepared a draft of a paper entitled "A Preliminary Appraisal of the Historic and Prehistoric Occupation of the Western Plains." Some revision and the checking of some material were needed to complete the paper. In the early spring of 1947 Bliss made several unofficial week-end visits with other members of the staff to archeological sites along the Missouri, north of Kansas City, and on the Big Blue River in Nebraska. These were for the purpose of obtaining a wider knowledge of archeological manifestations in the area. In one case the trip was instrumental in stopping the destruction of a group of mounds in the path of a real-estate subdivision. From April 24 to May 7, 1947, Mr. Bliss, in association with J. Joseph Bauxar, as previously noted, made a reconnaissance of nine proposed reservoirs in Kansas, Colorado, and Montana. He assisted in the preparation of the report on the Smokey Hill Sub-basin. On June 10 Mr. Bliss left Lincoln in charge of a field party and proceeded to the Glendo Reservoir in Wyoming where the remainder of the month was devoted to an intensive survey. At the end of the fiscal year, 30 sites had been located in addition to the ones noted during the preliminary reconnaissance in the summer of 1946.

Paul L. Cooper, archeologist, became a member of the Missouri Basin staff on July 15, 1946. Between that time and August 3 he assisted in the preparations for work in the field and made two trips to Omaha with Dr. Wedel for the purpose of consultation with members of the National Park Service and the Corps of Engineers. On August 3 he left Lincoln with J. Joseph Bauxar to make preliminary surveys at reservoir sites in Nebraska, South Dakota, North Dakota, and Montana. As previously noted, 68 archeological and paleontological sites were located during the course of this survey. Mr. Cooper returned to the Lincoln headquarters on September 22, and from October 7, 1946, to May 21, 1947, was in charge of the operation of the office and laboratory. During this period he planned and supervised the work of the project personnel, compiled monthly progress reports for the

National Park Service and the Bureau of Reclamation, assisted in the setting up of record systems in the laboratory and in establishing methods for issuing the reports based on the field work and laboratory studies. Owing to a shortage of personnel, it was necessary for Mr. Cooper to devote much of his time to direct supervision and to many of the actual operations involved in mimeographing and distributing the preliminary appraisals of the archeological and paleontological resources of the various reservoirs. In May Mr. Cooper represented the River Basin Surveys at a symposium on the River Valley program conducted by the Nebraska Academy of Sciences. During the period May 21 to June 2, 1947, Mr. Cooper prepared reports on Heart Butte, Dickenson, Deerfield, Shadehill, Blue Horse, Sheyenne, and Garrison Reservoirs, and on the Devils Lake area. Mr. Cooper left Lincoln on June 3, 1947, in charge of a field party which was to undertake a preliminary reconnaissance of the Fort Randall Reservoir on the Missouri River in South Dakota. This reconnaissance was still in progress on June 30, at which time 60 archeological sites had been located and recorded.

Robert B. Cumming, Jr., archeologist, was added to the staff as laboratory supervisor at the Lincoln headquarters on October 1, 1946. Since the laboratory was then being moved to new quarters in the basement of the Love Memorial Library building, Mr. Cumming began work by assisting in the formulation of the laboratory plan and placing the equipment in order so that routine work could proceed. During the fall and winter months he assisted in planning and initiating basic laboratory methods. A triplicate filing system was devised in which information covering approximately 175 sites was filed in a site file, a reservoir file, and a reserve file. A photographic file system was organized wherein prints were mounted on 5- by 8-inch cards bearing descriptive information and were filed in accordance with a standard trinomial system consisting of symbols for the State, county, and site. The negatives were filed in a separate cabinet using the same system for identification. Mr. Cumming also formulated the system for cleaning, cataloging, and storing the specimens and assisted in initiating an inventory procedure for equipment and supplies which he maintained throughout the year. In addition, he assisted in supervising the maintenance of equipment. He also assisted in the work and supervision of the preparation of illustrations, drafting of site maps, typing, mimeographing, proofreading, and assembling of the preliminary reports. During such times as the field directors were absent from the headquarters office, he handled the business routine in the office. At the close of the fiscal year Mr. Cumming was engaged in processing the records sent in from the field for 50 sites located after resumption of the survey work. Because the laboratory was under-

staffed during much of the year, it was necessary for Mr. Cumming to perform tasks which should have been done by laboratory workers. This condition was relieved somewhat during the last few weeks of the fiscal year when several part-time workers were added to the staff. This enabled Mr. Cumming to devote more time to the technical aspects of the laboratory problem.

Jack T. Hughes, archeologist, was appointed to the Missouri Basin staff on July 15, 1946. From then until August 4 he assisted in the preparations for field work and received instructions as to the manner in which the surveys were to be conducted. On August 4 he left Lincoln with Wesley L. Bliss for a preliminary reconnaissance of Bureau of Reclamation reservoir sites in Wyoming and Montana. He returned to Lincoln on September 22 after having assisted in the examination of the 10 reservoirs previously mentioned in the discussion of the work of Mr. Bliss. During the period from September 22, 1946, to May 3, 1947, Mr. Hughes engaged in library research, laboratory analysis of specimens, and the preparation of reports. Preliminary appraisals were written for the Glendo, Kortes, Boysen, Anchor, Lake Solitude, and Oregon Basin Reservoirs in Wyoming, the Yellowtail Reservoir in Wyoming and Montana, and the Canyon Ferry Reservoir in Montana. Technical reports were also written for Glendo, Kortes, Boysen, Anchor, Oregon Basin, and Yellowtail. From May 3 to May 12, 1947, Mr. Hughes participated with Marvin F. Kivett, in a brief reconnaissance of seven proposed reservoir sites in the Lower Platte Basin of Nebraska. After his return to Lincoln, he assisted in the preparation of the preliminary appraisal of the archeological resources of this group of reservoirs in the Lower Platte Basin of Nebraska. On June 10 he left Lincoln with the field party under Wesley L. Bliss and spent the remainder of the month at the Glendo Reservoir in eastern Wyoming.

Marvin F. Kivett joined the Surveys staff on July 15, 1946, as archeologist. On August 2 he left Lincoln to make a reconnaissance of eight reservoir areas in Kansas, Nebraska, and Colorado. This work continued until September 20, 1946, when he returned to Lincoln. In the course of 7 weeks spent in the field, a total of 75 archeological sites were recorded in the 8 reservoir areas; 60 of these sites were unreported prior to the reconnaissance. On October 16 Mr. Kivett went to the Harlan County Reservoir, Nebr., where he carried on an extensive survey until November 23. This included excavation in a prehistoric ossuary and limited test excavations in four occupational areas. This work produced much information on the nature of the archeological remains in the area. From November 24, 1946, to May 2, 1947, Mr. Kivett worked at headquarters in Lincoln writing preliminary appraisals of the resources of the eight reservoirs visited during the

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summer field season and in analyzing the data and specimens collected and in preparing technical reports. The preliminary reports completed and mimeographed for distribution were on the Kirwin, Cedar Bluff, and Kanopolis Reservoirs in Kansas; the Enders, Harlan County, and Medicine Creek Reservoirs in Nebraska; and the Cherry Creek and Wray Reservoirs in Colorado. Mr. Kivett left Lincoln on May 3, 1947, in company with Jack T. Hughes. From then until May 19 they made a preliminary reconnaissance of six reservoirs in the Lower Platte River Sub-basin. A total of 19 previously unreported archeological sites were located during this period. After his return to Lincoln, Mr. Kivett prepared preliminary reports on the Lower Platte River Basin including all the information obtained from the six reservoirs visited. The period from June 1 to June 9 was spent in preparing for a preliminary reconnaissance of the Garrison Reservoir in North Dakota. Mr. Kivett and his party left Lincoln for North Dakota on June 9, and at the end of the year they were engaged in a survey of the Garrison Reservoir.

Theodore E. White, paleontologist, was appointed to the general River Basin Surveys staff on April 15, 1947. From that date until April 26 he devoted his time to studying collections of fossil material from the Missouri Basin in the United States National Museum. On April 27 he left Washington for Lincoln, Nebr., and on April 29 joined the Missouri Basin staff. He left Lincoln on May 2 and spent 6 days in a reconnaissance of proposed reservoir areas in the Lower Platte Sub-basin in north central Nebraska. During this time he visited seven reservoir basins finding fossil remains in only one. These were reworked material of little scientific value. Dr. White returned to the Lincoln headquarters on May 9 and left on May 13 to make a reconnaissance of the Republican and Smokey Hill Sub-basins in southwestern Nebraska, Kansas, and Colorado. This work continued until June 6, during which time he visited nine reservoirs in Nebraska, eight in Kansas, and two in Colorado. Seven of these sites were recommended for a more detailed survey on the basis of material found and the extent of the exposures. From June 6 to June 13 Dr. White worked at the Lincoln headquarters preparing reports and recommendations for the various reservoirs which he had examined. On June 13 he left Lincoln to examine proposed reservoir areas in the North Platte Sub-basin in Wyoming, the Cheyenne River Sub-basin in Wyoming and South Dakota, and smaller sub-basins in North and South Dakota. This reconnaissance lasted until June 28, and during the period three reservoirs were visited in Wyoming, six in South Dakota and four in North Dakota. Three of the reservoirs were recommended for more detailed investigation. White returned to Lincoln on June 28 and at the end of the fiscal year was preparing to start for further survey work in Wyoming and Montana.

Several students were employed as members of the various field parties for the Surveys beginning in June 1947. Robert L. Hall and Warren L. Wittry left Lincoln on June 2 with the Cooper party for the Fort Randall Reservoir in South Dakota, and at the end of the fiscal year were occupied in the survey of that area. John L. Essex, Gordon F. McKenzie, and Leo L. Stewart left Lincoln on June 9 as members of the Kivett party to make a reconnaissance of the Garrison Reservoir area in North Dakota. Mr. Essex had previously assisted Mr. Kivett in the work at the Harlan County Reservoir, Nebr., in November 1946. H. G. Pierce joined the Bliss party and left Lincoln on June 10 to assist in the survey at the Glendo Reservoir in Wyoming. He was still with the party at the end of the fiscal year. John C. Donohoe was employed on June 27 to assist the paleontologist, Dr. Theodore E. White.

Georgia.—Intensive survey of the Allatoona Reservoir area on the Etowah River in Georgia was carried on during the period November 12, 1946, to April 1, 1947. This survey was made by Joseph R. Caldwell, of the Division of Archeology, United States National Museum, who was detailed to the River Basin Surveys for that purpose. Caldwell located 206 archeological sites representing a record of thousands of years of diverse human cultures. Information obtained from this survey has added materially to the aboriginal history of that part of Georgia. Full knowledge, however, cannot be gained without excavation of some of the sites and the testing of others. In view of this the preliminary report, prepared by Mr. Caldwell and distributed to the National Park Service and the Corps of Engineers, recommends the excavation of 10 sites and the testing of 33 others. A request for further funds for this purpose has been made by the National Park Service to the Corps of Engineers, but at the end of the fiscal year no response had been received to the request. The specimens collected from the sites examined during the course of this survey were transferred to the National Museum on April 17, 1947.

Virginia-North Carolina.—The archeological reconnaissance of the Buggs Island project on the Roanoke River was carried on during the period of February 14 to May 1, 1947. This work was under the supervision of Carl F. Miller of the River Basin Surveys staff. During the course of the investigations, 94 archeological sites were located, 2 of which are extremely important as they appear to represent an eastern phase of the so-called Folsom culture which flourished in the western plains during the closing days of the last Ice Age. Other sites are pre-Colonial and some date from the early Colonial period. The latter are significant as they contain material characteristic of the late seventeenth-century contact with European culture and their investigation would throw considerable light on this little-known era. Excavation of 14 sites including the 2 eastern Folsom examples and the testing of

5 others has been recommended. A preliminary report on the Buggs Island Reservoir was completed but had not been processed for distribution at the end of the fiscal year.

Texas.—River Basin Surveys were started in Texas in March 1947 when, through the kindness and cooperation of the authorities, a field base and headquarters were established at the Department of Anthropology of the University of Texas at Austin. A survey of the Addicks Reservoir on South Mayde Creek, a tributary of Buffalo Bayou, near Houston, got under way March 27 and was still in progress at the close of the fiscal year. The Addicks project is not a reservoir in the true sense of the word, but a flood-prevention dam which will not retain water in its basin for more than 2 or 3 weeks at a time. As a consequence, most of the sites located in the basin will be available for study or excavation during most of the year. A series of nine sites were found, however, which were being destroyed by stream action, by construction work on the dam, or by indiscriminate and unauthorized digging. As a consequence, it was necessary to shift from a reconnaissance type of survey to an intensive testing procedure to salvage as much information as possible. Six of them were examined by digging a number of test pits in various portions of the areas which they covered, and subsequently two of the six were extensively excavated. The cooperation of the district engineer, Col. D. W. Griffiths, in supplying a crew of 10 men and a foreman for a period of several weeks made these excavations possible. One of the excavated sites consisted of a stratified midden containing a sequence of several cultural horizons. Work on the site was started on May 29 and completed on June 13. The second was started on June 16 and was still being dug at the end of the fiscal year. The information and material from these two sites will provide a fairly complete sequence showing the development of aboriginal culture in this area over a comparatively long period of time. During this period, the Indians progressed from a simple hunting group to a sedentary agricultural and pottery-making people. The data obtained are a significant contribution to the hitherto little-known pre-Columbian history of this part of Texas.

The Hords Creek Reservoir on Hords Creek, near Coleman, was surveyed during the period May 6 to May 17, 1947. Only eight sites were found in the reservoir basin. Six of them were burned rock middens and two were open camp sites. None gave indication of being of sufficient importance to warrant further investigation. Comparable material is available elsewhere in locations which will not be inundated. Unless construction work should reveal subsurface deposits of archeological material, no additional work will be required in this reservoir.

The Whitney Dam area on the Brazos River north of Waco was started on May 20 and was still in progress at the end of the fiscal

year. By June 30 a little over half of the basin had been covered. Numerous sites had been located and recorded, and a number had been trenched for additional information. Several small rock shelters were excavated to salvage material which was being disturbed by unauthorized collectors. Two laborers for digging test trenches and for excavating in the shelters were supplied by the resident engineer. The Brazos flows through an important archeological and paleontological area in Texas and much information is contained in the sites which will be flooded by the Whitney Dam. On the basis of data already obtained by the survey, a number of key sites will be recommended for excavation.

Joe Ben Wheat, archeologist, was appointed to the Surveys in Texas on March 20, 1947. He left Austin on March 25 for Galveston where he conferred with the district engineer and obtained information about the priority of various Corps of Engineer projects in Texas. From Galveston he proceeded to the Barker Reservoir near Houston. He found that the project was so near completion that there was no possibility of salvaging archeological information from that area. Construction on the Barker Dam had completely destroyed one large mound and obliterated any evidence of occupation areas. As a consequence he proceeded to the nearby Addicks Dam and began a survey of that area. After learning that much of the reservoir basin would be under water only at rare intervals, Mr. Wheat turned his attention to six sites in the immediate vicinity of the dam which would be destroyed either as a result of construction or by erosion from stream action. All these were tested, and from the information thus obtained he concluded that two of them should be excavated as they contained a sequence of materials showing a number of cultural changes. In this connection he went to Galveston on May 20 and conferred with Colonel Griffiths, the district engineer. As a result of this conference, Mr. Wheat was furnished an excavation crew, transportation, and the equipment necessary for conducting the excavations. He returned to Addicks on May 22, and was able to begin actual excavations on May 29. Digging was still in progress on June 30.

Robert L. Stephenson, archeologist, joined the Surveys in Texas on April 28. From that date until May 5 he worked at Austin, conferring with members of the Museum staff at the University, studying collections of archeological material, and making preparations for field reconnaissance. He left Austin on May 6 for the Hords Creek Reservoir. From May 7 through May 17 he examined the Hords Creek Reservoir Basin, locating and recording eight archeological sites. On May 18 he left Coleman for Waco where he conferred with Frank H. Watt, of the Central Texas Archeological Association, obtaining information about archeological sites along the Brazos River, and

particularly in the area to be flooded by the Whitney Dam. On May 19 he went to Whitney and conferred with the Resident Engineer. On May 20 he began the actual survey of the Whitney Dam area and continued with that work to the end of the fiscal year. During the course of his investigations he interviewed numerous local residents, obtaining all the information possible pertaining to the occurrence of archeological sites, and studied collections of artifacts which had been gathered from sites in the area. In addition he made note of various historic remains and obtained such data as were available about them. This information was forwarded to the regional office of the National Park Service at Santa Fe, N. Mex., for the benefit of the Park Service historians.

California.—Archeological surveys were started in California in May 1947. Through the cooperation of the Department of Anthropology of the University of California, at Berkeley, headquarters for the Surveys were made available. During the period from March 21 through June 28, 1947, six Corps of Engineers proposed reservoir basins were surveyed. They were Pine Flat on King's River, Terminus on Kaweah River, Success on Tule River, Isabella on Kern River, Folsom on American River, and Coyote Valley on the east fork of the Russian River. A total of 59 sites were located, and of this number 8 have been recommended for excavation or partial excavation.

Some immediate contributions to the archeological knowledge of California were derived from the surveys. Two aboriginal soapstone quarries and three pictograph sites, none of which had been described previously in archeological literature, were located. Surface collections of sherds of the unique and little-known Yokuts-Mona pottery will permit a more extensive description of the type from archeological sources than has previously been possible.

Franklin Fenenga, archeologist, was appointed to the California surveys on March 21. He made all the surveys in the six reservoirs listed above, prepared the preliminary reports on their archeological resources, and made recommendations for further work. On June 28 Mr. Fenenga left Berkeley, Calif., for Eugene, Oreg., and at the end of the fiscal year was starting a survey of the Detroit Reservoir in the Willamette Valley.

During the course of the surveys in California Mr. Fenenga employed several student assistants. Stephen C. Cappannari served in that capacity from May 8 to 11 inclusive; Francis A. Riddell, May 29–June 1, and June 12–15; Harry S. Riddell, Jr., April 17–20; and Clarence E. Smith, April 1–6, May 1–4 and 19–25.

Columbia-Snake Basin.—The program for surveys in the Columbia-Snake Basin was just getting under way at the close of the fiscal year. Dr. Philip Drucker, anthropologist on the regular staff of the Bureau

of American Ethnology, was detailed to the River Basin Surveys for the purpose of directing the work in this area. On June 30 he had established field headquarters at Eugene, where the Department of Anthropology of the University of Oregon provided office and laboratory space. Two field parties left Eugene on the morning of June 30, one to make a reconnaissance of the Detroit Reservoir, a Corps of Engineers project on the North Santiam River, in the Willamette Valley, Oreg., and the other to make investigations at the Cascade Reservoir on the North Fork Payette River in Idaho. Plans for the summer called for the survey of 4 Corps of Engineers and 12 Bureau of Reclamation projects.

Dr. Drucker left Washington on June 17, 1947, for San Francisco, Calif. He spent the day of June 18 at Lincoln, Nebr., studying the operational procedure being used in the Missouri Basin surveys and the laboratory arrangements for processing and cataloging specimens received from the field. He arrived in San Francisco on the 19th and spent the following 2 days in conference with the regional officers of Region 4 of the National Park Service and members of the Department of Anthropology at the University of California in Berkeley. On June 22 he left San Francisco for Portland, Oreg., arriving on the 23d. At Portland he spent 2 days discussing plans for the surveys with Regional Archeologist Louis R. Caywood of the National Park Service, regional officials of the Bureau of Reclamation, and representatives of the district engineer of the Corps of Engineers. At this time he also made arrangements for the field headquarters at Eugene. He returned to San Francisco on June 24 and reported the results of his trip to Portland to the regional office of the National Park Service. He also recruited personnel for the field parties and made arrangements for the shipment of equipment from Berkeley to Eugene. He left Berkeley on June 28, arriving at Eugene, Oreg., on the 29th. He left Eugene on June 30 with the field party proceeding to the Cascade Reservoir.

Clarence E. Smith, archeologist, was appointed to the Columbia-Snake Basin surveys on June 25. He spent the following 2 days assisting Dr. Drucker and Franklin Fenenga in making preparations for the summer's field work. On June 28 he left Berkeley in company with Fenenga for Eugene, Oreg. They arrived at Eugene on the 29th and on the morning of the 30th left for the Detroit Reservoir.

Richard D. Daugherty, archeologist, was appointed to the Columbia-Snake Basin staff on June 30, and left the same day for the Cascade Reservoir in Idaho.

Francis A. Riddell joined the Surveys staff on June 26, as field assistant. He left Berkeley, Calif., on June 28 and arrived at Eugene, Oreg., on June 29. On June 30 he left Eugene in company with Mr. Daugherty and Mr. Drucker for the Cascade Reservoir.

Cooperating institutions.—The River Basin Surveys have been fortunate in receiving wholehearted cooperation from local institutions in many portions of the country. Not only has space for field offices and laboratories been provided together with the assistance and advice of members of the various staffs, as at the University of Nebraska, the University of Texas, the University of California, and the University of Oregon, but in a number of cases units in the survey program have been taken over and are being worked by universities and local organizations. This active cooperation has relieved the River Basin Surveys of a considerable burden and has made for more rapid progress throughout the country as a whole.

In Pennsylvania the Pennsylvania Historical and Museum Commission helped with the program. The University of Kentucky assumed responsibility for investigations at the Wolf Creek and Dewey Reservoir projects in that State. The Alabama Museum of Natural History conducted surveys along the lower Chattahoochee River Basin in Alabama in areas which will be inundated. The Ohio State Museum at Columbus investigated Corps of Engineers projects in that State. The University of Missouri, in cooperation with the Missouri Resources Museum and the Missouri Archeological Society, started surveys and excavations in that portion of the Bull Shoals Reservoir, on the White River, which lies in Missouri and at several Corps of Engineers projects on the Osage River. The Department of Anthropology of the University of Chicago and the Illinois State Museum at Springfield agreed to cooperate in a survey of the Illinois River Basin where 17 Corps of Engineers projects are proposed. The University of Oklahoma examined and reported on two reservoirs, one of which, the Wister, will inundate extensive and important archeological material. The University of Nebraska cooperated both in the search for and the excavation of paleontological material and in archeological reconnaissance. The Nebraska State Historical Society assisted in the survey work and also did some digging in sites which will be destroyed by construction work. The South Dakota Historical Society did some survey work and also some excavation. The University of North Dakota and the North Dakota Historical Society cooperated in making a survey at the Heart Butte Reservoir and in testing a number of sites in that area. The University of Colorado assumed responsibility for a survey of eight reservoir basins in the Colorado-Big Thompson project and for more intensive investigation at the Wray Reservoir in eastern Colorado. The University of Denver planned surveys of a number of reservoirs in the Blue River-South Platte project and of two in the Arkansas River Basin south of Pueblo. Western State College took over the examination of a group of reservoirs along the Gunnison River in western Colorado.

The Archeological Survey Association of Southern California, sponsored by a number of museums in that area, started the investigation of a number of Corps of Engineers projects in southern California. The University of Washington surveyed a number of proposed reservoir basins in that State and made all the information available to the Columbia-Snake Basin group at Eugene. It also did some excavation work.

The Reports of Progress prepared by the cooperating organizations are sent to the River Basin Surveys for coordination and are then forwarded to the National Park Service. All the information obtained thus becomes a part of the record of the River Basin Surveys in general.

EDITORIAL WORK AND PUBLICATIONS

The editorial work of the Bureau continued during the year under the immediate direction of the editor, M. Helen Palmer. There were issued one Annual Report and one Publication of the Institute of Social Anthropology, as listed below.

Sixty-third Annual Report of the Bureau of American Ethnology, 1945–46. 12 pp.

Institute of Social Anthropology Publ. No. 3. Moche, a Peruvian Coastal Community, by John Gillin. 166 pp., 26 pls., 8 figs., 1 map.

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 3: The Tropical Forest Tribes. Volume 4: The Circum-Caribbean Tribes. Volume 5: The Comparative Ethnology of the South American Indians.

Institute of Social Anthropology Publ. No. 4. Cultural and Historical Geography of Southwest Guatemala, by Felix Webster McBryde.

Institute of Social Anthropology Publ. No. 5. Highland Communities of Central Peru: A Regional Survey, by Harry Tschopik, Jr.

Institute of Social Anthropology Publ. No. 6. Empire's Children: the People of Tzintzuntzan, by George M. Foster.

Institute of Social Anthropology Publ. No. 7. Cultural Geography of the Modern Tarascan Area, by Robert C. West.

Institute of Social Anthropology Publ. No. 8. Sierra Popoluca Speech, by Mary L. Foster and George M. Foster.

Publications distributed totaled 7,948, as compared with 12,730 for the fiscal year 1945–46.

LIBRARY

The Library of the Bureau has continued in charge of the librarian, Miss Miriam B. Ketchum, assisted by M. L. Fiester, who was appointed March 17, 1947.

The total accessions in the library as of June 30, 1947, were 34,462. There were 148 new accessions during the fiscal year, by purchase, gift,

and exchange. Many of the foreign exchanges which lapsed during the war have again resumed, and good progress has been made in filling the gaps, brought about by the war, in periodical sets.

Cards on hand for domestic periodicals have been typed, and the shelf list for this classification is now complete. A beginning has been made on typing the cards for serial publications of domestic societies and institutions, and this will soon be finished.

The labeling of sets of publications of domestic societies and institutions and all the domestic periodicals has been completed, and the labeling of the foreign serial publications has begun.

ILLUSTRATIONS

From late fall of 1946 up to June 30, 1947, E. G. Cassedy, illustrator, spent most of the time, with the exception of time taken out to prepare weather graphs, work for the Editorial Division, and miscellaneous maps and plates, on the restoration of the old Indian negatives of the Bureau of American Ethnology. With the help of Mr. Brostrup this work has been progressing very satisfactorily and many negatives which were important historically and which were about to be lost have been preserved for coming generations.

ARCHIVES

Miss Mae W. Tucker continued the work of operating and cataloging the manuscript and photographic archives of the Bureau. In addition to furnishing material for routine requests, some special requests for photographic prints requiring urgent attention have been filled. Visitors desiring to consult material in the archives have been given the required assistance.

The greater part of the time has been given to work on the manuscript catalog which is being prepared for publication, to include all the unpublished manuscript material in the Bureau archives. The data for this catalog has been typed on individual cards for each item and is ready for final assembling.

A new file-print collection consisting of prints made from the rephotographed and retouched negatives in the Bureau collection has been started and will continue as the new prints are made. On Mr. Cassedy's recommendation, an extra set of prints is being made along with the file prints, this set to be preserved for possible emergency use.

Some time is necessarily required for research work in connection with both the manuscript material and the photographs.

SPECIAL PHOTOGRAPHIC RESTORATION PROJECT

The Bureau of American Ethnology ever since its inception in 1879 has maintained a collection of photographic negatives of North Ameri-

can Indians. The file had its origin with the famous "Jackson" collection of over 1,000 negatives which was brought to the Bureau by Major Powell from the directorship of the United States Geological Survey. This unique and valuable group has been supplemented by about 11,000 additional negatives obtained from various sources including the field trips of the first 40 years, the exposures made in Washington of the visiting Indian delegations, gifts, and purchases. Nowhere else in this country is there a more complete photographic record of the Indians who figured prominently in peace and war during the important opening of the West in the nineteenth century. In several instances the only known photographs of important characters of this period are in this collection.

The great bulk of this collection was made before 1900 in the early days of photography, and often under extremely adverse field conditions of heat and bulky weight. These factors have contributed toward a deterioration of the negative image. This deterioration fortunately has started around the edges of the negative and is progressing toward the center, still leaving the figure and facial characteristics quite legible. However, if allowed to go on unchecked this collection will have disintegrated unto uselessness.

During this fiscal year it was determined to inaugurate a systematic program of restoration and preservation of this unique collection. The continuous demand for reprints from these negatives, especially those being used for publication, made this restoration imperative.

In February 1947 the services of a photographer, John O. Brostrup, were obtained. The photographer and the scientific illustrator have begun the program of restoration and preservation of these negatives. The following system was devised and is being used in this work:

(1) Chemical improvement and cleaning of the original negative. (2) Making a uniform enlarged print from the original negative, cropping out destroyed and objectionable background areas. (3) Restoration of missing areas, and improvement of backgrounds by the scientific illustrator with the minimum alteration necessary to preserve faithfully the original negative. (4) Copying the restored enlargement to uniform 8 by 10 inch size. (5) Printing of permanent file prints.

All the processing is being carried out with the intent of insuring as great a degree of permanence as possible.

First priority is being given those negatives which are needed to supply prints for pay orders, i. e., those for which there is an immediate demand. Second priority are those negatives which are in the most advanced stages of deterioration.

At the beginning of the work in February an inspection was made of each negative, and those requiring early restoration were listed.

A file of restored prints is being built up, and inspection in the offices of the Bureau of American Ethnology is invited.

COLLECTIONS

Collections transferred by the Bureau of American Ethnology to the Department of Anthropology, United States National Museum, during the fiscal year were as follows:

Accession No.	*Collection*
176066.	65 ethnological specimens from the Rio Vaupés in Colombia and Brazil. Collected by Paul H. Allen.
176157.	3 ethnological specimens from the Navaho Indians. Collected by Dr. John P. Harrington, at Fort Defiance, Ariz., in 1939.
176347.	1 ceremonial cane from the Iroquois Indians of Six Nations Reserve, Canada. Collected by J. N. B. Hewitt, June 1916.

MISCELLANEOUS

During the course of the year information was furnished by members of the Bureau staff in reply to numerous inquiries concerning the American Indians, both past and present, of both continents. Various specimens sent to the Bureau were identified and data on them furnished for their owners.

Respectfully submitted.

M. W. Stirling, *Chief.*

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, 1947.

Although shipping was suspended during September, October, and November because of shipping and trucking strikes, the allotment for transportation was practically exhausted by the end of March. Therefore it was necessary to curtail sharply shipping during the last 3 months of the fiscal year.

The number of packages received for transmission during the year was 703,798, an increase over the previous year of 163,296. The weight of these packages was 773,975 pounds, an increase of 301,676 pounds. The average weight of the individual packages is approximately 1 pound, 2 ounces, as compared to the average of the previous year of approximately 14 ounces—an indication that the institutions are still shipping material held during the war. The material received from both foreign and domestic sources for distribution is classified as shown in the following table:

	Packages		Weight	
	Sent abroad	Received from abroad	Sent abroad	Received from abroad
			Pounds	*Pounds*
United States parliamentary documents sent abroad	375,501		177,722	
Publications received in return for parliamentary documents		2,754		6,421
United States departmental documents sent abroad	129,075		199,315	
Publications received in return for departmental documents		6,573		13,996
Miscellaneous scientific and literary publications sent abroad	166,009		292,492	
Miscellaneous scientific and literary publications received from abroad for distribution in the United States		23,886		84,029
Total	670,585	33,213	669,529	104,446
Grand total	703,798		773,975	

The packages are forwarded partly by mail direct to the addressees and partly by freight to the exchange bureaus. The number of boxes shipped was 2,578, a decrease of 539. Of the boxes shipped 638 were for depositories of full sets of the United States Government documents furnished in exchange for the official publications of foreign governments for deposit in the Library of Congress. The number of packages forwarded by mail was 164,305.

Of the material accumulated at the Institution during the war, there remained at the beginning of the fiscal year 196,082 pounds. This war backlog was reduced to 69,020 but owing to enforced decrease in shipments during the last quarter of the year the actual backlog at the end of the year was 110,998 pounds.

Consignments are now forwarded to all countries except Rumania and Yugoslavia. Shipments to these countries will probably be resumed during the coming year. The notable resumptions of exchange are with Germany and Japan, which were effected with the cooperation of the Civil Affairs Division of he War Department.

FOREIGN DEPOSITORIES OF GOVERNMENTAL DOCUMENTS

The number of sets of United States official publications received to be sent in return for the official publications sent by foreign governments for deposit in the Library of Congress is 93 (56 full and 37 partial sets). The depository for Germany has been changed as indicated in the list and the set formerly sent to the League of Nations is now sent to the United Nations.

DEPOSITORIES OF FULL SETS

ARGENTINA: Dirección de Investigaciones, Archivo, Biblioteca y Legislación Extranjero, Ministerio de Relaciones Exteriories 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: National Library of Austria, Vienna.*
BELGIUM: Bibliothèque Royale, Bruxelles.
BRAZIL: Instituto Naçional do Livro, Rio de Janeiro.
CANADA: Library of Parliament, Ottawa.
MANITOBA: Provincial Library, Winnipeg.
ONTARIO: Legislative Library, Toronto.
QUEBEC: Library of the Legislature of the Province of Quebec.
CHILE: Biblioteca Nacional, Santiago.
CHINA: Ministry of Education, National Library, Nanking, China.
PEIPING: National Library of Peiping.
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: Kongelige Danske Videnskabernes Selskab, Copenhagen.
EGYPT: Bureau des Publications, Ministère des Finances, Cairo.
ESTONIA: Riigiraamatukogu (State Library), Tallinn.
FINLAND: Parliamentary Library, Helsinki.

*Added during the year.

FRANCE: Bibliothèque Nationale, Paris.
GERMANY: Offentliche Wissenschaftliche Bibliothek, Berlin.* [1]
GREAT BRITAIN:
ENGLAND: British Museum, London.
LONDON: London School of Economics and Political Science. (Depository of the London County Council.)
HUNGARY: Library, Hungarian House of Delegates, Budapest.
INDIA: Imperial Library, Calcutta.
IRELAND: National Library of Ireland, Dublin.
ITALY: Ministerio della Publica Istruxione, Rome.
JAPAN: Imperial Library of Japan, Tokyo.[1]
MEXICO: Secretaría de Relaciones Exteriores, Departamento de Información para el Extranjero, Mexico, D. F.
NETHERLANDS: Royal Library, The Hague.
NEW ZEALAND: General Assembly Library, Wellington.
NORTHERN IRELAND: H. M. Stationery Office, Belfast.
NORWAY: Universitets-Bibliothek, Oslo. (Depository of the Government of Norway.)
PERU: Sección de Propaganda y Publicaciones, Ministerio de Relaciones Exteriores, Lima.
PHILIPPINES: National Library, Manila.*
POLAND: Bibliothèque Nationale, Warsaw.
PORTUGAL: Biblioteca Nacional, Lisbon.
RUMANIA: Academia Română, Bucharest.
SPAIN: Cambio Internacional de Publicaciones, Avenida Calvo Sotelo 20, Madrid.
SWEDEN: Kungliga Biblioteket, Stockholm.
SWITZERLAND: Bibliothèque Centrale Fédérale, Berne.
TURKEY: Department of Printing and Engraving, Ministry of Education, Istanbul.
UNION OF SOUTH AFRICA: State Library, Pretoria, Transvaal.
UNION OF SOVIET SOCIALIST REPUBLICS: All-Union Lenin Library, Moscow 115.
UKRAINE: Ukrainian Society for Cultural Relations with Foreign Countries, Kiev.
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 GERAES: Directoria Geral e Estatistica em Minas, Bello 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.
PRINCE EDWARD ISLAND: Legislative and Public Library, Charlottetown.
SASKATCHEWAN: Legislative Library, Regina.

* Added during the year.
[1] Temporarily suspended.

CEYLON: Chief Secretary's Office, Record Department of the Library, Colombo.
DOMINICAN REPUBLIC: Biblioteca de la Universidad de Santo Domingo, Ciudad Trujillo.
ECUADOR: Biblioteca Nacional, Quito.
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:
BENGAL: Library, Bengal Legislature, Assembly House, Calcutta.
BIHAR AND ORISSA: Revenue Department, Patna.
BOMBAY: Undersecretary to the Government of Bombay, General Department, Bombay.
BURMA: Secretary to the Government of Burma, Education Department, Rangoon.
PUNJAB: Chief Secretary to the Government of the Punjab, Lahore.
UNITED PROVINCES OF AGRA AND OUDH: University of Allahabad, Allahabad.
IRAN: Imperial Ministry of Education, Tehran.
IRAQ: Public Library, Baghdad.
JAMAICA: Colonial Secretary, Kingston.
LIBERIA: Department of State, Monrovia.
MALTA: Minister for the Treasury, Valleta.
NEWFOUNDLAND: Department of Home Affairs, St. John's.
NICARAGUA: Ministerio de Relaciones Exteriores, Managua.
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.
SIAM: Department of Foreign Affairs, Bangkok.
VATICAN CITY: Biblioteca Apostolica Vaticana, Vatican City, Italy.

INTERPARLIAMENTARY EXCHANGE OF THE OFFICIAL JOURNAL

There are now being sent abroad 71 copies of the Federal Register and 65 copies of the Congressional Record. The countries to which these journals are being forwarded are given in the following list:

DEPOSITORIES OF CONGRESSIONAL RECORD AND FEDERAL REGISTER

ARGENTINA:
Biblioteca del Congreso Nacional, Buenos Aires.
Biblioteca del Poder Judicial, Mendoza.[2]
Cámara de Diputados, Oficina de Informacion Parlamentaria, Buenos Aires.
Boletín Oficial de la República Argentina, Ministerio de Justica 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.

[2] Federal Register only.

BRAZIL:
Biblioteca do Congresso Nacional, Rio de Janeiro.
Imprensa Nacional, Rio de Janeiro.[2]
AMAZONAS: Archivo, Biblioteca e Imprensa Publica, Manáos.
BAHIA: Governador do Estado da Bahia, São Salvador.
ESPIRITO SANTO: Presidencia do Estado do Espirito Santo, Victoria.
RIO GRANDE DO SUL: "A Federação," 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.[2]
EGYPT: Ministry of Foreign Affairs, Egyptian Government, Cairo.[3]
FRANCE:
Bibliothèque, Chambre des Députés, Paris.
Bibliothèque, Consèil de la Republique.*
Publiques de l'Institute de Droit Compare, University de Paris, Paris.[3] *
GREAT BRITAIN: Printed Library of the Foreign Office, London.
GREECE: Library, Greek Parliament, Athens.
GUATEMALA: Biblioteca de la Asamblea Legislativa, Guatemala.
HAITI: Bibliothéque Nationale, Port-au-Prince.
HONDURAS: Biblioteca del Congreso Nacional, Tegucigalpa.
INDIA:
Civil Secretariat Library, Lucknow, United Provinces.[2] *
Legislative Assembly Library, Lucknow, United Provinces.*
Legislative Department, Simla.
IRELAND: Dail Eireann, Dublin.
ITALY: International Institute for the Unification of Private Law, Rome.[2]
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.

[2] Federal Register only.
[3] Congressional Record only.
* Added during the year.

Morelos: Palacio de Gobierno, Cuernavaca.
Nayarit: Gobernador de Nayarit, Tepic.
Nuevo León: Biblioteca del Estado, Monterrey.
Oaxaca: Periodico Oficial, Palacio 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 General de Gobierno, Sección 3a, Ramo de Prensa, Villahermosa.
Tamaulipas: Secretaría General de Gobierno, Victoria.
Tlaxcala: Secretaría de Gobierno del Estado, Tlaxcala.
Veracruz: Gobernador del Estado de Veracruz, Departmento de Gobernación y Justicia, Jalapa.
Yucatán: Gobernador del Estado de Yucatán, Mérida.
New Zealand: General Assembly Library, Wellington.
Peru: Cámara de Diputados, Lima.
Poland: Ministry of Justice, Warsaw.[2]
Spain: Diputacion de Navarra, San Sebastian.
Switzerland: Bibliotèque, Bureau International du Travail, Geneva.[2]
Union of South Africa:
Cape of Good Hope: Library of Parliament, Cape Town.
Transvaal: State Library, Pretoria.
Uruguay: Diario Oficial, Calle Florida 1178, Montevideo.
Venezuela: Biblioteca del Congreso, Caracas.

FOREIGN EXCHANGE AGENCIES

Exchanges are sent to all countries except Rumania and Yugoslavia. The countries listed are those to which shipments are forwarded by freight. To other countries not appearing on the list, packages are forwarded 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.
Czechoslovakia: Bureau des Échanges Internationaux, Bibliothèque de l'Assemblée Nationale, Prague 1–100.
Denmark: Institut des Échanges Internationaux, Bibliothèque Royale, Copenhagen K.
Egypt: Government Press, Publications Office, Bulaq, Cairo.
Finland: Delegation of the Scientific Societies of Finland, Kasärangatan 24, Helsinki.
France: Service des Échanges Internationaux, Bibliothèque Nationale, 58 Rue de Richelieu, Paris.
Germany: Offentliche Wissenschaftliche Bibliothek, Berlin.[4]

[2] Federal Register only.
[4] Distribution under supervision of War Department.

GREAT BRITAIN AND IRELAND: Wheldon & Wesley, 721 North Circular Road, Willesden, London, N. W. 2.
HUNGARY: Hungarian Libraries Board, Ferenciektere 5, Budapest, IV.
INDIA: Superintendent of Government Printing and Stationery, Bombay.
ITALY:
Ufficio degli Scambi Internzionali, Ministero della Publica Istruxione, Rome.
JAPAN:
International Exchange Service, Imperial Library of Japan, Uyeno Park, Tokyo.[4]
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.
POLAND: Service Polonais des Échanges Internationaux, Bibliothèque Nationale, Warsaw.
PORTUGAL: Secção de Trocas Internacionais, Biblioteca Nacional, Lisbon.
QUEENSLAND: Bureau of Exchanges of International Publications, Chief Secretary's Office, Brisbane.
RUMANIA: Ministère de la Propagande Nationale, Service des Échanges Internationaux, Bucharest.
SOUTH AUSTRALIA: South Australian Government Exchanges Bureau, Government Printing and Stationery Office, Adelaide.
SPAIN: Junta de Intercambio y Adquisición de Libros y Revistas para Bibliotecas Públicas, Ministerio de Educación Nacional, 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: International Book Exchange Department, Society for Cultural Relations with Foreign Countries, Moscow, 56.
VICTORIA: Public Library of Victoria, Melbourne.
WESTERN AUSTRALIA: Public Library of Western Australia, Perth.
YUGOSLAVIA: Section des Échanges Internationaux, Ministère des Affaires Étrangères, Belgrade.

Respectfully submitted.

H. W. DORSEY, *Acting Chief.*

DR. A. WETMORE,
Secretary, Smithsonian Institution.

[4] Distribution under supervision of War Department.

APPENDIX 7

ANNUAL REPORT ON THE NATIONAL ZOOLOGICAL PARK

SIR: I have the honor to submit the following report on the operations of the National Zoological Park for the fiscal year ended June 30, 1947.

The regular appropriation for the operations of the Zoo was $393,420. A supplemental appropriation of $39,100 for salary increases authorized by Congress was also available, making a total of $432,500. Subject to minor changes in final bills, a total of $425,748 was expended for all purposes and an unexpended balance of $6,752 remains. Inability to fill many of the positions for considerable periods resulted in salary savings which were available to apply on salary increases that had been authorized by Congress, thereby reducing the amount that was needed in the supplemental appropriation.

During the war equipment had deteriorated and stocks of materials and supplies had become seriously depleted in many instances. By diligent search the Zoo has been able to replace or repair some of the equipment and replenish some of the supplies and materials. The close of the fiscal year finds the Zoo short as to many items, but as a whole in a definitely better condition than prevailed a year ago as to exhibition animals, personnel, equipment, materials, supplies, and general condition of structures and grounds.

During the past year a slight improvement in the supply of animals for exhibition has enabled the Zoo partially to replenish the stock.

Physical improvements included the completion of 370 square yards of sidewalk; surface treatment of nearly all the main roads, a small parking area opposite the large-mammal house, the road back of the bird house, and the service road from the silver-gull cage to the bird house. Excellent progress has been made in painting, which is a continuous operation in an establishment of the size and type of the National Zoological Park. The general appearance of the grounds has been very materially improved by pruning, clearing of underbrush, cutting down weeds, and renewing and mowing lawns, all of which had been seriously neglected during the war period. During the summer of 1946 excellent progress was made in fighting poison ivy by spraying with ammonium sulfamate. This procedure was continued during the summer of 1947, and already a great reduction in this pest is noticeable. The fight against poison ivy was greatly

facilitated by the cooperation of the Department of Agriculture, Bureau of Plant Industry, in lending a power spray. Before 1947 the Zoo has each year received numerous reports of ivy poisoning in the Park, but up to midsummer of 1947 no cases have been reported.

NEEDS OF THE ZOO

A small addition to the personnel is needed to enable the Zoo to carry on the work in an efficient manner and permit employees to take the leave to which they are legally entitled. The Zoo has been undermanned throughout the entire period of its existence, and with the adoption of the 40-hour week, the situation has become particularly acute.

As the years go by the need becomes more pressing for new buildings to replace antiquated, dilapidated structures that are still used to house animals. Preliminary planning has been taken up with the Public Works Administration for construction of these buildings when economic conditions justify.

The condition of the Administration Building, which is now about 142 years old and has had no major improvements or rehabilitation for many years, is such that it cannot be kept in presentable condition, and the excessive dampness is injurious to equipment, records, photographs, negatives, and books, as well as to the health of the employees who work in the building.

VISITORS

Before the war the attendance at the Park was much greater on Saturdays and Sundays than on the earlier days of the week. Since the war there has been a surprisingly uniform attendance throughout the week, even Monday and Tuesday consistently showing good attendance. Throughout the year it was noticeable that there was a consistent increased attendance of visitors over the previous year, the final tabulation showing an increase for the year of 358,341.

ESTIMATED NUMBER OF VISITORS FOR FISCAL YEAR 1947

July (1946)	311,000	February	64,100
August	280,000	March	203,225
September	276,700	April	374,053
October	189,200	May	343,800
November	153,300	June	356,400
December	93,950		
January (1947)	84,950	Total	2,730,678

Groups came to the Zoo from schools in 22 States, some as far away as Wisconsin, Indiana, and Louisiana.

NUMBER OF GROUPS FROM SCHOOLS

	Number of groups	Number in groups		Number of groups	Number in groups
Alabama	1	18	New Jersey	24	1,847
Connecticut	8	220	New York	28	2,580
Delaware	8	324	North Carolina	67	2,676
District of Columbia	202	6,017	Ohio	36	981
Florida	1	13	Pennsylvania	151	8,109
Georgia	28	1,154	South Carolina	32	1,079
Indiana	4	152	Tennessee	15	682
Louisiana	1	84	Virginia	282	14,647
Maine	4	314	West Virginia	17	659
Maryland	369	22,179	Wisconsin	1	85
Massachusetts	16	885			
Michigan	8	376	Total	1,303	65,081

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, Territroy, 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 1947 is as follows:

	Percent		Percent
Washington, D. C.	30.6	North Carolina	1.8
Maryland	21.09	West Virginia	1.2
Virginia	20.04	California	1.1
Pennsylvania	4.2	New Jersey	1.1
New York	2.5	Maine	.9
Ohio	1.9	Florida	.9

The cars that made up the remaining 12.67 percent came from every one of the remaining States, as well as from Alaska, Alberta, Argentina, Australia, British Columbia, Canal Zone, Cuba, Hawaii, Manitoba, Mexico, New Brunswick, Nicaragua, Nova Scotia, Ontario, Panama, Quebec, Saskatchewan, and Sweden.

It is well known that District of Columbia, Maryland, and Virginia cars bring to the Zoo many people from other parts of the United States and of the world, but no figures are available on which to base percentages.

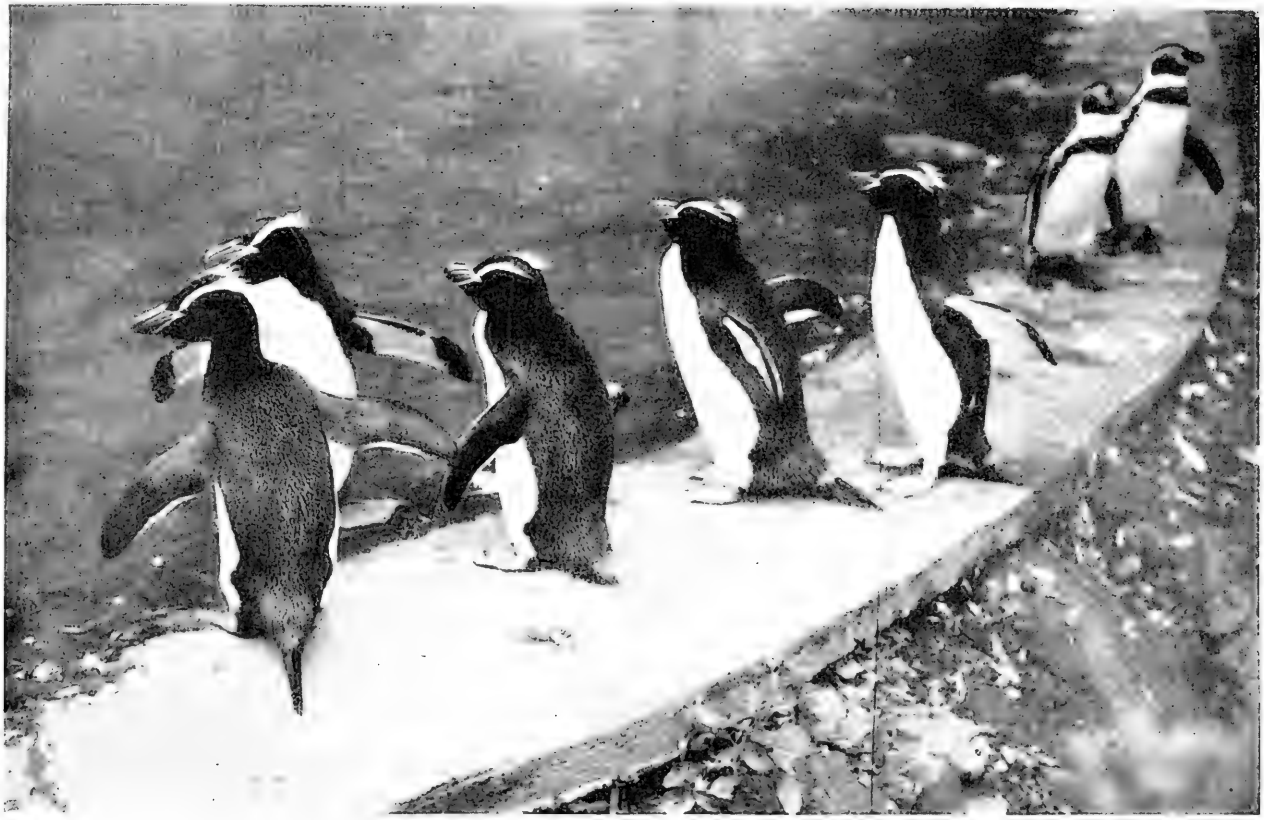
THE EXHIBITS

The quality of specimens on exhibition has been fairly satisfactory during the year. The total number of specimens on hand June 30, 1947, was 454 more than on the corresponding date in 1946, the principal increase being in the number of birds and amphibians.

The outstanding exhibits during the year were penguins. Four species, the emperor, macaroni, rock-hopper, and adelie, were brought from the Antarctic by the United States Naval Antarctic Expedition through the interest of Rear Adm. Richard E. Byrd and Admiral Richard H. Cruzen. Two other species, the Humboldt and jackass, were already in the Zoo or were obtained from other sources.

PENGUINS IN GLASS-FRONTED COLD-STORAGE ROOM IN NATIONAL ZOOLOGICAL PARK.

Left to right: 1 emperor, 1 king, 2 macaroni, 2 jackass, 1 king, 1 macaroni. Photograph by Ernest P. Walker.



FIVE MACARONI AND TWO HUMBOLDT PENGUINS IN OUTDOOR POOL AT NATIONAL ZOOLOGICAL PARK.
Photograph by Ernest P. Walker.

Thirty-four ocellated turkeys were brought to the Zoo by Dr. D. S. Newill, who had obtained them in Guatemala. These turkeys have been very rare in collections and make an interesting exhibit. Five were retained and the rest distributed by Dr. Newill to other zoos.

Other interesting birds were two gray hornbills from India, the first of the species to be exhibited in the United States.

Three specimens of Troost's turtle, two albino and one normally colored, were deposited by James Nelson Gowanloch. All were young, only about 2 inches in diameter, but were outstanding because of the extreme rarity of albino turtles. These are a beautiful light cream color through which shows the pattern of the normal coloration. They have pink eyes and a bright red spot on the neck that is characteristic of the species.

Exhibits of very small creatures of more than ordinary interest were three different species of tiny frogs: the green and black arrow-poison frogs, red and black frogs, and yellow and black atelopus.

Other additions to the collection that were of unusual interest were: A young great gray kangaroo, which was a gift from the people of Australia to the people of the United States and was flown to Washington on a nonstop flight September 30–October 1, 1946, from Perth, Australia, to Washington, D. C., by the United States Navy plane *Truculent Turtle*; a young Alaska brown bear received through the interest of members of the force of the Alaska Game Commission and the Fish and Wildlife Service; an Arabian gazelle presented to the Zoo by W. W. Shaffer; a spectacled bear from the Andes region, obtained by purchase; a baby potto born to a pair that had been brought to the Zoo by the Smithsonian-Firestone Expedition to Liberia in 1940; pigmy green cardinals; the short-legged lizard from Cuba; five young specimens of the giant salamander of Japan, which were received by the United States Army as a gift from the school children of Japan to the school children of the United States, particularly through the interest of Brig. Gen. John W. O'Brien, Chief, Scientific and Technical Division, GHQ, SCAP, and Dr. Austin Brues and Lieutenant Kelly. These were collected through Dr. Tadamichi Koga, Director, Uyeno Zoological Garden, Tokyo, Japan.

ACQUISITION OF SPECIMENS

Specimens for the Zoo collection are acquired by gift, deposit, purchase, and births or hatchings. While depositors are at liberty to remove the specimens that they deposit with the Zoo, many leave the specimens for the rest of their lives.

During the year the Zoo received a number of shipments of live specimens by air without a single loss. Some of these animals were rare or delicate, and had they been transported by the usual means,

might have died en route. The experiences of other zoos and animal dealers have been similarly successful, suggesting that shipment of live animals by air may be the most satisfactory method.

DEPOSITORS AND DONORS AND THEIR GIFTS

Abrahamian, S. M., Washington, D. C., Pekin duck.
Acorn Pet and Gift Shop, Washington, D. C., 2 canary×siskin hybrids, 2 cockatiels.
Alaska Game Commission and U. S. Fish and Wildlife Service, Alaska brown bear.
Allison, Mrs. E. K., Washington, D. C., ring-necked dove.
Alston, Herbert, Washington, D. C., woodcock.
Australia, People of, through U. S. Navy, great gray kangaroo.
Bader, J., Washington, D. C., 2 domestic rabbits.
Baum, Louis, Alexandria, Va., 2 doves.
Beale, Mrs. S. H., Washington, D. C., 2 snapping turtles.
Benedict, Mrs. Jeanne, Washington, D. C., box turtle.
Berry, Lewis, Detective Bureau, Metropolitan Police Department, Washington, D. C., 4 horned lizards.
Best, Mrs. Richard, Washington, D. C., sulphur-crested cockatoo.
Billoch, J., Washington, D. C., double yellow-headed parrot.
Blanchette, Richard, Takoma Park, Md., snapping turtle.
Boldridge, Dr. F. M., Chester, S. C., chain king snake.
Brady, Morris K., Washington, D. C., 13 red and black frogs.
Brewster, Kingman, Washington, D. C., 2 wild turkeys.
Brown, Rev. Dillard, Washington, D. C., 5 ring-necked doves.
Brown, Robert Y., Department of State, Washington, D. C., 46 little spotted tinamou,* 5 great tinamou.*
Burr, Donald H., Washington, D. C., pine or fence lizard.
Calvin, Mrs. E. F., Daniels Park, Md., 2 Pekin ducks.
Campbell, George R., Detroit, Mich., corn snake, chicken snake.
Carey, Maj. T. J., % Postmaster, New Orleans, La., douroucouli or owl monkey.
Carlson, R. S., Edgewater, Md., Pekin duck.
Carson, James, Alexandria, Va., mole.
Cedar Hill Bird Farm, Landover, Md., screech owl, robin.
Chappell, Richard H., Chief, Probation Court, Washington, D. C., domestic rabbit.
Clow, Jakie, Chevy Chase, Md., Pekin duck.
Coker, James L., Arlington, Va., horned lizard.
Cook, Jay E., Baltimore, Md., 32 African clawed frogs.*
Coolidge, Belle, Washington, D. C., domestic rabbit.
Cowell, Jerry, Greenbelt, Md., spectacled caiman.
Cox, T. S., Arlington, Va., alligator.
Cullen, Rev. U. G., Woodstock College, Woodstock, Md., copperhead snake.
Deese, Joe, Bethesda, Md., rhesus monkey,* woodchuck or ground hog.*
Dunitum, Gratz D., Alexandria, Va., American coot.
Dunlap, Capt. S. A., U. S. Embassy, Buenos Aires, Argentina, Argentine tree frog, 18 grass paroquets.
Duryel, Dr. William R., Washington, D. C., 75 red salamanders.*
Eller, A., Falls Church, Va., Pekin duck.
Fleming, A. L., Falls Church, Va., Mississippi mud turtle, pilot snake.
Foellmer, John and Richard, Washington, D. C., 2 Pekin ducks.

* Deposits.

Fohel, Arthur, Williamstown, N. J., green grass snake.
Ford, B. F., Aspin Hill, Md., 2 sparrow hawks.
Fowler, James H., Chevy Chase, Md., Texas diamond-backed rattlesnake.
Freeman, Mrs. J. W., Washington, D. C., 2 Pekin ducks.
Gala, Mrs. M., Washington, D. C., Pekin duck×mallard duck hybrid.
Garrett, William S., Richmond, Va., double yellow-headed parrot.
Gazin, Max, Washington, D. C., Pekin duck.
George, Miss Jean, Washington, D. C., red fox.
Gildea, Mrs. James E., Arlington, Va., 2 Pekin ducks.
Glover, R. L., Washington, D. C., American bittern.*
Goddard, Don, Wilson Teachers College, Washington, D. C., 2 golden hamsters.*
Goeller, John, Washington, D. C., golden hamster.
Gowanloch, James Nelson, Louisiana Department of Wildlife and Fisheries, New Orleans, La., 3 Troost's turtles (including 2 albinos).*
Greenberg, Albert, Tampa, Fla., 6 climbing perch, 12 blind cave fish.
Guliek, Mrs. Dorothy, Silver Spring, Md., 3 Pekin ducks.
Haggenmaker, Charles, Suitland, Md., barn owl.
Hanwood, Mrs. Virginia, Washington, D. C., 2 Pekin ducks.
Harper, Donald W., Kensington, Md., pilot snake.
Harrell, R. O., South Boston, Va., rhesus monkey.
Hart, Joseph F., Washington, D. C., sparrow hawk.
Hartgroves, Bill, Kensington, Md., painted turtle.
Hayes, Mrs. William J., Washington, D. C., Pekin duck.
Hegener Research, Sarasota, Fla., 6 hutias.
Heinz, J. E., Washington, D. C., Pekin duck.
Hersey, Lt. J., Arlington, Va., yellow-headed parrot.
Hines, Mrs. M., Hyattsville, Md., diamond dove, Cuban ground dove, Cuban tanager.
Hubbs, C. L., La Jolla, Calif., 3 horned lizards.
Hughes, Charles, Silver Spring, Md., pilot snake.
Hughes, Thomas, Middletown, Del., sharp-shinned hawk.
Hummel, David, Arlington, Va., titi monkey.*
Ingham, Rex, Ruffin, N. C., Eastern chipmunk,* raccoon,* Swainson's hawk.*
Jackley, A. M., Director, Reptile Control, Department of Agriculture, Pierre, S. Dak., 2 northern horned lizards.
Jessup, Gordon L., Washington, D. C., pilot snake.
Johnson, Cleris, Washington, D. C., barn owl.
Jones, Mrs. R., Arlington, Va., weasel.
Kelley, Miss Karen, Alexandria, Va., opossum.
Kennard, Fred E., Hyattsville, Md., 2 muscovy ducks.
Kimbell, Charles Lee, Hyattsville, Md., 2 horned lizards.
Kincannon, W. Oliver, Chevy Chase, Md., 5 game fowl.*
Klemetsen, P. N., Washington, D. C., alligator.
Knop, P. T., Washington, D. C., 5 box turtles.
Koerdel, Dr. Manuel-Malduado, Mexico, 5 axolotls.
Kramer, Miss G. A., Washington, D. C., Pekin duck.
Latona, Richard J., Washington, D. C., painted turtle, Cumberland terrapin.
Lee, Jimmie, Washington, D. C., alligator.
Leibel, Mrs. Leroy, Washington, D. C., grass paroquet.
Leibold, Gordon M., Chevy Chase, Md., Florida king snake.
Lemieux, Jerry, Washington, D. C., muscovy duck.
Lund, Ruth and Diane, Washington, D. C., 2 Pekin ducks.

*Deposits.

Mackey, Helen N., Washington, D. C., Pekin duck.
Majawer, Mrs. Lilly, Washington, D. C., cardinal.
Markwith, Carl, Washington, D. C., domestic rabbit.
Mattingly, W. E., Washington, D. C., 4 bantam fowl.
Maurer, Misses Nan and Patsy Lou, Arlington, Va., 2 domestic rabbits.
Mayer, J. D., Silver Spring, Md., 2 Pekin ducks.
McCrassin, Broderick, Rockville, Md., 2 ring-necked pheasants.
McDonald, Erling, Takoma Park, Md., muscovy ducks, screech owl.
McKay, Raymond J., Washington, D. C., white-throated capuchin.
Melville, E., Falls Church, Va., 3 Pekin ducks.
Meyer, J. L., Silver Spring, Md., 2 Pekin ducks.
Michel, Mr., Washington, D. C., Pekin duck.
Miller, W. C., Front Royal, Va., 2 great horned owls.
Miller, William H., Washington, D. C., Pekin duck.
Miller, William W., Washington, Va., barn owl.
Milne, A. M., Bethesda, Md., Pekin duck.
Mitchell, Shirley J., Washington, D. C., rhesus monkey.
Moise, Lawrence L., Washington, D. C., screech owl.
Montague, Mrs. Claude, Washington, D. C., 2 grass paroquets.
Moore, C. C., Washington, D. C., 14 grass paroquets.
Naval Research Center, Bethesda, Md., rhesus monkey.*
Nelson, Mrs. R. W., Coolidge High School, Washington, D. C., green tree frog.
Newill, Dr. D. S., Connellsville, Pa., 34 ocellated turkeys,* Reeves' pheasant, red jungle fowl, Swinhoe's pheasant, Nepal kaleege.
Old, W. E., Jr., Norfolk, Va., 9 water moccasins.
Orndorff, Mrs. B. F., Berwyn, Md., 3 Pekin ducks.
Perkins, J. E., Back Bay National Wildlife Refuge, Pungo, Va., snow goose.
Perry, Mrs., Washington, D. C., loggerhead turtle.
Poe, Mrs. H. C., Washington, D. C., domestic rabbit.
Poiley, S. M., National Institute of Health, Bethesda, Md., 20 golden hamsters, cotton rat.
Potter, Lincoln, Chevy Chase, Md., opossum.
Prestor, Mrs. P. D., Gage School, Washington, D. C., 3 golden hamsters.*
Pupils of the Okayama-Ken Grammar Schools, through Brig. Gen. John W. O'Brien, Chief, Scientific and Technical Division, GHQ, SCAP, and Dr. Austin Brues and Lieutenant Kelly, collected through Dr. Tadamichi Kogo, Director of the Uyeno Zoological Garden, Tokyo, Japan, 5 giant Japanese salamanders.
Quinter, M. G., Chevy Chase, Md., Pekin duck.
Raccie, Eugene J., Washington, D. C., golden pheasant.
Reed, Vernon, Washington, D. C., Pekin duck.
Remsen, Mrs. D., 2 skunks.
Riédel, Mrs. W. E., Hyattsville, Md., sparrow hawk.
Robert, Miss Alice B., water snake.*
Rowe, Mr. and Mrs. R. F., Washington, D. C., 2 ringed warbling finches.
Roys, Harold, Sheffield, Mass., 2 timber rattlesnakes.
Ruhe, Louis, New York, N. Y., rat snake, frog, eyra or yaguarondi.*
Ruhel, Miss Mary L., Washington, D. C., queen or moon snake.
Sakell, Ronald, Washington, D. C., 2 white mice.
Sardo, Mrs. William, Silver Spring, Md., Pekin duck.
Sawyer, T. R., Alexandria, Va., crab-eating macaque.
Scaramuzza, L. C., Habana, Cuba, short-legged lizard.
Schaefer, Ronald L., Washington, D. C., box turtle.

*Deposits.

Schaub, Mrs. Anna E., Washington, D. C., double yellow-headed parrot.
Shaffer, W. W., Hobbs, Md., Arabian gazelle.
Shannon, Mrs. Frank, Washington, D. C., 2 Pekin ducks.
Shields ,William S., Greenbelt, Md., blue jay.
Shostick, Robert, Washington, D. C., green snake.
Silverman, Marion and Marlene, Washington, D. C., Pekin duck.
Simpson, Mrs. Lillie W., Washington, D. C., domestic guinea pig.
Slagle, Bobby, Lubbuck, Tex., 6 horned lizards.
Smith, Mrs. H., Washington, D. C., blue jay.
Smith, Margaret C., Washington, D. C., 11 hooded laboratory rats.
Snider, Mrs. George P., Silver Spring, Md., Pekin duck.
Snyder, Freeman W., Washington, D. C., 3 red foxes.
Spates, W. E., Jr., Washington, D. C., Pekin duck.
Spiney, Mr., Washington, D. C., tarantula.
Springer, Harriet R., Washington, D. C., 2 Pekin ducks.
Stone, Carl G., Silver Spring, Md., red-bellied woodpecker, 2 painted turtles, spotted turtle, box turtle.
Stroman, H. R., Jr., Washington, D. C., 2 Pekin ducks.
Stultz, Robert, Falls Church, Va., pilot snake.
Taurman, Bert, Richmond, Va., 2 red-shouldered hawks.
Taylor, L. S., Bethesda, Md., 2 Pekin ducks.
Thirteenth Police Precinct, Washington, D. C., 2 chain king snakes.
Thomas, J., Washington, D. C., canary.
Thomas, Jeanette, Washington, D. C., 2 domestic rabbits.
Thomas, Dr. W. B. S., Dover-Foxcroft, Maine, 2 garter snakes, 2 green frogs.
Three Oaks Bird Farm, Hyattsville, Md., 10 domestic pigeons.
Tinsman, L. T., Washington, D. C., white-tufted marmoset.*
Trible, W. E., Washington, D. C., 2 Pekin ducks.
Tureman, Dr. G. R., Sandston, Va., gray fox.
Turner, William, Westwood, Md., duck hawk.*
U. S. Antarctic Expedition 1946–1947, through Admiral Richard E. Byrd, 2 emperor penguins, 13 macaroni penguins, 6 rock-hopper penguins, 2 black swans.
U. S. S. *Mount Olympus*, through courtesy of Admiral Richard E. Byrd and careful care of Mr. Jack Perkins, collected by crew members of the U. S. S. *Currituck*, under command of Capt. J. E. Clark, 2 adelie penguins.
Walker, Mrs. C. G., Clifton, Va., pilot snake.
Wells, Mrs. Charles, Washington, D. C., oppossum.
Western, Lt. Comdr. O. C., U. S. N., Naval Medical School, Bethesda, Md., 2 horned lizards.
White House, Washington, D. C., domestic lamb.*
Widman, R. D., Washington, D. C., Cumberland terrapin, painted turtle.
Wilkins, O. L., Washington, D. C., black snake.
Williamson, C., Washington, D. C., hog-nosed snake, pilot snake, pigmy rattlesnake.
Witt, Benton, Cabin John, Md., gray fox.
Wood, J. S., Washington, D. C., 2 Pekin ducks.
Young, Mrs. W., Takoma Park, Md., Pekin duck.
Zardus, Maurice, Riverdale, Md., eastern diamond-backed rattlesnake, 2 copperhead snakes, cottonmouth moccasin, coral snake, 2 water snakes, 4 pigmy rattlesnakes.
Zetek, James, Balboa, C. Z., 53 yellow atelopus, 100 arrow-poison frogs, 10 basilisks.
Zinkham, Dr. and Mrs. A. M., Washington, D. C., horned lizard.

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*Deposits.

BIRTHS AND HATCHINGS

MAMMALS

Scientific name	*Common name*	*Number*
Ammotragus lervia	Aoudad	3
Axis axis	Axis deer	2
Bibos gaurus	Gaur	1
Bison bison	American bison	3
Bos taurus	British Park cattle	1
Capromys pilorides	Hutia	4
Cebus capucinus	White-throated capuchin	1
Cercopithecus aethiops sabaeus × *C. a. pygerythrus.*	Hybrid green guenon × vervet guenon	1
Cervus canadensis	American elk	1
Cervus nippon	Japanese deer	1
Cheropsis liberiensis	Pigmy hippopotamus	1
Cynomys ludovicianus	Plains prairie dog	8
Dama dama	Fallow deer	2
Dama dama	White fallow deer	2
Dasyprocta prymnolopha	Agouti	1
Felis concolor	Puma	3
Giraffa camelopardalis	Nubian giraffe	1
Hippopotamus amphibius	Hippopotamus	1
Lama glama guanico	Guanaco	1
Odocoileus virginianus	Virginia deer	2
Ovis europaea	Mouflon	1
Periodicticus potto	Potto	1
Poephagus grunniens	Yak	1
Procyon lotor	Raccoon	2
Thalarctos maritimus × *Ursus middendorffi*	Hybrid bear	2

BIRDS

Anas platyrhynchos	Mallard duck	45
Chenopis atrata	Black swan	4
Fulica americana	American coot	2
Gallus sp	Fighting fowl	16
Gallus gallus	Red jungle fowl	8
Pavo cristatus	Peafowl	7
Turtur risorius	Ring-necked dove	18

REPTILES

Agkistrodon bilineatus	Mexican moccasin	17
Epicrates cenchris	Rainbow boa	12
Natrix sp	Water snake	20
Sceloporus undulatus	Pine or fence lizard	6

MOLLUSKS

Achatina achatina	Giant land snail	5

The birth of the rainbow boas makes the third generation in the Zoo, their grandparents having been brought from British Guiana in 1931.

ANIMALS IN THE NATIONAL ZOOLOGICAL PARK, JUNE 30, 1947

MAMMALS

MARSUPIALIA

Scientific name	*Common name*	*Number*
Didelphiidae:		
Didelphis virginiana	Opossum	3
Phalangeridae:		
Petaurus breviceps	Lesser flying phalanger	2
Macropodidae:		
Dendrolagus inustus	New Guinea tree kangaroo	2
Phascolomyidae:		
Vombatus ursinus	Flinders Island wombat	1

INSECTIVORA

Erinaceidae:		
Erinaceus europaeus	European hedgehog	4

CARNIVORA

Felidae:		
Felis chaus	Jungle cat	1
Felis concolor	Puma	7
Felis concolor patagonica	Patagonian puma	1
Felis concolor × *F. c. patagonica*	Hybrid North American × South American puma	4
Felis leo	Lion	3
Felis onca	Jaguar	3
	Black jaguar	1
Felis pardalis	Ocelot	2
Felis pardus	Indian leopard	1
	Black Indian leopard	2
Felis temminckii	Golden cat	1
Felis tigris	Bengal tiger	2
Felis tigris longipilis	Siberian tiger	1
Felis tigris sumatrae	Sumatran tiger	3
Herpailurus yaguarondi	Eyra or yaguarondi	1
Lynx rufus	Bay lynx	1
Oncifelis geoffroyi	Geoffroy's cat	3
Oncilla pardinoides	Lesser tiger cat	1
Viverridae:		
Arctictis binturong	Binturong	1
Civettictis civetta	African civet	1
Myonax sanguineus	Dwarf civet	1
Paradoxurus hermaphroditus	Small-toothed palm civet	3
Hyaenidae:		
Crocuta crocuta germinans	East African spotted hyena	1
Canidae:		
Canis dingo	Dingo	2
Canis latrans	Coyote	1
Canis latrans × *familiaris*	Coyote and dog hybrid	1
Canis lupus nubilus	Plains wolf	2
Canis niger rufus	Texas red wolf	1
Cuon javanicus sumatrensis	Sumatran wild dog	1

Scientific name	*Common name*	*Number*
Canidae—Continued		
Dusicyon (Cerdocyon) thous	South American fox	1
Nyctereutes procyonoides	Raccoon dog	2
Urocyon cinereoargenteus	Gray fox	10
Vulpes fulva	Red fox	11
Procyonidae:		
Nasua narica	Coatimundi	9
Nasua nasua	Red coatimundi	1
Nasua nelsoni	Nelson's coatimundi	1
Potos flavus	Kinkajou	5
Procyon lotor	Raccoon	3
	Black raccoon	4
	Raccoon (albino)	1
Bassariscidae:		
Bassariscus astutus	Ring-tail or cacomistle	2
Mustelidae:		
Grisonella huronax	Grison	1
Lutra canadensis vaga	Florida otter	1
Lutra (Micraonyx) cinerea	Small-clawed otter	1
Martes (Lamprogale) flavigula henricii	Asiatic marten	1
Meles meles leptorynchus	Chinese badger	1
Mellivora capensis	Ratel	1
Mephitis mephitis nigra	Skunk	7
Mustela eversmanni	Ferret	1
Mustela frenata noveboracensis	Weasel	1
Tayra barbara barbara	White tayra	2
Tayra barbara senilis	Gray-headed tayra	1
Ursidae:		
Euarctos americanus	Black bear	4
Euarctos thibetanus	Himalayan bear	1
Helarctos malayanus	Malay or sun bear	1
Melursus ursinus	Sloth bear	1
Thalarctos maritimus	Polar bear	3
Thalarctos maritimus × *Ursus middendorffi*	Hybrid bear	4
Tremarctos ornatus	Spectacled bear	1
Ursus sp	Alaska brown bear	1
Ursus arctos	European brown bear	1
Ursus arctos meridionalis	Caucasas brown bear	1
Ursus gyas	Alaskan Peninsula bear	2
Ursus middendorffi	Kodiak bear	3
Ursus sitkensis	Sitka brown bear	3
PINNIPEDIA		
Otariidae:		
Zalophus californianus	Sea lion	2
Phocidae:		
Phoca vitulina richardii	Pacific harbor seal	2
PRIMATES		
Lemuridae:		
Galago demidovii	Least galago	1
Lemur mongoz	Mongoose lemur	2

Scientific name	*Common name*	*Number*
Saimiridae:		
Saimiri sciureus	Titi monkey	2
Cebidae:		
Aotus trivirgatus	Douroucouli or owl monkey	5
Ateles geoffroyi vellerosus	Spider monkey	8
Cebus apella	Gray capuchin	2
Cebus capucinus	White-throated capuchin	3
Cebus fatuellus	Weeping capuchin	3
Lagothrix lagotricha	Woolly monkey	1
Cercopithecidae:		
Cercocebus aterrimus	Black-crested mangabey	1
Cercocebus fuliginosus	Sooty mangabey	2
Cercocebus torquatus lunulatus	White-crowned mangabey	1
Cercopithecus aethiops pygerythrus	Vervet guenon	2
Cercopithecus aethiops sabaeus	Green guenon	8
Cercopithecus aethiops sabaeus × *C. pygerythrus.*	Hybrid green guenon × vervet guenon.	1
Cercopithecus cephus	Moustached guenon	2
Cercopithecus diana	Diana monkey	3
Ceropithecus diana roloway	Roloway monkey	1
Cercopithecus neglectus	De Brazza's guenon	1
Cercopithecus nictitans petaurista	Lesser white-nosed guenon	2
Cercopithecus sp	West African guenon	1
Erythrocebus patas	Patas monkey	1
Gymnopyga maurus	Moor monkey	1
Macaca irus mordax	Javan macaque	6
Macaca lasiotis	Chinese macaque	1
Macaca mulatta	Rhesus monkey	13
Macaca nemestrina	Pig-tailed monkey	2
Macaca philippinensis	Philippine macaque	4
Macaca silene	Wanderoo monkey	2
Macaca sinica	Toque or bonnet monkey	1
Macacus irus	Crab-eating macaque	1
Hylobatidae:		
Hylobates agilis	Sumatran gibbon	1
Hylobates agilis × *H. lar pileatus*	Hybrid gibbon	1
Hylobates hoolock	Hoolock gibbon	1
Hylobates lar pileatus	Black-capped gibbon	1
Symphalangus syndactylus	Siamang gibbon	1
Pongidae:		
Pan troglodytes verus	West African chimpanzee	2
RODENTIA		
Sciuridae:		
Citellus beecheyi douglasii	Douglas ground squirrel	3
Cynomys ludovicianus	Plains prairie dog	56
Funisciurus leucostigma	West African bush squirrel	3
Glaucomys volans	Flying squirrel	7
Marmota monax	Woodchuck or ground hog	4
Tamias striatus	Eastern chipmunk	1
Heteromyidae:		
Dipodomys ordii	Ord kangaroo rat	3

Scientific name	*Common name*	*Number*
Cricetidae:		
Mesocricetus auratus	Golden hamster	7
Peromyscus leucopus	White-footed or deer mouse	7
Sigmodon hispidus	Cotton rat	1
Muridae:		
Meriones unguiculatus	Mongolian gerbil	1
Mus musculus	White and other domestic mice	12
Rattus norvegicus	Hooded laboratory rat	11
Hystricidae:		
Acanthion brachyurum	Malay porcupine	3
Atherurus africanus	West African brush-tailed porcupine	3
Thecurus crassispinis sumatrae	Thick-spined porcupine	1
Myocastoridae:		
Myocastor coypus	Coypu	5
Capromyidae:		
Capromys pilorides	Hutia	5
Dasyproctidae:		
Dasyprocta prymnolopha	Agouti	1
Dasyprocta punctata	Speckled agouti	3
Chinchillidae:		
Chinchilla chinchilla	Chinchilla	4
Lagidium viscaccia	Peruvian viscacha	5
Caviidae:		
Cavia porcellus	Guinea pig	3
Dolichotis patagona	Patagonian cavy	1
	LAGOMORPHA	
Leporidae:		
Oryctolagus cuniculus	Domestic rabbit	5
	ARTIODACTYLA	
Bovidae:		
Ammotragus lervia	Aoudad	17
Anoa fergusoni	Mountain anoa	1
Bibos gaurus	Gaur	3
Bison bison	American bison	13
	Albino bison	1
Bos indicus	Zebu	4
Bos taurus	Domestic cow (Jersey)	1
Bos taurus	West Highland or Kyloe cattle	4
Bos tarus	British Park cattle	6
Bubalus bubalis	Water buffalo	2
Capra sibirica	Ibex	1
Cephalophus maxwellii	Maxwell's duiker	1
Cephalophus niger	Black duiker	1
Cephalophus nigrifrons	Black-fronted duiker	2
Hemitragus jemlahicus	Tahr	5
Oryx leucoryx	Arabian oryx	2
Ovis aries	Woolless or Barbadoes sheep	1
Ovis europaea	Mouflon	4
Poephagus grunniens	Yak	5
Pseudois nayaur	Bharal or blue sheep	1
Syncerus caffer	African buffalo	2
Taurotragus oryx	Eland	2

Scientific name	*Common name*	*Number*
Cervidae:		
Axis axis	Axis deer	5
Cervus canadensis	American elk	5
Cervus elaphus	Red deer	4
Cervus nippon	Japanese deer	5
Cervus nippon manchuricus	Dybowsky deer	2
Dama dama	Fallow deer	13
	White fallow deer	15
Odocoileus virginianus	Virginia deer	6
Giraffidae:		
Giraffa camelopardalis	Nubian giraffe	4
Giraffa reticulata	Reticulated giraffe	1
Camelidae:		
Camelus bactrianus	Bactrian camel	3
Camelus dromedarius	Single-humped camel	1
Lama glama	Llama	1
Lama glama guanico	Guanaco	3
Lama pacos	Alpaca	2
Vicugna vicugna	Vicuña	1
Tayassuidae:		
Pecari angulatus	Collared peccary	1
Suidae:		
Babirussa babyrussa	Babirussa	2
Phacochoerus aethiopicus aeliani	East African wart hog	2
Sus scrofa	European wild boar	2
Hippopotamidae:		
Choeropsis liberiensis	Pigmy hippopotamus	6
Hippopotamus amphibius	Hippopotamus	2
PERISSODACTYLA		
Equidae:		
Equus burchellii antiquorum	Chapman's zebra	2
Equus grevyi × *caballus*	Zebra-horse hybrid	1
Equus kiang	Asiatic wild ass or kiang	1
Equus onager	Onager	1
Equus przewalskii	Mongolian wild horse	3
Equus zebra	Mountain zebra	1
Tapiridae:		
Acrocodia indica	Asiatic tapir	2
Rhinocerotidae:		
Rhinoceros unicornis	Great Indian one-horned rhinoceros	1
PROBOSCIDAE		
Elephantidae:		
Elephas maximus sumatranus	Sumatran elephant	1
Loxodonta africana oxyotis	African elephant	1
EDENTATA		
Dasypodidae:		
Chaetophractus villosus	Hairy armadillo	1
Euphractus sexcinctus	Six-banded armadillo	1
Myrmecophagidae:		
Myrmecophaga tridactyla	Giant anteater	1

BIRDS

STRUTHIONIFORMES

Scientific name	*Common name*	*Number*
Struthionidae:		
Struthio camelus	Ostrich	2

RHEIFORMES

Rheidae:		
Rhea americana	Common rhea	3

CASUARIIFORMES

Casuariidae:		
Casuarius casuarius aruensis	Aru cassowary	1
Casuarius uniappendiculatus occipitalis	Island cassowary	1
Casuarius uniappendiculatus uniappendiclatus	One-wattled cassowary	1
Dromiceiidae:		
Dromiceius novaehollandiae	Common emu	2

SPHENISCIFORMES

Spheniscidae:		
Aptenodytes forsteri	Emperor penguin	1
Eudyptes chrysolophus	Macaroni penguin	11
Eudyptes cristatus	Rock-hopper penguin	2

TINAMIFORMES

Tinamidae:		
Nothura maculosa	Spotted tinamou	2

PELECANIFORMES

Pelecanidae:		
Pelecanus californicus	California brown pelican	2
Pelecanus erythrorhynchus	White pelican	5
Pelecanus occidentalis	Brown pelican	3
Pelecanus roseus	Rose-colored pelican	4
Phalacrocoracidae:		
Phalacrocorax auritus albociliatus	Farallon cormorant	1

CICONIIFORMES

Ardeidae:		
Ardea herodias	Great blue heron	2
Ardea occidentalis	Great white heron	1
Egretta thula	Snowy egret	5
Hydranassa tricolor ruficollis	Louisiana heron	1
Notophoyx novaehollandiae	White-faced heron	1
Nyctanassa violacea cayennensis	South American yellow-crowned night heron	1
Nycticorax nycticorax naevius	Black-crowned night heron	30
Cochleariidae:		
Cochlearius cochlearius	Boatbill heron	1

Scientific name	*Common name*	*Number*
Ciconiidae:		
Dissoura episcopus	Woolly-necked stork	1
Ibis cinereus	Malay stork	2
Jabiru mycteria	Jabiru	3
Leptoptilus crumeniferus	Marabou	1
Leptoptilus dubius	Indian adjutant	1
Leptoptilus javanicus	Lesser adjutant	2
Mycteria americana	Wood ibis	1
Threskiornithidae:		
Ajaia ajaja	Roseate spoonbill	4
Guara alba	White ibis	8
Guara alba × *G. rubra*	Hybrid white and scarlet ibis	1
Guara rubra	Scarlet ibis	1
Threskiornis melanocephala	Black-headed ibis	4
Threskiornis spinicollis	Straw-necked ibis	2
Phoenicopteridae:		
Phoenicopterus chilensis	Chilean flamingo	2
Phoenicopterus ruber	Cuban flamingo	1
	ANSERIFORMES	
Anhimidae:		
Chauna chavaria	White-cheeked screamer	1
Chauna torquata	Crested screamer	7
Anatidae:		
Aix sponsa	Wood duck	8
Anas bahamensis	Bahama pintail	2
Anas domestica	Pekin duck	51
Anas domestica × *A. platyrhynchos*	Pekin duck × mallard duck hybrid	1
Anas platyrhynchos	Mallard duck	57
Anas rubripes	Black duck	6
Anser albifrons	American white-fronted goose	1
Anser cinereus domestica	Toulouse goose	2
Anseranus semipalmata	Australian pied goose	2
Branta canadensis	Canada goose	20
Branta canadensis occidentalis	White-cheeked goose	24
Branta canadensis × *Chen caerulescens*	Hybrid Canada goose × blue goose	2
Branta hutchinsii	Hutchin's goose	4
Branta hutchinsii minima	Cackling goose	6
Cairina moschata	Muscovy duck	12
Cereopsis novaehollandiae	Cape Barren goose	1
Chen atlantica	Snow goose	4
Chen caerulescens	Blue goose	3
Chenopis atrata	Black swan	12
Chloephaga leucoptera	Magellan goose	1
Coscoroba coscoroba	Coscoroba	2
Cygnopsis cygnoides	Domestic goose	1
Cygnus columbianus	Whistling swan	2
Cygnus melancoriphus	Black-necked swan	1
Cygnus olor	Mute swan	2
Dafila acuta	Pintail	10

Scientific name	*Common name*	*Number*
Anatidae—Continued		
Dafila spinicauda	Chilean pintail	1
Dendrocygna arborea	Black-billed tree duck	3
Dendrocygna viduata	White-faced tree duck	2
Dendronessa galericulata	Mandarin duck	4
Mareca americana	Baldpate	1
Marila affinis	Lesser scaup	1
Marila collaris	Ring-necked duck	2
Metopiana peposaca	Rosy-billed pouchard	3
Nettion carolinense	Green-winged teal	2
Nettion formosum	Baikal teal	3
Nyroca sp	Hybrid duck	1
Nyroca valisineria	Canvasback duck	1
Philacte canagica	Emperor goose	2
Querquedula discors	Blue-winged teal	2
	FALCONIFORMES	
Cathartidae:		
Cathartes aura	Turkey vulture	1
Coragyps atratus	Black vulture	3
Sarcoramphus papa	King vulture	2
Vultur gryphus	Andean condor	1
Sagittariidae:		
Sagittarius serpentarius	Secretary bird	2
Accipitridae:		
Accipiter striatus velox	Sharp-shinned hawk	1
Buteo jamaicensis	Red-tailed hawk	6
Buteo lineatus elegans	Southern red-shouldered hawk	1
Buteo lineatus lineatus	Red-shouldered hawk	3
Buteo melanoleucus	South American buzzard eagle	2
Buteo platypterus	Broad-winged hawk	1
Buteo poecilochrous	Red-backed buzzard	2
Buteo swainsoni	Swainson's hawk	1
Gypohierax angolensis	Fish-eating vulture	1
Gyps fulvus	Griffon vulture	1
Gyps rueppelli	Ruppell's vulture	2
Haliaeetus leucocephalus	Bald eagle	5
Haliastur indus	Brahminy kite	5
Harpia harpya	Harpy eagle	2
Milvago chimango	Chimango	3
Milvus migrans parasitus	African yellow-billed kite	2
Pandion haliaetus carolinensis	Osprey or fish hawk	1
Parabuteo unicinctus	One-banded hawk	1
Sarcogyps calvus	Indian Pondicherry vulture	1
Spiziastur melanoleucus	Black and white hawk eagle	1
Torgos tracheliotus	African eared vulture	1
Falconidae:		
Daptrius americanus	Red-throated caracara	3
Falco mexicanus	Prairie falcon	1
Falco peregrinus anatum	Duck hawk	1
Falco sparverius	Sparrow hawk	11
Falco sparverius interaedius	South American sparrow hawk	1
Polyborus plancus	South American caracara	1

GALLIFORMES

Scientific name	*Common name*	*Number*
Cracidae:		
Crax fasciolata	Crested curassow	2
Crax rubra	Panama curassow	1
Mitu mitu	Razor-billed curassow	2
Phasianidae:		
Argusianus argus	Argus pheasant	2
Catreus wallichii	Cheer pheasant	1
Chrysolophus amherstiae	Lady Amherst's pheasant	1
Chrysolophus pictus	Golden pheasant	4
Colinus cristatus	Crested quail	1
Crossoptilon auritum	Blue-eared pheasant	1
Gallus sp	Bantam chicken	4
Gallus sp	Game fowl	8
Gallus sp	Oriental silky bantam fowl	6
Gallus sp	Fighting fowl	8
Gallus sp	Long-tailed fowl	1
Gallus gallus	Red jungle fowl	9
Gallus gallus hybrid	Hybrid red jungle fowl × bantam fowl	4
Gallus lafayetii	Ceylonese jungle fowl	1
Gallus sonneratii	Gray jungle fowl	1
Gennaeus albocristatus	White-crested kaleege	2
Gennaeus leucomelanus	Nepal kaleege	2
Gennaeus nycthemerus	Silver pheasant	3
Hierophasis swinhoii	Swinhoe's pheasant	2
Lophophorus impeyanus	Himalayan impeyan pheasant	1
Pavo cristatus	Peafowl	8
Phasianus torquatus	Ring-necked pheasant	3
Polyplectron napoleonis	Palawan peacock pheasant	1
Syrmaticus reevesi	Reeve's pheasant	2
Numididae:		
Acryllium vulturinum	Vulturine guinea fowl	1
Numida sp	Guinea fowl	2
Meleagrididae:		
Agriocharis ocellata	Ocellated turkey	4
Meleagris gallopavo	Wild turkey	2
Meleagris gallopavo var	Domestic turkey	1

GRUIFORMES

Gruidae:		
Anthropoides virgo	Demoiselle crane	2
Balearica pavonina	West African crowned crane	2
Balearica regulorum gibbericeps	East African crowned crane	1
Grus leucauchen	White-naped crane	1
Grus leucogeranus	Siberian crane	2
Psophiidae:		
Psophia leucoptera	White-backed trumpeter	2
Rallidae:		
Amaurornis phoenicurus	White-breasted rail	1
Aramides cajanea	Wood rail	2
Fulica americana	American coot	14
Gallinula chloropus cachinnans	Florida gallinule	3
Gallinula chloropus orientalis	Sumatran gallinule	1
Porphyrio poliocephalus	Gray-headed porphyrio	2

Scientific name	*Common name*	*Number*
Cariamidae:		
Cariama cristata	Cariama or seriema	2
CHARADRIIFORMES		
Burhinidae:		
Burhinus bistriatus	South American thick-knee	2
Haematopodidae:		
Haematopus ostralegus	European oyster catcher	1
Charadriidae:		
Belanopterus chilensis	Chilean lapwing	2
Laridae:		
Larus argentatus	Herring gull	2
Larus delawarensis	Ring-billed gull	1
Larus dominicanus	Kelp gull	2
Larus novaehollandiae	Silver gull	7
Glariolidae:		
Glareola pratincola	Collared pratincole	1
COLUMBIFORMES		
Columbidae:		
Columba livia	Domestic pigeon	12
Ducula aenea	Green imperial pigeon	1
Gallicolumba luzonica	Bleeding-heart dove	1
Gallicolumba luzonica × *Turtur risorius*	Bleeding-heart dove × ring-necked dove hybrid	2
Geopelia cuneata	Diamond dove	1
Goura victoria	Victoria crowned pigeon	1
Leptotila rufaxilla	Scaled pigeon	1
Muscadivores paulina	Celebian imperial pigeon	1
Streptopelia chinensis	Asiatic collared dove	2
Streptopelia chinensis ceylonensis	Lace-necked or ash dove	1
Streptopelia tranquebarica	Blue-headed ring dove	2
Turtur risorius	Ring-necked dove	35
Zenaida auriculata	South America mourning dove	3
PSITTACIFORMES		
Psittacidae:		
Agapornis lilianae	Peach-faced love bird	3
Amazona aestiva	Blue-fronted parrot	1
Amazona auropalliata	Yellow-naped parrot	3
Amazona ochrocephala	Yellow-headed parrot	3
Amazona oratrix	Double yellow-headed parrot	5
Anodorhynchus hyacinthinus	Hyacinthine macaw	1
Ara ararauna	Yellow and blue macaw	2
Ara macao	Red, blue, and yellow macaw	1
Aratinga euops	Cuban conure	1
Aratinga pertinax	Gray-headed conure	1
Calyptorhynchus magnificus	Banksian cockatoo	1
Coracopsis nigra	Lesser vasa parrot	1
Cyanopsittacus spixi	Spix's macaw	1
Ducorpsis sanguineus	Bare-eyed cockatoo	2
Eclectus pectoralis	Eclectus parrot	1
Eolophus roseicapillus	Roseate cockatoo	1
Kakatoe alba	White cockatoo	2

Scientific name	*Common name*	*Number*
Psittacidae—Continued		
Kakatoe ducrops	Solomon Islands cockatoo	2
Kakatoe galerita	Large sulphur-crested cockatoo	3
Kakatoe leadbeateri	Leadbeater's cockatoo	1
Kakatoe moluccensis	Great red-crested cockatoo	1
Kakatoe sulphurea	Lesser sulphur-crested cockatoo	1
Lorius domicella	Rajah lory	2
Lorius garrulus	Red lory	1
Melopsittacus undulatus	Grass paroquet	34
Myopsitta monachus	Quaker paroquet	1
Nestor notabilis	Kea	1
Nymphicus hollandicus	Cockatiel	2
Pionites xanthomeria	Amazonian caique	1
Psittacula eupatria	Red-shouldered paroquet	1
Psittacula krameri	Kramer's paroquet	1
Psittacula longicauda	Long-tailed paroquet	1
CUCULIFORMES		
Cuculidae:		
Eudynamis scolopaceus	Koel	1
STRIGIFORMES		
Tytonidae:		
Tyto alba pratincola	Barn owl	6
Strigidae:		
Bubo virginianus	Great horned owl	9
Ketupa ketupa	Malay fish owl	1
Nyctea nyctea	Snowy owl	1
Otus asio	Screech owl	2
Strix varia varia	Barred owl	6
TROGONIFORMES		
Trogonidae:		
Pharomachrus mocino	Quetzal	6
CORACIIFORMES		
Alcedinidae:		
Dacelo gigas	Kookaburra	2
Halcyon sanctus	Sacred kingfisher	1
Coraciidae:		
Anthracoceros coronatus	Pied hornbill	2
Tockus birostris	Gray hornbill	2
Momotidae:		
Momotus lessoni	Motmot	1
PICIFORMES		
Ramphastidae:		
Aulacorhynchus sulcatus sulcatus	Groove-billed toucanet	1
Pteroglossus aracari	Black-necked aracari	2
Pteroglossus torquatus	Aracari toucan	1
Ramphastos carinatus	Sulphur-breasted toucan	2
Ramphastos piscivorus	Toco toucan	1

PASSERIFORMES

Scientific name	*Common name*	*Number*
Cotingidae:		
Rupicola rupicola	Cock-of-the-rock	2
Pittidae:		
Pitta moluccensis	Molucca pitta	2
Corvidae:		
Callocitta formosa	Mexican jay	1
Cissa chinensis	Chinese cissa	2
Cissilopha yucatanica	Yucatan blue jay	4
Corvus albus	White-breasted crow	2
Corvus brachyrhynchos	American crow	3
Corvus corax principalis	Northern raven	2
Corvus cornix	Hooded crow	1
Corvus cryptoleucus	White-necked raven	1
Corvus insolens	Indian crow	2
Cyanocitta cristata	Blue jay	2
Cyanocorax chrysops	Urraca jay	1
Cyanopica cyana	Azure-winged pie	1
Dendrocitta vagabunda	Rufus tree pie	2
Garrulus lanceolatus	Black-throated jay	1
Gymnorhina hypoleuca	White-backed piping crow	1
Pica pica hudsonica	American magpie	3
Urocissa caerulea	Formosan red-billed pie	2
Urocissa occipitalis	Red-billed blue magpie	1
Paradiseidae:		
Ailuroedus crassirostris	Australian catbird	1
Ptilonorhynchus violaceus	Satin bowerbird	1
Timaliidae:		
Garrulax albigularis	Asiatic laughing thrush	2
Garrulax bicolor	White-headed laughing thrush	2
Garrulax pectoralis picticollis	Chinese collared laughing thrush	1
Pycnonotidae:		
Pycnonotus analis	Yellow-vented bulbul	1
Mimidae:		
Melanotis caerulescens	Blue catbird	1
Mimus polyglottos leucopterus	Western mockingbird	1
Turdidae:		
Platycichla flavipes	Yellow-footed thrush	1
Turdus grayi	Bonaparte's thrush	1
Turdus migratorius	Eastern robin	2
Turdus rufiventris	Argentine robin	1
Sturnidae:		
Galeopsar salvadorii	Crested starling	1
Gracula religiosa	Hill mynah	1
Graculipica melanoptera	White starling	1
Pastor roseus	Rosy pastor	1
Sturnia malabarica	Pied mynah	2
Sturnus vulgarus	Starling	1

Scientific name	*Common name*	*Number*
Ploceidae:		
Aidemosyne cantans	Tawny waxbill	4
Aidemosyne malabarica	Indian silver-bill	2
Aidemosyne modesta	Plum-head finch	2
Alisteranus cinctus	Parson finch	2
Amadina fasciata	Cut-throat weaver finch	17
Amandava mandava	Strawberry finch	3
Cayleyna picta	Painted finch	1
Diatropura procne	Giant whydah	2
Estrilda sp	Red-eared waxbill	8
Estrilda cinerea	Common waxbill	25
Euplectes franciscana	Bishop weaver	8
Hypochera ultramarina	Combasou or indigo bird	3
Lagonosticta senegalla	African fire finch	2
Lonchura leucogastroides	Bengalee finch	3
Munia maja	White-headed munia	2
Munia malacca	Black-throated munia	1
Munia oryzivora	Java sparrow	3
Munia punctulata	Spice finch	3
Neopoephila personata	Masked finch	2
Ploceus baya	Baya weaver	3
Ploceus intermedius	Black-cheeked weaver	2
Ploceus vitellinus	Vitelline masked weaver	7
Poephila acuticauda	Long-tailed finch	4
Poephila gouldiae	Gouldian finch	4
Quelea quelea	Red-billed weaver	5
Quelea quelea lathami	Southern masked weaver finch	2
Sporaeginthus melopodus	Orange-cheeked waxbill	60
Steganura paradisea	Paradise whydah	18
Stictoptera bichenovii	Binchenov's finch	2
Taeniopygia castanotis	Zebra finch	4
Uraeginthus bengalus	Cordon blue finch	60
Icteridae:		
Agelaius assimilis	Cuban red-winged blackbird	1
Amblyrhamphus holosericeus	Scarlet-headed blackbird	1
Gymnomystax mexicanus	Giant oriole	1
Icterus bullocki	Bullock's troupial	1
Notiopsar curaesus	Chilean blackbird	2
Trupialis defilippi	Military starling	4
Xanthocephalus xanthocephalus	Yellow-headed blackbird	2
Thraupidae:		
Ramphocelus carbo	Silver-beaked tanager	4
Ramphocelus dimidiatus	Crimson tanager	2
Ramphocelus flammigerus	Yellow tanager	5
Ramphocelus passerini	Passerini tanager	1
Tanagra darwini	Darwin's tanager	2
Thraupis cana	Blue tanager	3

Scientific name	*Common name*	*Number*
Fringillidae:		
Carpodacus mexicanus	Mexican house finch	4
Cyanocompsa argentina	Argentine blue grosbeak	2
Diuca diuca	Diuca finch	14
Junco hyemalis	Slate-colored junco	1
Lophospingus pusillus	Black-crested finch	2
Melopyrrha nigra	Cuban bullfinch	2
Melospiza melodia	Song sparrow	1
Paroaria cucullata	Brazilian cardinal	1
Paroaria gularis nigro-genis	Black-eared cardinal	3
Passerella iliaca	Fox sparrow	1
Passerina amoena	Lazuli bunting	1
Passerina cyanea	Indigo bunting	2
Passerina leclancheri	Leclancher's bunting	2
Passerina versicolor	Blue bunting	2
Pheucticus aureoventris	Black and yellow grosbeak	2
Phrygilus alaudinos	Chilean lark finch	1
Phrygilus fruticeti	Mourning finch	4
Phrygilus gayi	Gay's gray-headed finch	1
Poospiza torquata	Ringed warbling finch	2
Richmondina cardinalis	Cardinal	3
Serinus canarius	Canary	4
Serinus canarius × *Carduelis mexicana*	Canary × siskin hybrid	2
Serinus icterus	Green singing finch	3
Sicalis flaveola	Mysto finch	3
Sicalis luteola	Saffron finch	3
Spinus uropygialis	Chilean siskin	1
Sporophila aurita	Hick's seed-eater	1
Sporophila gutturalis	Yellow-billed seed-eater	2
Sporophila melanocephala	Black-headed seed-eater	2
Tiaris olivacea	Mexican grassquit	5
Volatinia jacarini	Blue-black grassquit	1
Zonotrichia albicollis	White-throated sparrow	4
Zonotrichia capensis	Chingolo	1

REPTILES

LORICATA

Crocodylidae:		
Alligator mississipiensis	Alligator	28
Alligator sinensis	Chinese alligator	3
Caiman latirostris	Broad-snouted caiman	1
Caiman sclerops	Spectacled caiman	3
Crocodylus cataphractus	Narrow-nosed crocodile	1
Crocodylus niloticus	African crocodile	2
Crocodylus palustris	"Toad" crocodile	2
Crocodylus porosus	Salt-water crocodile	1
Crocodylus rhombifer	Cuban crocodile	1
Osteolaemus tetraspis	Broad-nosed crocodile	3

SAURIA

Scientific name	*Common name*	*Number*
Iguanidae:		
Basiliscus vittatus	Basilisk	7
Phrynosoma brevirostre	Northern horned lizard	1
Phrynosoma cornutum	Horned lizard	6
Sceloporus undulatus	Pine or fence lizard	6
Anguidae:		
Ophisaurus ventralis	Legless lizard or glass "snake"	2
Celestus sagraei	Sagra's skink	1
Agamidae:		
Uromastix acanthinurus	North African spiny-tailed lizard	1
Helodermatidae:		
Heloderma horridum	Mexican beaded lizard	2
Heloderma suspectum	Gila monster	5
Teiidae:		
Tupinambis nigropunctatus	Black tegu	5
Scincidae:		
Eumeces fasciatus	Blue-tailed skink	2
Tiliqua scincoides	Blue-tongued lizard	2
Varanidae:		
Varanus komodoensis	Komodo dragon	1
Varanus monitor	Indian monitor	1
Varanus salvator	Sumatran monitor	3
Zonuridae:		
Zonurus giganteus	African spiny lizard	2

SERPENTES

Boidae:		
Constrictor constrictor	Boa constrictor	1
Constrictor imperator	Central American boa	8
Epicrates cenchris	Rainbow boa	13
Epicrates crassus	Salamanta	1
Epicrates striatus	Haitian boa	1
Eunectes murinus	Anaconda	1
Python molurus	Indian rock python	1
Python regius	Ball python	1
Colubridae:		
Boiga blandingi	Brown tree snake	1
Diadophis punctatus	Ring-necked snake	2
Dinodon semicarinatum	Akamatah	1
Elaphe guttata	Corn snake	2
Elaphe obsoleta	Pilot snake	5
Elaphe quadrivittata	Chicken snake	2
Lampropeltis triangulum triangulum	Milk snake or spotted adder	1
Natrix sp	Water snake	12
Natrix piscator	Water snake	1
Natrix sipedon	Banded water snake	8
Opheodrys vernalis	Green grass snake	1

Scientific name	*Common name*	*Number*
Colubridae—Continued		
Oxybelis acuminatus	Pike-head snake	2
Pituophis catenifer	Western bull snake	1
Pituophis melanoleucus	Bull snake	2
Ptyas mucosus	Indian rat snake	1
Storeria dekyi	De Kay's snake	4
Thamnophis macrostemma	Mexican garter snake	1
Thamnophis ordinoides	Western garter snake	3
Thamnophis sauritus	Ribbon snake	1
Thamnophis sirtalis	Garter snake	7
Elapidae:		
Dendroaspis sp	Black tree snake or black mamba	1
Dendroaspis viridis	Green mamba	4
Micrurus fulvius	Coral snake	1
Naja melanoleuca	West African cobra	3
Crotalidae:		
Agkistrodon bilineatus	Mexican moccasin	14
Agkistrodon mokeson	Copperhead snake	3
Agkistrodon piscivorus	Cottonmouth moccasin	6
Crotalus atrox	Texas diamond-backed rattlesnake	1
Crotalus horridus	Eastern diamond-backed rattlesnake	1
Trimeresurus flavoviridis	Habu viper	3
Sistrurus catenatus catenatus	Massasauga	7
Sistrurus miliarius	Pigmy rattlesnake	2
TESTUDINATA		
Chelydidae:		
Batrachemys nasuta	South American snake-necked turtle	4
Hydraspis sp	Cágado or South American snake-necked turtle	1
Hydromedusa tectifera	South American snake-necked turtle	18
Platemys platycephala	Flat-headed turtle	1
Pelomedusidae:		
Podocnemis expansa	South American river tortoise	1
Kinosternidae:		
Kinosternon subrubrum	Musk turtle	6
Chelydridae:		
Chelydra serpentina	Snapping turtle	8
Macrochelys temminckii	Alligator snapping turtle	1
Testudinidae:		
Chrysemys picta	Painted turtle	7
Clemmys guttata	Spotted turtle	6
Clemmys insculpta	Wood turtle	3
Cyclemys amboinensis	Kura kura box turtle	1
Graptemys barbouri	Barbour's turtle	6
Malaclemys centrata	Diamond-back turtle	8
Pelomedusa galeata	Common African water tortoise	1

Scientific name	*Common name*	*Number*
Testudinidae—Continued		
Pseudemys concinna	Cooter	1
Pseudemys rugosa	Cuban terrapin	1
Pseudemys scripta troostii	Troost's turtle	1
	Troost's turtle (albino)	2
Pseudemys troostii	Cumberland terrapin	4
Terrapene carolina	Box turtle	50
Terrapene major	Florida box turtle	4
Testudo ephippium	Duncan Island tortoise	2
Testudo hoodensis	Hood Island tortoise	2
Testudo tabulata	South American tortoise	1
Testudo tornieri	Soft-shelled land tortoise	1
Testudo vicina	Albemarle Island tortoise	5
Trionychidae:		
Amyda ferox	Soft-shelled turtle	6
Amyda triunguis	West African soft-shelled turtle	1

AMPHIBIA

CAUDATA

Salamandridae:		
Triturus pyrrhogaster	Red Japanese salamander	77
Triturus torosus	Giant newt	2
Triturus vulgaris	Common European salamander	3
Ambystomidae:		
Ambystoma lacustris	Mexican axolotl	3
Ambystoma opacum	Marbled salamander	1
Ambystoma tigrinum	Axolotl	32
Cryptobranchidae:		
Megalobatrachus japonicus	Giant Japanese salamander	2

SALIENTIA

Dendrobatidae:		
Atelopus varius cruciger	Yellow atelopus	34
Dendrobates auratus	Arrow-poison frog	160
Dendrobates wittei	Red and black frog	1
Bufonidae:		
Bufo americanus	Common toad	1
Bufo empusus	Sapo de concha	4
Bufo marinus	Marine toad	4
Bufo peltacephalus	Cuban giant toad	3
Ceratophrydae:		
Ceratophrys ornata	Horned frog	1
Ceratophrys varius	Horned frog	1
Hyla sp	Tree frog	1
Hyla crucifer	Tree frog	2
Pipidae:		
Pipa pipa	Surinam toad	6
Xenopus laevis	African clawed frog	12

Scientific name	*Common name*	*Number*
Ranidae:		
Rana catesbeiana	Bullfrog	2
Rana clamitans	Green frog	2
Rana pipiens	Leopard frog	10
Rana sylvatica	Wood frog	1
FISHES		
Anabas testudineus	Climbing perch	5
Anoptichthys jordani	Blind characin	12
Barbus everetti	Clown barb	8
Barbus partipentazona	Banded barb	20
Brachydanio rerio	Zebra danio	3
Carassius auratus	Goldfish	12
Channa asiatica	Snakehead fish	1
Cichlasoma festivum	Flag cichlid	5
Corydoras aeneus	Trinidad catfish	2
Danio malabaricus	Blue danio	4
Gymnocorymbus ternetzi	Black tetra	2
Helostoma temminckii	Kissing gourami or gorami	3
Hyphessorbrycon innesi	Neon tetra	1
Kryptopterus bicirrhis	Glass catfish	2
Lebistes reticulatus	Guppy	100
Lepidosiren paradoxa	South American lung fish	2
Limis vittata	Cuban limia	10
Mollienisia sphenops	Victory molly	10
Monocirrhus polyacanthus	Leaf fish	1
Otocinclus affinus	Sucker catfish	6
Platypoecilus	Red moon	3
Pristella riddlei	Tetra	10
Protopterus annectens	African lungfish	2
Pterophyllum scalare	Angel fish	1
ARACHNIDS		
Eurypelma sp	Tarantula	1
INSECTS		
Blabera sp	Giant cockroach	100

SUMMARY

Animals on hand July 1, 1946	2,553
Accessions during the year	1,462
Total number of animals in collection during the year	4,015
Removals for various reasons such as death, exchanges, return of animals on deposit, etc	1,008
In collection on June 30, 1947	3,007

Among the important losses of the year were three emperor penguins. Two of them had lived here for 5 years and 11 months; the last

one to die, for 6 years and 3 months. These, of course, are outstanding records for life in captivity for these interesting birds, but the loss was a heavy one.

STATUS OF COLLECTION

Class	Species	Individuals	Class	Species	Individuals
Mammals	189	609	Fish	24	316
Birds	336	1,235	Insects	1	100
Reptiles	94	380	Arachnids	1	1
Amphibians	24	365	Total	669	3,007

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, 1947:

The Observatory has two divisions: (1) The original Division of Astrophysical Research, engaged primarily in a study of solar radiation, and (2) the more recently established Division of Radiation and Organisms, engaged in a study of the effects of radiation on organisms.

Both divisions of the Observatory helped to celebrate the one-hundredth anniversary of the founding of the Smithsonian Institution by participating in a special exhibit illustrating the activities of the Institution. Mechanical working models were displayed showing typical instruments as used by the Observatory at Camp Lee, Va., and also showing types of research in the Division of Radiation and Organisms, with emphasis placed on the role of light in the growth and development of plants.

(1) DIVISION OF ASTROPHYSICAL RESEARCH

Work in Washington.—As in the past, our first concern has been to appraise the solar-constant values received from our field stations and to plan and develop improvements in instrumental equipment and methods. Our plans have seemed unduly slow in fulfillment, but by way of anticipation we may state that in the near future at one of our field stations we expect to try several innovations. These include an improved vacuum bolometer, a fused quartz prism, and aluminized mirrors in the optical path in place of stellite. The resulting large increase in ultraviolet deflections should permit a more accurate study of the day-to-day changes in this important region.

Our second concern has been the work at Camp Lee, Va., under contract with the Office of the Quartermaster General, described in last year's report. The records of the Camp Lee measurements of sun and sky radiation have been compiled and prepared for publication in a series of 11 reports to the Quartermaster General. The maintenance of the equipment and observations at Camp Lee, and the preparation of the reports have all been under the direction of William H. Hoover. With the close of the fiscal year we have completed 18 months of con-

tinuous observations at Camp Lee. These records give the sun and sky radiation in calories per square centimeter, for each hour of each day divided as follows:

(1) Total intensity on a horizontal surface.
(2) Total intensity on a surface inclined 45° to the east.
(3) Ultraviolet intensity on a surface 45° to the east.
(4) Visible intensity 45° to the east.
(5) Infrared intensity 45° to the east.
(6) Intensity under a vycor filter which transmits all radiation, inclined 45° to the south.
(7) Intensity under a black filter (Corning 2540) which cuts off the ultraviolet and visible, and transmits the infrared, 45° to the south.
(8) Intensity under a yellow filter (Corning 3385) which cuts off the ultraviolet and transmits the visible and infrared, 45° to the south.
(9) Ultraviolet intensity on a horizontal surface measured with a special photoelectric ultraviolet meter.

The measurement and reduction of these voluminous records have been tedious and time-consuming. Integrating devices which will greatly simplify the work are being studied by Mr. Hoover and L. B. Clark, and several such devices are under construction in our shops.

It is now 13 years since Dr. C. G. Abbot and the Director last determined the standard scale of solar radiation on Mount Wilson. In anticipation of a new determination of this scale in the near future, the double-barreled water-flow pyrheliometer used successfully in 1934 has been partially rebuilt. Rubber joints within the instrument have been eliminated, copper-constantan thermojunctions replace the former nickel-platinum junctions, and the thermoelement arrangement is made more simple and efficient.

Dr. Abbot, research associate of the Observatory, has continued his studies of the effects of solar changes on weather. He has also experimented with a small solar engine, and has made preparations for a further study of the energy spectra of stars which he will undertake soon with the aid of the Mount Wilson 100-inch telescope.

At the request of Dr. Henryk Arctowski, and with the cooperation of Dr. Abbot and the Secretary of the Institution, Dr. Alexander Wetmore, arrangements were made for John McLean Hildt to come to Washington to assist Dr. Arctowski for 1 year. Mr. Hildt, formerly meteorologist for the American Overseas Airlines, began work with Dr. Arctowski on June 2, 1947. He will help organize and prepare for publication the large amount of material which Dr. Arctowski has accumulated.

Work in the field.—In October 1946 Mr. Hoover and Paul Greeley went to New Mexico and packed for shipment the entire equipment of our Tyrone station, closed since February 1946. Arrangements were made for the sale and disposal of the buildings and for the return

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of the site to the custody of the Forest Service. The equipment was sent to Miami, Fla., and stored pending the completion of a building suitable for temporary solar observations at this sea-level location.

In further development of their studies of the causes of tent deterioration, the Quartermaster Department decided to extend the Camp Lee work to include measurements and exposures at a wet, sea-level station and also at a dry, high-altitude station. Fortunately, in Miami, Fla., the General Motors Corp. maintains a test field for the exposure and testing of various materials. At the suggestion of Dr. S. J. Kennedy, of the Military Planning Division, Office of the Quartermaster General, a cooperative program was arranged between the General Motors Corp., the Quartermaster Department, and the Smithsonian Institution. General Motors generously undertook to build a special observing shelter at their test field, to house our spectrobolometric equipment formerly in operation at Tyrone, N. Mex. This building, a most satisfactory, well-insulated structure of cement brick, was completed in April 1947. On May 1 F. A. Greeley, recently director at our Montezuma, Chile, station, took charge of the installation of our equipment. Spectrobolometric observations are planned for a period of 1 year.

During the war years our field stations were unavoidably undermanned. It is therefore a satisfaction to state that each of the stations now has two competent observers, as in prewar days.

During the fiscal year, a generous gift to further the work of the Division was received from John A. Roebling. The staff of the Observatory is sincerely grateful to Mr. Roebling, and to Dr. Abbot through whose kindly interest the gift was received.

(2) DIVISION OF RADIATION AND ORGANISMS

(Report prepared by Earl S. Johnston, Chief of the Division)

General.—Members of the Division were consulted as usual by outside individuals and organizations regarding problems arising in the field of radiation, its measurement and its effect on living matter. Individual members also participated actively in the affairs of national and local scientific organizations.

Research.—During the year the research of the Division of Radiation and Organisms was concentrated under two projects: (1) Photosynthesis, and (2) plant growth and development as influenced by light.

(1) *Photosynthesis.*—The purpose of this project is to determine the role of light, especially the wave-length effects, on the fixation of carbon by green plants. Included in this project are studies (*a*) to determine a more complete photosynthesis-action spectrum by use of the special spectrographic method for the determination of carbon

dioxide as developed in this laboratory; (*b*) to determine chlorophyll formation in the different regions of the spectrum; (*c*) to investigate the wave-length balance associated with optimum plant production.

Many instrumental problems have arisen in connection with this CO_2-measuring method which have prevented the full use of the apparatus in many of the planned experiments. New heat exchangers have been installed for better temperature control and other improvements made. After making 67 test runs, each of which required from 5 to 6 hours, all but two of the problems have been overcome.

The Division has recently obtained a suitable spectrophotometer with which to continue its studies on chlorophyll formation. Work in the study of wave-length balance and optimum plant growth has been continued.

(2) *Plant growth and development as influenced by light.*—The purposes of this project are (*a*) to determine the mechanism of dormancy in light-sensitive seeds, and (*b*) to study developmental physiology of grass seedlings.

Role of light in seed germination.—It has long been known that germination of many species of seeds under certain conditions is very markedly stimulated by, or entirely dependent upon, irradiation. About 10 years ago a cooperative investigation carried out in this laboratory (Flint and McAlister) demonstrated that only certain portions of the spectrum are stimulatory to germination whereas other regions are inhibitory. The mechanism of these effects of light has remained completely obscure, however.

Subsequent discoveries by other workers have suggested new experimental approaches to this problem which has been taken up again. These discoveries are (1) that certain chemicals have the ability to evoke germination in darkness and thus appear to act as substitutes for light, and (2) that other chemicals act as germination inhibitors in darkness but that light tends to overcome the inhibitory action.

A considerable variety of compounds has been tested for ability to promote germination of lettuce seeds in darkness at temperatures which, in the absence of specific stimulations, permit germination only in light. A number of active substances have been found. The tests are being continued in an attempt to correlate the physiological potency with molecular architecture.

The light-sensitive inhibitory effect produced by coumarin does not appear to be specific, being exhibited also by several other compounds among the many which have been examined. Thus there is little support for the suggestion made by other workers that coumarin, or a chemically closely related substance, is responsible for the natural light-sensitivity of lettuce seed. A report of this work is now being prepared for publication.

Evidence has been obtained, however, that dormancy and germination in this species is regulated, or at least influenced by an endogenous inhibitory substance. The nature of this inhibitor and the mode of its action are being studied.

A critical review of the literature dealing with germination of lettuce is also in preparation.

Effect of light on development of grass seedlings. Various phases of this project have been carried forward as time permitted. A comparative investigation of the action spectrum for inhibition of mesocotyl growth in several species has been published. Tests on the influence of several seed-disinfection treatments on subsequent seedling development have been completed. Additional experiments have been made on the effects of various salts on growth of etiolated oats. In order to explain the observed gross morphological effects of light and other environmental factors on mesocotyl elongation, a histological study of this organ is in progress. A large number of slides have been prepared and are being examined. It is planned to resume the experiments on the interrelation between light and temperature as affecting coleoptile and root growth as soon as the necessary equipment, now being constructed, is available.

Volatile plant-growth inhibitors. It was observed that in a wooden growth chamber, of which the interior had been varnished, the germination of several species of seeds was completely checked or greatly retarded, although all the commonly recognized environmental conditions were favorable for development. On removal from this chamber normal development was resumed promptly. As the plants were not in direct contact with the original box it appeared that a volatile substance of great physiological activity was present. A large number of subsequent tests showed that volatile inhibitors are indeed produced, presumably as the result of oxidation processes, by films of varnishes, drying oils, unsaturated fat acids, and by several species of wood. The rapid and complete reversibility of the inhibition is especially remarkable. An agent with these properties might conceivably be of considerable value both in plant physiological experimentation and in practical plant culture. Studies on the identity of the responsible substance, or substances, are in progress.

PUBLICATIONS

The following publications relating to the work of the Observatory were issued during the year:

ABBOT, C. G., 1946–47 report on the 27.0074-day cycle in Washington precipitation. Smithsonian Misc. Coll., vol. 107, No. 3, March 1947.

ABBOT, C. G., The earth and the stars. D. Van Nostrand Co., Inc., New York. 1946. 288 pp.

ABBOT, C. G., The sun's short regular variation and its large effect on terrestrial temperatures. Smithsonian Misc. Coll., vol. 107, No. 4, April 1947.

ABBOT, C. G., Astrophysical contributions of the Smithsonian Institution. Science, vol. 104, No. 2693, August 1946.

ALDRICH, L. B., and associates, Reports on Camp Lee studies, submitted to the Office of the Quartermaster General, as follows:

Textile Series, Office of Quartermaster General, Report 17, Tent Research Report 3, pp. 53–99.

Reports 2 to 11, Smithsonian Institution to Office of Quartermaster General.

JOHNSTON, EARL S., The Division of Radiation and Organisms: Its origin and scope. Scientific Monthly, vol. 63, pp. 371–380, 1946.

JOHNSTON, EARL S., An establishment was established. Journ. Washington Acad. Sciences, vol. 37, pp. 37–40, 1947.

WEINTRAUB, ROBERT L., and PRICE, LEONARD, Developmental physiology of the grass seedling. II. Inhibition of mesocotyl elongation in various grasses by red and by violet light. Smithsonian Misc. Coll., vol. 106, No. 21, May 1947.

Respectfully submitted.

L. B. ALDRICH, *Director.*

DR. A. WETMORE,
Secretary, Smithsonian Institution.

APPENDIX 9

REPORT ON THE NATIONAL AIR MUSEUM

SIR: On August 12, 1946, President Truman approved an act of the Seventy-ninth Congress (H. R. 5144) establishing, under the Smithsonian Institution, a bureau to be known as a National Air Museum. The act, now referred to as Public Law 722, stipulates that this bureau shall be administered by the Smithsonian Institution "with the advice of a board to be composed of the Commanding General of the Army Air Forces or his successor, the Chief of Naval Operations or his successor, the Secretary of the Smithsonian Institution, and two citizens of the United States appointed by the President from civilian life, who shall serve at the pleasure of the President."

The purpose of the National Air Museum is to "memorialize the national development of aviation; collect, preserve, and display aeronautical equipment of historical interest and significance; serve as a repository for scientific equipment and data pertaining to the development of aviation; and provide educational material for the historical study of aviation."

After the passage of the act, Dr. Wetmore discussed with General Spaatz and Admiral Nimitz the designation of appropriate representatives of the Army Air Forces and the Navy to the Advisory Board. As a result, General Spaatz appointed Maj. Gen. E. M. Powers, and Admiral Nimitz appointed Rear Adm. H. B. Sallada. The latter was replaced on May 1, 1947, by Rear Adm. A. M. Pride. On December 3, 1946, President Truman appointed Grover Loening and William B. Stout to be civilian members of the Advisory Board as provided in the law.

On December 16 the first and organizational meeting of the Advisory Board was held at the Smithsonian Institution in Washington. At this meeting Dr. Wetmore was unanimously elected chairman. A general discussion of the preliminary plans for an aeronautical museum then followed, the Board calling attention to the danger of losing valuable historical and technical material unless prompt action were taken. Toward this end, Dr. Wetmore was requested to communicate immediately with leaders in all branches of aeronautics requesting that such material be preserved for future review by the Board.

The Board also discussed section 3 of the act which calls on the Secretary of the Smithsonian Institution with the advice of the Ad-

visory Board "to investigate and survey suitable lands and buildings for selection as a site for a national air museum and to make recommendations to Congress for the acquisition of suitable lands and buildings for a national air museum."

At this meeting, too, the preparation of estimates of appropriations to implement the $50,000 authorized by the Congress for the purposes of the act was discussed in detail, and Dr. Wetmore was advised by the Board to submit the request to the Bureau of the Budget. This was done, and on March 21, 1947, President Truman transmitted to Congress "A Supplemental Estimate of Appropriation for the Fiscal Year 1948 in the Amount of $50,000 for the Smithsonian Institution" (H. R. Doc. No. 181). On April 30, 1947, Dr. Wetmore appeared before the Independent Offices Subcommittee on Appropriations and presented a brief statement on the origin of the National Air Museum and on the need for the requested appropriation.

Following this initial meeting of the Advisory Board, approximately 200 letters were addressed to aeronautical interests throughout the Nation. These letters called attention to the establishment of the National Air Museum and urged the recipients to advise the Board of any aeronautical items which in their estimation should be considered for inclusion in the future National Air Museum. The letter also requested that such materials be carefully preserved until such time as the Board could make a study of them. The response to these letters has been large and indicates the existence at this writing of much valuable museum material in private hands scattered throughout the Nation. Both the Army and Navy, too, are assembling and holding large quantities of valuable aeronautical material of the recent war years. A portion of these collections, and several private collections, were inspected toward the close of the year at the Institution's own expense.

The major problem involved in the advancement of the National Air Museum project is the acquisition of a storage depot for the temporary assembly of the museum material. This is most essential to prevent the permanent loss of material and to enable the Advisory Board to determine and recommend to Congress suitable lands and buildings for the new bureau. At the close of the year this vital problem was still unsolved, nor had the Congress appropriated the $50,000 authorized and requested for use in the fiscal year 1948.

Respectfully submitted.

C. 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[1]

SIR: It gives me pleasure to present herewith the annual report of the Canal Zone Biological Area, for the fiscal year ended June 30, 1947. As in past reports, there are included data regarding rainfall, temperatures, relative humidity, and other data which are invaluable to those coming to the island for study.

REGARDING THE ISLAND

As this is the first report published in several years, it is desirable to include here some of the data that appeared in the earlier Barro Colorado Island Biological Laboratory Reports—particularly so, because so many new readers will want this information.

The island was reserved for scientific purposes by Governor J. J. Morrow on April 17, 1923; hence in 1948 the island and its unique laboratory will celebrate its twenty-fifth anniversary. It is located in Gatun Lake, about halfway between Gamboa and Gatun. Its width is 3.1 miles, its length 3.4 miles, and its area 3,609.6 acres, or 5.64 square miles. Its coast line exceeds 25 miles. It is larger than the combined areas of the familiar islands of Taboga, Taboguilla, Urava, Otoque, Bona, Morro, Chamé, Estiva, Melones, Venado, Mandinga, Tabor, Ensena, Patterson, Tortola, Naos, Culebra, Perico, and Flamenco.

The shore line of Gatun Lake is on the average 85 feet above sea level, and the highest point on the island, 537 feet. There are 24 trails, marked off into 100-meter sections, so that not only are all parts of the island available with ease, but the 100-meter designations give it a sort of cross index; thus, for example, Wheeler-6 has a very definite location. And since all trails eventually lead to the main laboratory, no one has ever been known to be lost on the island.

As to buildings, there is a two-story main building 32 by 55 feet, the lower floor including a dining room, and the upper floor lodging rooms. There are two buildings 12 by 24 feet with two rooms each, the ZMA and Barbour Houses, the latter with a large porch for labora-

[1] This is the first report to be published since the Canal Zone Biological Area was placed under the administration of the Smithsonian Institution. The first to the sixteenth reports, for the years when the organization was known as the Barro Colorado Island Biological Laboratory, were issued in mimeograph form, the last in 1940. During the war, owing to military restrictions and other considerations, no reports were issued.

tory space. Then there is the Chapman House, also 12 by 24 feet, with a wide porch; the lower floor is screened in and serves as a splendid laboratory unit. The Eastman Kodak Co. has a building for its service, deterioration, and corrosion tests, the lower floor serving as workshop. There is a three-room library, and another building used by the Resident Manager. The upper part of the kitchen is used as a dormitory.

There are buildings at the end of the Barbour Trail, the Drayton Trail, the Pearson Trail, the Zetek Trail, and at Burrunga Point, all available for the use of scientists. At least two can live comfortably in these houses.

Inquiries should be addressed either to Dr. Alexander Wetmore, Secretary, Smithsonian Institution, Washington 25, D. C., or to James Zetek, Resident Manager, Drawer C, Balboa, C. Z. Accredited scientists receive an annual card pass on the railroad, and authority to purchase in the commissaries. Living conditions on the island are very comfortable, and working conditions good. Owing to the precautions taken, the malaria hazard is nil, and the water supply is safe.

As the island force looks after the dormitories and the meals, it means that the scientists are relieved of all housekeeping duties. Thus their entire time is available for their research problems. Those who have worked in the Tropics where such facilities are not available, where drinking water must be boiled and malaria precautions taken daily, know what it means to be relieved of these chores. Furthermore, in many tropical localities good medical facilities are not within easy reach, whereas on Barro Colorado Island the scientist is never more than an hour from a Panama Canal dispensary, or an hour and a half from Gorgas or Colon hospitals, where one finds the very best in medical or surgical services.

With rapid air mail and air express service the island is in very close touch with the United States, and being under the United States flag, it is almost like being in the States. On the other hand, the isolation provided by an island does away with the many distractions so common on the mainland.

THE ISLAND LITERATURE

Since the laboratory was established in 1923 as the Barro Colorado Island Biological Laboratory, there have appeared 603 individual published articles and books relating to studies made on the island. This is an enviable record, equaled by very few institutions of this sort. The field covered is vast, even including papers on studies made here on cosmic rays. Many of the papers on physiology have paved the way to other studies that have solved problems relative to certain human diseases. A 3- by 5-inch card record is kept of these individual

books and papers. One index is alphabetical by authors, the other by subjects.

The war halted the preparation and publication of many papers, as it also curtailed the number able to come to the laboratory for studies. During the war the laboratory was, of course, very active on problems relating to the war, particularly deterioration, corrosion, fungi, chemical problems, and related matters, but very few of these findings will appear in print. It is also known that papers have been published of which we have no record. It is a difficult task to cull all the literature, and probably the index is only 80 percent complete. Nevertheless, it is an amazing record.

SCIENTISTS AND THEIR STUDIES

Dr. T. C. Schneirla, curator of the department of animal behavior, American Museum of Natural History, perhaps the highest authority living on the behavior pattern of army ants, spent from February 7 to June 16, 1946, on the island, continuing his studies. A summary of his findings follows:

"These studies on army-ant behavior and its biological basis were begun on the island in 1932, and were continued in the rainy-season periods of 1933, 1936, and 1938. The work began as an attempt to analyze the complex behavior system of these ants as a case study of 'instinct,' but as it went along inevitably led into other special problems, such as the social organization of the army ants, and the relationship between reproductive processes and behavior.

"To investigate the last problem in particular a project was planned for 1942; however, the war interfered. Since all the preceding studies had been made in the rainy season, it was especially desirable to obtain evidence on the activities and adaptations of the Ecitons in the dry months. Plans for an intensive investigation under dry-season conditions were resumed in 1946.

"The basis of the study was the surveying of activities and conditions in two colonies, one of *Eciton hamatum* and one of *E. burchelli*, for as long a time as possible in the dry months. Other colonies of these two species were kept on record as far as possible for briefer periods, and supplementary field and laboratory tests were carried out on relevant problems. The object was to learn as much as possible about what changes may occur in the activities and in the brood production of these ants in the dry season.

"If there is any other situation in the world today where such a project involving correlated field and laboratory studies can be carried out advantageously, I have yet to learn of its existence. The results of this project illustrate the island's advantages. On the day of my arrival, February 7, I found a colony of *E. burchelli* bivouacked on

Shannon trail just beyond No. 2, and this colony was kept on record until just before departure on June 15—about 125 days in all. A colony of *E. hamatum*, found a few days later, was on record for nearly as long. Approximately 50 other colonies of these 2 species were studied more or less intensively during the 4 months.

"The findings, first of all, showed in convincing ways that the periodic behavior changes (regular alternation of nomadic and statary—i. e., sessile—colony behavior) that I have found invariable for these ants in the rainy season also hold through the dry season. Regular phases were found as follows: For *E. hamatum*, about 17 days nomadic and about 20 days statary in alternation; for *E. burchelli*, about 12 days nomadic and 21 days statary in alternation. An intensive study of colony brood-production, paralleling the behavior studies, revealed that in colonies which survive the dry season with their queens, new broods are produced at very regular intervals as in the rainy season. Further evidence was found that this regular brood-production, based of course upon a very regular delivery of successive batches of eggs by the queen, provides the causal basis for the described regularity of colony behavior. For example, the queens of *E. hamatum* produce new batches of eggs at about 36-day intervals. This island study of 1946 shows that this remarkable performance ordinarily is continuous throughout the year.

"The production of male individuals, it was found, occurs in the dry season, at times characteristic of the species. Evidently in colonies that produce males, only one brood of males per season is produced, otherwise the broods are immense worker broods as in the rainy season. The production of males was studied, from early larval stages to maturity and dissemination by flight. A brood of (about 3,000, as a rule) winged males requires about 3 weeks for its complete exodus through nightly flights, after emergence. Results indicate that most of the males that survive the flight reach other colonies (evidently through chancing upon and following raiding trails to the bivouacs). The flight evidently operates against adelphogamy, although some evidence was obtained for occasional returns of males into their colonies of origin. From this 1946 work a considerable part of the virtually unknown problem of Eciton mating can be sketched in. More of it, and especially how the wingless queens are produced, we hope to learn in 1947–48, when a project is planned for studying transitional conditions in the Ecitons from rainy to dry season months."

Dr. James B. Hamilton, professor of anatomy, Long Island College of Medicine, and one of the foremost authorities on hormones, initiated a most interesting and promising line of research dealing with the matter of baldness, a subject on which he has already published important papers. His experimental approach was through the three-

toed sloth, the male of which has on its back a prominent bald area or "tonsure." This sloth, and some of the large apes, appear to be the only animals that resemble man in that the adult males develop common baldness.

His observations thus far are in total agreement with the idea that a bald spot of increasing size develops upon sexual maturation of the male. It is still too early to report on his study of the anatomical material he obtained on the island. The sloths used were obtained through the cooperation of Mr. Shropshire and Lieutenant Keenan of the United States Army Sanitary Corps. If the studies corroborate the views outlined, then it will be important to study the pathogenesis of this condition. Its etiology is apparently identical with that responsible for other important pathological conditions, for example, hypertrophy and cancer of the prostate.

His present studies are only the beginnings of further ones. No one so far has made this approach through the sloth, and while quite a number of males and females received male hormone treatment, it is necessary to follow the experiment through on a large scale. This involves also a study of the sloths themselves, to learn how to keep them alive in captivity for at least 6 months. In captivity the sloth is not hardy, and no one as yet has made a serious study of the food habits and other characters of these animals. They are ideal for such studies.

R. J. Kowal, entomologist in charge of the Gulfport, Miss., Laboratory of the Bureau of Entomology and Plant Quarantine, and Entomologists Samuel Dews and Harmon Johnston, of the same regional laboratory, began their studies about 4 years ago, upon the initiative of Kowal. The object was to obtain information on effective methods of preserving wood against deterioration due to termites and other organisms, as well as to rot. To quote Kowal: "The severity of conditions conducive to deterioration, and the excellent facilities for scientific study, make the island an ideal location for such investigations."

The studies began in 1943 when funds were made available through the United States Forest Service, and the Coordinator of Inter-American Affairs. Proposals for this work came as an outgrowth of requests for information from the Public Roads Administration, the War and Navy Departments, and other agencies engaged in the war effort. Briefly stated, the Inter-American Road became an urgent need, steel for bridges was hard to get and its transportation a problem, and to erect wood-preservation plants with creosote on the list of critical materials was out of the question. Could we not poison soils at the bridge abutments so as to eliminate the termite and rot hazard, and could we utilize native resistant trees by the additional process of sap-stream impregnation?

In the spring of 1943 two types of experiments were established, one to test the value of soil poisons in preventing damage by termites; the other to determine whether tropical tree species could be impregnated with water-soluble wood preservatives by the sap-stream method of impregnation. Soil poisoning had been previously tested on a small scale particularly in the treatment of soil along building foundations to prevent the entrance of termites into wood structure. The relative value of different soil poisons was not known, however, nor was information available on their effectiveness under tropical conditions. Thirty-nine different treatments were applied on Barro Colorado Island, each treatment being replicated 10 times. The procedure consisted of removing and treating 2 cubic feet of soil, replacing it, and driving a stake into the center of the treated area. After 3 years' exposure it was apparent that treatments by means of the so-called "saw-kerf banding" and bore-hole techniques were the most effective. In the case of several of the tree species, intake of the chemical was not satisfactory and preservation consequently was poor.

In 1946 the Division, in cooperation with the Corps of Engineers of the War Department, began investigations on problems of deterioration of wood and wood products confronting the Army. The studies deal mainly with problems under military conditions, and research is pointed toward development of practical methods of prevention and control which can be readily applied by the Army using materials immediately available on location. Several types of soil-poisoning tests were established on Barro Colorado Island in November 1946. An experiment similar to that described above was installed using numerous soil poisons and different dosages. Variations of the method were also tested, one being the surface application of chemicals and another the bore-hole method. A soil-poisoning experiment known as the "platform test" was also established. In this test poisons are applied to the soil surface by spraying or sprinkling, and the board or "platform" to be protected is laid on the treated area. Dosages in this test are considerably lighter than in tests described above. The experiment is designed with the object of developing a method of preventing damage to materials in storage dumps and similar installations.

The above experiments conducted in cooperation with the War Department comprise a total of approximately 100 treatments; all have been replicated 10 times.

Experiments on impregnation of seasoned wood with preservatives have been established in order to determine the methods and chemicals most satisfactory for the protection of wood from insect attack. The experiment, like those above, is designed to provide a reasonable degree of preservation by practical methods using chemicals readily

available to the Army on location. Ten different chemicals and chemical mixtures were used in the experiment. Stakes 12 inches long were treated by instant dip and by dips of 3 minutes, 1 hour and 12 hours. Ten replications were made of all treatments. All stakes were driven into the soil to a depth of 6 inches.

A small amount of treated fabrics, conduit, and insulation is now under test, and it is planned that more such material will be tested in the future. In addition, experiments will be conducted to develop methods and materials that might be of value in preventing attack of wood by marine organisms.

Theodore J. Martin, technologist of the Forest Products Laboratory at Madison, Wis., made several trips to the island in connection with the installation and inspection of the various tests of plywoods, glues, paints, resins, and other materials. Since most of this is covered in the report of Mr. Middleswart, little need be added here.

It is always a great satisfaction to be able to give tribute where it is due. The thoroughness of Mr. Martin's work, his attention to details, his ability to see and appreciate what too many would not note, all were apparent during his work on the island.

Mrs. Elizabeth G. Hartmann, of New York City, spent a short time on the island studying the bird life, preparatory to a more extended trip into Costa Rica. The abundance of life on the island, in addition to the birds, crowded each day with no end of new experiences and information and made her stay all too brief.

Dr. Alexander Wetmore, Secretary, Smithsonian Institution, spent 2 days and 1 night, all he could spare on his return from Jacqué, and his urgent need to be back again in Washington. While all too brief, the period was spent in discussions with the Resident Manager of the island's more urgent needs.

G. E. Erikson, of the graduate school of Harvard University, spent some time on the island in connection with his research problems on the higher mammals.

C. C. Soper, chemist for Eastman Kodak Co., and in charge of their research laboratory in Panama City, initiated and conducted on the island the most varied studies in connection with deterioration and corrosion of practically all the materials that enter into photography. The outcome of these studies means, of course, better results for those who do photographic work. Mr. Soper's investigations dealt not only with corrosion of lenses and its elimination, but also with the properties and keeping qualities of film, particularly color, papers, and other photographic supplies, and also with the matter of packing and packaging. It is the first really serious study of these multiple problems. The upper floor of the building built this year is used for these tests and studies.

Mr. Soper, through his knowledge of photography and photographic processes, has been extremely helpful to scientists on the island. It is hardly necessary to point out here the difficulties, as well as losses, incurred during the past war, because of the lack of previous studies of this nature. It is to the point to emphasize the soundness of the decision made to go to the humid Tropics to make these studies, rather than to depend on tests made in the continental United States by simulating conditions in the Tropics. It is possible to duplicate temperatures and humidities, but it is not possible to duplicate the often rapid changes, and certainly not the action of micro-organisms.

The past war has shown the wisdom as well as the urgency for conducting in the Tropics studies on corrosion, deterioration, packing and packaging, and similar problems, and particularly the need to study and test the great number of new materials which still lack sufficient service tests to show the true limits of their best usage.

Dr. Graham Bell Fairchild, medical entomologist to the Gorgas Memorial Laboratory, whose splendid work during the past war is so well known, made several brief visits to the island in connection with his entomological studies.

Dr. Chas. F. Quaintance, spent a little over 8 months of his sabbatical leave on the Isthmus, a few months thereof on the island. As head of the biology department of Eastern Oregon College, his main objective was to learn as much as possible about the plants and animals of the Tropics, and particularly the environmental conditions. To supplement his notes and collections, he also took a great number of kodachrome photographs for use in his teaching.

It is one thing to read about the Tropics and then pass on this second-hand knowledge to students. But it is only when one sees, feels, hears, tastes, and smells that which is the humid Tropics that one is able to really teach about them. The past war emphasized the paucity of men who have had actual experience in the Tropics.

Dr. Thos. E. Snyder, senior entomologist of the Division of Forest Insect Investigations, Bureau of Entomology and Plant Quarantine, United States Department of Agriculture, and one of our greatest authorities on termites, came for a few weeks to discuss with the Resident Manager the extensive termite studies conducted on the island since 1923. The clearing of a piece of the immediate forest just behind the present laboratory buildings, to provide needed space for buildings and for water storage, necessitates the removal of several thousand of the termite exposure tests to a new area.

During his stay he examined all the trail-end buildings, which are also termite tests. A report on this is given elsewhere. The great value of the island for such tests and studies has been attested and emphasized so often that any repetition here becomes redundant.

Dr. Grover C. Pitts, Naval Medical Research Institute at Bethesda, spent a very short period on the island because of difficulty in getting off in the midst of important research at that great Medical Center of the Navy. Hastily, he writes as follows:

"Let me review my objectives and results in visiting the island. By profession I am a physiologist with strong leanings toward natural history. Consequently, the purpose of my short visit was to gain some familiarity with a tropical fauna and flora and to explore the possibilities of making studies in comparative physiology there. A secondary object was to determine what the island might have to offer the Naval Medical Research Institute for purposes of field research. Though I am now out of the Navy, I continue my affiliation with NMRI as a civilian.

"Some results were obtained with regard to each objective. I identified and gained some familiarity with the following organisms, all new to me: 52 species of birds, 14 species of mammals, 5 species of reptiles, and an undetermined number of species of plants and invertebrates.

"This is at least some indication of what a worker can accomplish who desires to gain familiarity with the tropical biota and has only 1 week at his disposal.

"With regard to the opportunities for studies in comparative physiology, they are legion. More studies in temperature control of the type that Peter Morrison did are indicated. In the past I have done some work on diurnal rhythms in various physiological functions. The island with its many dirunal, nocturnal, and crepuscular creatures offers boundless material for this type of study. One would have to bring most of the specialized equipment needed, but the usual laboratory facilities are available. I hope to pursue one of these problems when time and finances provide the opportunity."

A. V. Regnier, Jr., of Little Rock, Ark., visited the island for the purpose of preparing a motion picture of the wildlife, preparatory to a much longer stay later on. He exposed some 1,200 feet in color during the 3 weeks. He also included 2 weeks in Chiriquí, where he went in quest of the beautiful quetzal. Mr. Regnier reports:

"The finished film with titles and animated maps is about 900 feet in length. The sequence on the island opens with the launch coming in to the landing followed by a view of those arduous steps. Then in quick flashes, the mango, banana, coconut, lime, lemon, and orange trees. Following are scenes of Erikson and myself walking along one of the trails looking up at the air plants on one of the giant Bombacopsis trees. Other subjects are the tamandua, tree formicaria, three-toed sloth, marmosets, howlers, toucans and other birds, the sensitive mimosa, the zebra swallowtail, the Heliconia, the beau-

tiful blue princess Morpho, and of course, the coatis. My still photographs include many of the above subjects.

"As I mentioned on my arrival in the Zone, my trip was one of examination to discover material for a full-length educational film. In Chiriquí Province at the foot of El Volcán de Chiriquí, I found what I was looking for in the quetzal bird—they breed in March in that region and are said to be easily accessible at that time. So far, I believe only two persons have photographed them in color—Wolfgang von Hagen and Luis Marden of the National Geographic. I hope to make a complete film in color on the nesting habits of this beautiful bird.

"Returning to the film which I made last summer, I have presented it to several clubs and groups along with my own narration, and it has been very well received. It has aroused a great deal of interest in Panamá in general and in Barro Colorado in particular."

E. L. Middleswart, technologist of the Forest Products Laboratory at Madison, Wis., and at present with the State Commission of Forestry of South Carolina, showed an intense interest in the life of the island. His report follows, and it must be understood that it is still too early for final conclusions. The fact remains that the island certainly has all that is needed for tests of this sort.

"We were endeavoring to find a plywood which would withstand tropical jungle conditions. We had some 1,500 samples of plywood 14 inches square made of 4 different species of wood (red gum, douglas fir, cottonwood, and birch) glued with 12 different glues and glue mixtures, and given 5 different surface treatments on exposure on the island. One-half of the samples were placed on racks in the sunlight and the other half were placed on racks in the deep jungle to give a comparison between the two conditions. The samples were made at the laboratory in Madison, Wis., and flown to the Zone by the Army Air Forces. They were placed on exposure in January 1946.

"The laboratory also sent the plywood wing-section panels for exposure on B. C. I., which came shortly after I left the Canal Zone. These wing sections were also sample sections of plywood used in studying the effects of tropical weather conditions upon various glues and woods used in making the plywoods and to find which glues and woods are the most satisfactory for use in the Tropics.

"This covers the high points of our work there. I might add that the conditions were most nearly ideal on B. C. I. for this study. It will be some time before the results are compiled."

William E. Lundy, of the paymaster's office of the Panama Canal, and also secretary-treasurer of the Panama Canal Natural History Society, spent 3 days during the rainy season on the island, and being deeply interested in natural history, and a keen observer, his brief

report is of much interest. It shows what others, who are much more versed in zoology, can expect to find. And since these animals on the island are as nature has them, not in cages, but in the open, to see and observe them is to know them as they really are. To the ecologist, to the student of animal behavior, to the general naturalist, it is to see, smell, hear, feel, and touch that which is life. It is something that books can only feebly portray. We have the orderly sequence of external nature, we have the living organism moving about in this environment inhabited by other species, and we have that continuous adjustment which constitutes life.

This is what Lundy saw in but 3 days: 10 bands of howler monkeys, 3 of the white capuchins, 2 of marmosets. He saw any number of the coatimundi, peccary, squirrels, 2 deer, many nequi, 1 tayra, and best of all, 1 night monkey (Goldman's *Aotus zonalis*). He came across 10 "armies" of army ants, and one huge bivouac of these most interesting ants. Among the birds he saw large numbers of toucans, parrots, and guans, also the tinamou, pileated woodpeckers, ant-shrikes, motmots, two king vultures, many of the other vultures, the scarlet-capped manikin, Ghiesbrecht's hawk, and others. Among the insects, perhaps the most spectacular were the large metallic blue Morpho butterflies, another butterfly with transparent front wings and pink hind wings, and the graceful large "helicopter" dragonfly.

COMMENTS OF SCIENTISTS

"Life at the Island was a pleasant experience and I am telling my associates about conditions there. It seems to me to be an ideal place for the conduct of experimental studies of many types, and I would like to thank you for the opportunity to work there. The research station is certainly a well-run place."—Dr. James B. Hamilton.

"My report is incomplete, of course, since it includes no statement of how thrilling and how great a privilege it was to return to the island to continue my work where I left it off, to meet and talk with you again, and to enjoy once more directly the countless emotional and perceptual satisfactions that come from hiking and strolling around, and from just standing in the many well-remembered landmarks, probably I had best leave the sentimental part of the return unsaid; at least the above sentence is sufficiently full of rushing verbal chaos to represent how I felt on February 7, 1946, and all of the days I was there."—Dr. T. C. Schneirla.

"The severity of conditions conductive to deterioration and the excellent facilities for scientific study, make the island an ideal location for such investigations."—Joseph Kowal.

"As for the Naval Medical Research Institute, the island would be a most useful proving ground for many of the things developed here.

These include insecticides and repellents, warm-weather clothing and footgear, a new type of salt tablet for men perspiring profusely, etc. In addition to all of the above, the island is a wonderful place for a boreal biologist to broaden his outlook."—Grover C. Pitts.

"With reference to my visit to B. C. I., I certainly want to put in my plug. I surely enjoyed my visit there, not only with reference to my work, but with reference to the many, many other phases of study adapted to the area. I certainly had my eyes opened as to jungle conditions and the flora and fauna therein. I have never been in a place where so many phases of biology in general could be so interestingly studied and all from the same roof. The beauty of the flowers and colorful birds still stands out in my memories of B. C. I., not to forget the hours I sat and watched the busy little monkeys playing in the trees.

"The fellowship which I experienced with the fellow scientists working and visiting the island, as well as the friendly reception of the native people welcoming me to B. C. I., is an experience never to be forgotten."—Eugene L. Middleswart.

"To the visitors of the Barro Colorado Laboratory! May they get from the trails in the rain forest such an inspiration as will last them through life and make them ardent protectors of the tropical forests of the world, for without their aid these marvels of beauty will surely disappear forever."—David Fairchild.

"I take up my pen with the greatest of pleasure to record the outstanding impressions left by my recent visit to Barro Colorado Island. When I recall the expeditions I have made into Central American jungles, the great expense involved, and the meager equipment permitted by pack-mule transportation, the difficulties encountered and the usual sequellae of tropical malaria and dysentery, it is only natural that I should be struck first of all by the propinquity and safety of Barro Colorado Island.

"Just to think that one can drop off a chair car at a railway station in a civilized community, and after half an hour's launch ride find one's self in the heart of virgin tropical forest, is to feel a wave of admiration for the foresight of those who secured the reservation of this great tract to scientific purposes. It is a biologist's fantasy come true, and I hope as time goes on that more and more of our scientific institutions will come to its support, so that the potentialities of the laboratory can be developed in all directions, and utilized to the full at all times of the year.

"I believe there is nothing like it in the world. There are great botanical and zoological gardens in the Tropics which represent an attempt to facilitate man's acquaintance with tropical nature by transporting the flora and fauna to some easily accessible place. Barro

Colorado Island has the opposite aim, of enabling man to transport himself into the midst of tropical nature and to live there for any period of time in comfort and safety.

"Nature lovers as well as scientists can enjoy this unusual experience. My wife was as excited as I was on our morning walks, at the hundred and one novel things she had read about but never seen. We were equally lucky in sighting mammals and birds before they took alarm, while the trees and plants always stood still to be admired. I was struck by the intelligence and alertness of our Panamanian guide Silvestre, and his knowledge of jungle life.

"In short, I am enthusiastic about Barro Colorado and I will not fail to endeavor to communicate this feeling to my friends."—Dr. L. W. Hackett, *Rockefeller Foundation.*

"As the result of my recent visit to Barro Colorado Island I feel impelled to write you to express my gratification with what is being accomplished. I remember my pleasure when the isolation of this area by the waters of Gatun Lake was first foreseen, and the decision was made to make it a permanent preserve for native life. Yet I can see now that I had a very inadequate idea of the realities of nature in that area; and an equally inadequate idea of what might be attempted in the way of scientific observation, experiment, and systematic record. I had, indeed, a general idea of the abundance of life in the jungle, but the scope of your records was a revelation. This means, partly, that the number of species is vastly greater than would be guessed, even by most scientific men. It also means (you must allow me to say this) that the work is being directed with wisdom and pushed with energy. That such records as I saw should be even attempted would seem to indicate the presence of a considerable staff, yet I could not help seeing that it is largely your own work. It is greatly to be hoped that your work will not only be continued, but augmented by further cooperation."—Nevin M. Fenneman.

"I find it difficult to say anything about my general impression of Barro Colorado that does not sound exaggerated, trite, or exactly like something I have read somewhere else. Perhaps you will know how I feel when I say that I wish (financial considerations aside) that a stay on Barro Colorado could be required of every candidate for the doctor's degree in either botany or zoology. You may be amused to know that about a week after we returned to Chicago we went to Warren Woods, a beach-maple forest about 70 miles east of Chicago. It was very hot, 96° F., and the mosquitoes were indescribably thick. It was impossible to accomplish much, and we left after about 20 minutes. We both agreed then that we would a thousand times rather have the ticks and red bugs of B. C. I. than the mosquitoes of our temperate forests. In fact, when I begin to recount the virtues of that

little island it seems almost too good to be true. Of course we realize that the virtues of Barro Colorado Island are not entirely the result of its natural equipment. The well-marked trails, the laboratory, the library, the excellent living accommodations, the trail-end houses, and all the rest are the end results of a lot of patient planning and unending attention to detail. The summer of 1939 was the most stimulating and happiest one of our lives."—RALPH and MILDRED BUCHSBAUM.

"The island is better than ever; and after knocking about in parts of the world where it is very difficult to organize one's work, I appreciate more keenly than ever the possibilities Barro Colorado offers for profitable natural history studies which can be begun immediately upon arrival."—ALEXANDER F. SKUTCH.

"All light talk aside, I have not seen any place in my travels which compares with Barro Colorado Island in point of excitement of the field-naturalist kind. In Java and Sumatra the Dutch have built palatial laboratories, but these are far removed from the new, fresh, wild jungle. In Ceylon the British have an agglomeration of buildings like the United States Department of Agriculture, but it is surrounded on all sides by tea plantations. Everywhere it is the destructive activity of man that is clearing off the jungle and replacing the gorgeous forest with weedy growth or plantations of rubber trees in rows. Hold the virgin character of Barro Colorado at all costs.

"Tell the visitors to take it from one who has just been there that the conditions for studying tropical plants and animals are better at Barro Colorado Island than anywhere I went in Sumatra or Java."—DAVID FAIRCHILD.

"Barro Colorado Island is one of the most astounding places I have visited in any part of the world. Its value is tremendous for scientific research, even for research that has economic importance. I sincerely hope the day never comes when any of the land is devoted to investigations such as are now being carried on in many agricultural forest and range experiment stations. The virgin character of Barro Colorado is sufficient asset and I hope you will fight every move that may be made to change this condition."—FRANK E. EGLER.

"I must confess I was amazed at the systematic way in which the trails are laid out and posted, the filing system in the library and the many other modes and ways of doing things. I doubly appreciate this because I have been places where such systems were not followed, much to everyone's disadvantage."—GEORGE W. PRESCOTT.

"Never again shall I make a trip like this one for merely 5 weeks. If I cannot make a trip next summer I am certainly going to make every effort to get down the following one. Caylor too, wants to get back to Barro Colorado Island and go through with our contemplated project of preparing a flora of the ferns of the region. We have a siz-

able collection of ferns now on hand. In my algae collection I find 250 samples, many of which are simply loaded with species and I have no idea how many will appear in the final list. I think 500 would be a very modest estimate and very likely there will be many more than that when the diatoms are included."—George W. Prescott.

"Even without special precautions, the island would seem to be safer, hygienically speaking, than most areas of like size in the United States.

"Certainly all of the minimum requirements for successful laboratory work are fulfilled on the island. In addition to these minimum facilities the laboratory possesses a remarkable versatility of equipment as well as adequate laboratory space. And while it is obvious that special equipment to suit the needs of the individual scientist must be supplied by him, it is comforting to know that many laboratory necessities are accessible in a small clearing in a tropical rain forest."—Paul D. Voth.

"The island is more than ever a paradise for the biologist. Living conditions are excellent, the food is fine, the resident staff efficient and courteous. The forest offers a pageant of life which is the ideal laboratory for the study of the principles of biology. Not only has it proved to be of great value for the undergraduates, but its worth for the teacher has hardly been realized by more than a few. *Every university and college* ought to send the members of its staff in the biological sciences for a sojourn on the island, *not once but periodically. It would be an economical investment in the improvement of teaching.* This is especially true now when all emphasis is on the experimental side with the result that so many workers know very little about the organisms with which they work. The island will be an excellent place for studies in plant and animal physiology. The rapid growth rate of plants would aid such work tremendously."—Robert N. Woodworth.

"In addition to the value of publications based on work on Barro Colorado, who can estimate the influence of observations, studies, and photographs which have formed the basis of unnumbered addresses in lecture hall and classroom, or the educational value of museum exhibits depicting island life? In brief, during their 15 years as a laboratory, the 4,000 acres we know as Barro Colorado have contributed more to our knowledge of tropical wildlife than any other area of similar extent in America—perhaps in the world."—Frank M. Chapman.

THE SPECIES INDEX

A 5- by 8-inch card index is kept for each species of plant and animal definitely known from the island. Each card lists the scientific name, the major division to which it belongs, and the family name; also the

name of the collector, the name of the person who made the determination, when and where collected, and other pertinent details.

These cards are indexed first according to the major phyla—mammals, birds, reptiles, amphibians, fish, arthropods, etc.—which are further subdivided into superorders, orders, etc., and finally by families. Under each family the genera are in alphabetical order, and the species for each genus are also in alphabetical order.

This index is invaluable to the student. It is a unique record of the life of the island. In 1940 the index covered a total of 4,924 species of plants and animals, representing 2,805 genera. In plants alone there were 747 genera and 1,437 species. Since 1940 new entries have been made, but no count has been made of the present number, owing to pressure of other duties, especially those concerned with the war effort. A conservative estimate is about 7,000 species.

Extensive collections have been made of algae, fungi, and lichens, but because of the war, reports on these have not yet been published. Lesser collections were made in other groups. A conservative estimate would be fully 700 species.

THE ISLAND HERBARIUM

The herbarium consists of 1,533 mounted specimens, representing 806 species, not including the mosses. These sheets are in genus covers, and the collection is arranged in four major groups, the cryptogams, ferns, monocotyledons, and dicotyledons. In each of these groups the genus covers are grouped according to the families, and these, for convenience in handling, are alphabetically arranged. There are on hand more than 2,500 additional named specimens as yet unmounted and these will probably swell the number of species to close to 1,200.

The herbarium is a most valuable adjunct to a laboratory such as ours. It does more than supplement the botanical library. Too often botanical literature is of little help to one not a trained botanist, and for this majority of students, the herbarium is what is needed.

NEEDS

The most urgent needs are for a concrete water tank to replace wooden tanks now in bad condition; new septic tanks; painting of all buildings, inside and out; herbarium and other storage cases; replacement of bedding and purchase of additional furniture; and miscellaneous repairs to buildings: It is estimated that these present most urgent needs could be met at a cost of $10,000.

Other needs that should be met promptly are for a more adequate supply of electricity; a new fireproof building to house the library, photographic equipment, herbarium, and records; and adequate

animal cages to keep various creatures in captivity during scientific investigations.

TERMITE-FREE BUILDINGS IN THE TROPICS

Is is possible to build comfortable, well-ventilated houses of lumber and not have a termite hazard? The answer is "Yes." However, few architects go to the trouble of getting the necessary information.

We have 57 known species of termites in Panamá and the Canal Zone. Of these, 45 species occur on Barro Colorado Island. Two of the most destructive in the world occur here, one of which is known to eat through the lead sheathing of electrical cables. The rapidity of destruction by some of the species is incredible. Some even work in living trees, and we have records of fruit orchards destroyed by them.

And yet on Barro Colorado Island we have buildings where we let the termites do whatever they wanted to do—eat up the building overnight if they could—and yet these buildings are in excellent shape.

In 1926 we built a test house at the end of Drayton Trail, 16 feet square and 10 feet high, set on wooden posts extending 3 feet into the ground. The timber used was pressure treated with coal-tar creosote and with zinc chloride. The wallboard is treated with chromated zinc chloride. In the May 1947 number of Wood Preserving News Dr. Thomas E. Snyder, senior entomologist of the Bureau of Entomology and Plant Quarantine, published all details and results of his inspection in February of this year, showing no damage anywhere due to termites, and yet termites tried to get a hold. The building is in excellent condition after 21 years. It is true that pressure treatment increases the original cost of the timbers, but it is cheap insurance. A building of untreated timbers would have been destroyed in less than a year.

At the end of the Pearson Trail we have the Fuertes House, built in February 1931, 16 years ago. It is set on nine posts; hence there is good ventilation under the house. With the exception of the shingles, which are of red cedar (and need replacement), all the wood and timbers, including posts, were treated with zinc-meta-arsenite. The tables and chairs are also so treated. There is no damage anywhere to the treated wood. The wallboard also was zinc-meta-arsenite treated. It likewise is free of any termite damage. Test stakes of untreated wood half-buried in the ground near the building were destroyed within 8 months.

Furthermore, this zinc-meta-arsenite treated building is free of cockroaches. No steps are taken to keep termites out of the building, and no termite shields are used—hence, termites have absolute free-

dom to work if they can. Yet the building is in as excellent shape as when we first put it up. Here again, treated lumber costs perhaps 50 percent more, but as it gives freedom from termites, in a few years it pays for itself.

The above two cases show that with treated timbers you can build a termite-free house even where termites are extremely abundant and active.

Tests on the island also show that one can build of untreated timbers and have no termite hazard, provided a few simple precautions are taken. The main requirement is to build a good thick concrete floor which will extend out at least to the line of the eaves. The floor must be well made, with no cracks. The secret is to make an inspection at least once a week around this concrete floor, and if termites have built any covered runways, introduce into these runways either powdered calomel or finely powdered paris green. In this way the colony is poisoned, and by watching a treated runway, it can easily be determined whether or not the job was well done. It takes so little time and does not need superior knowledge. Of course there must be no leaks, either in the roof or in the plumbing.

Of course, by the use of properly made termite shields, properly installed, it is possible to keep termites out of buildings. Where it is possible to install them, termite shields are cheap protection, but not all buildings lend themselves to the use of shields. Soil poisons also are the answer for some type of buildings, but vigilance is always necessary, and inspection cannot be perfunctory.

Circular 683, United States Department of Agriculture, "Effectiveness of Wood Preservatives in Preventing Attack by Termites," by Snyder and Zetek, gives a good picture of the extensive termite tests on Barro Colorado Island since 1923. The annual progress reports by Hunt and Snyder in the Annual Reports of the American Wood Preservers' Association give details of the more important of these tests. Nearly 4,000 tests are involved, in addition to the Kowal-Dews-Johnston series noted elsewhere in this report.

LIST OF THE TERMITES OF PANAMÁ AND THE CANAL ZONE

In this, the latest list, 57 species are represented, and of these, 45 are known from Barro Colorado Island (indicated by the initials BCI). There are 13 new species which will be described in the near future by Dr. Emerson. The Kalotermitidae are those commonly known as the "dry-wood termites." The Rhinotermitidae are the bad actors, *Coptotermes niger* and *Heterotermes tenuis* being especially noted for their destructiveness. Some of the Termitidae are also very destructive. This list is by no means final. We feel that at least 15 more species will be discovered.

KALOTERMITIDAE (15)

1. *Kalotermes* (*K.*) *clevelandi* Snyder.
2. *Kalotermes* (*K.*) *marginipennis* (Latreille).
3. *Kalotermes* (*K.*) *tabogae* Snyder.
4. *Kalotermes* (*Neotermes*) *holmgreni* Banks (BCI).
5. *Kalotermes* (*Neotermes*), n. sp.
6. *Kalotermes* (*Neotermes*), n. sp.
7. *Kalotermes* (*Rugitermes*) *isthmi* Snyder (BCI).
8. *Kalotermes* (*Rugitermes*) *panamae* (Snyder) (BCI).
9. *Kalotermes* (*Cryptotermes*) *breviarticulatus* Snyder.
10. *Kalotermes* (*Cryptotermes*) *dudleyi* Banks.
11. *Kalotermes* (*Lobitermes*) *longicollis* (Banks).
12. *Kalotermes* (*Calcaritermes*) *brevicollis* (Banks) (BCI).
13. *Kalotermes* (*Calcaritermes*) *emarginicollis* (Snyder) (BCI).
14. *Kalotermes* (*Glyptotermes*) *augustus* Snyder.
15. *Kalotermes* (*Glyptotermes*), n. sp. (BCI).

RHINOTERMITIDAE (5)

16. *Coptotermes niger* Snyder (BCI).
17. *Heterotermes tenuis* (Hagen) (BCI).
18. *Heterotermes convexinotatus* (Snyder) (BCI).
19. *Prorhinotermes molinoi* Snyder (BCI).
20. *Rhinotermes* (*R.*) *longidens* Snyder (BCI).

TERMITIDAE (37)

21. *Cornitermes* (*C.*) *agignathus silvestri*, var. *Walkeri* Snyder (BCI).
22. *Armitermes* (*A.*) *armigera* (Motsch.) (BCI).
23. *Armitermes* (*A.*) *chagresi* Snyder (BCI).
24. *Armitermes* (*Rhynchotermes*) *peramatus* Snyder (BCI).
25. *Nasutitermes* (*N.*) *columbicus* (Holmgren) (BCI).
26. *Nasutitermes* (*N.*) *cornigera* (Motsch.) (BCI).
27. *Nasutitermes* (*N.*) *ephratae* (Holmgren) (BCI).
28. *Nasutitermes* (*N.*) *pilifrons* (Holmgren) (BCI).
29. *Nasutitermes* (*Subulitermes*) *kirbyi* Snyder (BCI).
30. *Nasutitermes* (*Subulitermes*) *zeteki* Synder (BCI).
31. *Nasutitermes* (*Subulitermes*), n. sp. (BCI).
32. *Nasutitermes* (*Obtusitermes*) *panamae* Snyder (BCI).
33. *Nasutitermes* (*Convexitermes*) *clevelandi* Snyder (BCI).
34. *Nasutitermes* (*Uniformitermes*) *barrocoloradoensis* Snyder (BCI).
35. *Cylindrotermes macrognathus* Snyder (BCI).
36. *Amitermes* (*A.*) *beaumonti* Banks (BCI).
37. *Amitermes* (*A.*) *medius* Banks *foreli* Wasmann (BCI).
38. *Anoplotermes* (*A.*) *gracilis* Snyder (BCI).
39. *Anoplotermes* (*A.*) *parvus* Snyder (BCI).
40. *Anoplotermes* (*A.*), n. sp. (BCI).
41. *Anoplotermes* (*A.*), n. sp. (BCI).
42. *Anoplotermes* (*A.*), n. sp. (BCI).
43. *Anoplotermes* (*A.*), n. sp. (BCI).
44. *Anoplotermes* (*A.*), n. sp. (BCI).
45. *Anoplotermes* (*A.*), n. sp. (BCI).
46. *Anoplotermes* (*A.*), n. sp. (BCI).
47. *Anoplotermes* (*A.*), n. sp. (BCI).

48. *Anoplotermes* (*A.*), n. sp.
49. *Anoplotermes* (*A.*), n. sp.
50. *Anoplotermes* (*speculitermes*), n. sp.
51. *Microcerotermes arboreus* Emerson (BCI).
52. *Microcerotermes exiguus* (Hagen) (BCI).
53. *Termes* (*T.*) *hispaniolae* (Banks) (BCI).
54. *Termes* (*T.*) *panamensis* (Snyder) (BCI).
55. *Termes* (*T.*), n. sp. (BCI).
56. *Orthognathotermes wheeleri* Snyder (BCI).
57. *Capritermes* (*Neocapritermes*) *centralis* Snyder (BCI).

RAINFALL, TEMPERATURES, AND RELATIVE HUMIDITY, 1946

In the 22 years of record, 1946 was the third driest year. The rainfall amounted to only 87.38 inches, showing a deficiency of 21.43 inches. This deficiency was most pronounced in the wet season, amounting to 17.93 inches. Only 2 months, July and September, had an excess, which, however, was very slight—0.77 and 0.20, respectively. There was a total deficiency of 3.50 inches in the dry season, January to April, inclusive; only March showed a small excess—0.25 inch. February was the driest month (0.32 inch) and November the wettest (14.98 inches). Table 1 gives the total yearly rainfall, and the station average, for each year from 1925 to 1946, inclusive.

TABLE 1.—*Annual rainfall, Barro Colorado Island, Canal Zone*

Year:	*Total inches*	*Station average*	Year:	*Total inches*	*Station average*
1925	104. 37	------	1936	93. 88	108. 98
1926	118. 22	113. 56	1937	124. 13	110. 12
1927	116. 36	114. 68	1938	117. 09	110. 62
1928	101. 52	111. 35	1939	115. 47	110. 94
1929	87. 84	106. 56	1940	86. 51	109. 43
1930	76. 57	101. 51	1941	91. 82	108. 41
1931	123. 30	104. 69	1942	111. 10	108. 55
1932	113. 52	105. 76	1943	120. 29	109. 20
1933	101. 73	105. 32	1944	111. 96	109. 30
1934	122. 42	107. 04	1945	120. 42	109. 84
1935	143. 42	110. 35	1946	87. 38	108. 81

Table 2 gives the rainfall by months for the years 1945 and 1946, the station average for each month, the excess or deficiency for each month and the accumulated plus or minus, and also the maximum rains each month for 5 and 10 minutes, and 1 and 24 hours. These maximum values are consecutive wherever that maximum occurred; hence the 24-hour record is not necessarily from midnight to midnight.

Table 3 gives the number of hours of rain each month for 1946 and the total amount in inches, and then these data separated into the four 6-hour periods. These data are of interest in that they indicate when most rains may be expected. From 6 a. m. to noon there is less rainfall than from noon to 6 p. m.

TABLE 2.—*Comparison of 1945 and 1946 rainfall; and maximum rains for short periods*

Month	Total		Station average	Years of record	Plus or minus	Accumulated E. or D.	Maximum rains			
	1945	1946					5 minutes	10 minutes	1 hour	24 hours
January	2.89	.45	1.91	21	−1.46	−1.46	.10	.14		.16
February	.67	.32	1.23	21	−.91	−2.37	.09	.10		.20
March	.27	1.71	1.46	21	+.25	−2.12	.15	.19	.42	.69
April	1.59	1.41	2.79	22	−1.38	−3.50	.21	.25	.37	.73
May	13.55	8.05	11.13	22	−3.08	−6.58	.25	.40	.65	.92
June	10.17	7.94	11.27	22	−3.33	−9.91	.35	.53	1.13	1.69
July	13.87	12.58	11.81	22	+.77	−9.14	.33	.60	1.35	2.41
August	12.32	10.50	12.56	22	−2.06	−11.20	.34	.60	2.00	4.91
September	10.07	10.67	10.47	22	+.20	−11.00	.33	.62	1.83	2.50
October	10.02	9.00	13.17	22	−4.17	−15.17	.40	.60	.90	1.20
November	20.60	14.98	19.30	22	−4.32	−19.49	.60	1.05	2.29	4.51
December	24.40	9.77	11.71	22	−1.94	−21.43	.46	.82	1.18	3.42
Year	120.42	87.38	108.81			−21.43				
Dry	5.42	3.89	7.39			−3.50				
Wet	115.00	83.49	101.42			−17.93				

TABLE 3.—*Rainfall 1946. Total number of hours of rain and amount in inches for the daily 6-hour period*

Month	Midnight to 6 a. m.		6 am. to noon		Noon to 6 p. m.		6 p. m. to midnight		Midnight to midnight	
	Hours	Amount	Hours	Amount	Hours	Amount	Hours	Amount	Hours	Amount
January	9	.12	3	.20	5	.05	3	.08	20	.45
February	8	.18	3	.13	1	.01			12	.32
March	10	.19	18	.55	12	.94	3	.03	43	1.71
April	9	.32	4	.25	6	.73	8	.11	27	1.41
May	11	2.97	12	.69	20	4.31	5	.08	48	8.05
June	19	.84	10	2.41	32	4.08	11	.61	72	7.94
July	26	1.63	15	2.19	48	6.13	19	2.63	108	12.58
August	19	.54	20	2.70	29	6.84	16	.42	84	10.50
September	25	1.64	16	1.46	38	5.88	9	1.69	88	10.67
October	25	1.22	22	1.98	38	4.03	19	1.77	104	9.00
November	34	5.29	24	2.44	29	5.41	27	1.84	114	14.98
December	37	2.44	21	1.92	31	3.78	23	1.63	112	9.77
Year	232	17.38	168⅝	16.92	289	42.19	143	10.89	832	87.38
Dry	36	.81	28	1.13	24	1.73	14	.22	102	3.89
Wet	196	16.57	140	15.79	265	40.46	129	10.67	730	83.49

Table 4 gives a summary and analysis of the 1946 rainfall for the entire year and for the dry and wet seasons, both as to hours and days, percentage of the total possible hours (if it rained every hour), and these data are significant. With so much less rainfall in the dry season, and particularly with so high a deficiency, the animals have a hard time getting food. The peccary in the dry season is noticeably thin—very different from his condition in the wet season when food is more plentiful. The effects of moisture are profound. This struggle for food is also reflected in the rate of reproduction in certain of the mammals. A bad year, deficient in rainfall and in food, increases the rate of reproduction, and conversely, a year of abundant rainfall, an abundance of food, shows in some mammals a falling off in this rate.

TABLE 4.—*Summary and analysis of the 1946 rainfall for the year, and for the dry and wet seasons*

ENTIRE YEAR

Total hours of rain	832
Percentage of total possible hours	9.50
Total days of rain	233
Percentage of total possible days	63.84

DRY SEASON

Total hours of rain	102
Percentage of total possible hours	3.54
Total days of rain	44
Percentage of total possible days	36.67
Amount of rain in inches	3.89
Percentage of total rainfall for year	4.45

WET SEASON

Total hours of rain	730
Percentage of total possible hours	12.42
Total days of rain	189
Percentage of total possible days	77.14
Amount of rain in inches	83.49
Percentage of total rainfall for year	95.55

In table 5 are given (1) the number of hours and the amount of rains of 0.40 inch or more per hour, for each of the four 6-hour periods, and (2) the three heaviest rains each month (midnight to midnight). Rains of 0.40 inch per hour, if rather evenly distributed, will not seriously hamper field work, but if such rains come down in 5 minutes, it is another story.

TABLE 5.—*The three heaviest rains each month and number of hours and amount of rains of 0.40 inch or more per hour for 1946*

Month	Total inches	Days of rain	Hours of rain	Midnight to 6 a. m.		6 a. m. to noon		Noon to 6 p. m.		6 p. m. to midnight		3 heaviest rains (midnight to midnight)		
				Number	Amount	Number	Amount	Number	Amount	Number	Amount			
January	.45	11	20									.14	.08	.05
February	.32	7	12									.16	.06	.04
March	1.71	14	43									.68	.58	.10
April	1.41	12	27									.73	.29	.17
May	8.05	16	48	2	1.59	0		4	2.85			2.99	1.14	.85
June	7.94	21	72			3	1.63	3	2.37			1.71	1.69	.95
July	12.58	24	108			3	1.50	3	2.48	2	1.68	2.48	1.91	1.33
August	10.50	27	84			1	1.65	4	4.45			4.40	1.77	.91
September	10.67	26	88	1	.46	1	.50	4	3.51	2	1.52	2.14	1.67	.96
October	9.00	25	104			1	.90	2	1.28	1	.51	1.15	.91	.82
November	14.98	29	114	4	3.80	1	.40	3	3.45	1	.41	2.54	2.49	2.12
December	9.77	21	112	1	.47	1	1.10	2	1.50	1	.67	3.35	1.18	1.05
Year	87.38	233	832	8	6.32	11	7.68	25	21.89	7	4.79	22.47	13.77	9.35
Dry	3.89	44	102	0	0	0	0	0	0	0	0	1.71	1.01	.36
Wet	83.49	189	730	8	6.32	11	7.68	25	21.89	7	4.79	20.76	12.76	9.01

During the dry season, there were no rains of 0.40 inch per hour during 1947, and only 51 such hours in the wet season, amounting to 40.68 inches, or 46.6 of the total rainfall for the year. And these 40.68 inches fell during only 6.1 percent of the total hours we had rain. This means that the balance, 46.70 inches, fell during 781 hours, or an average of only .06 inch per hour. The three heaviest rains each month amounted to a total of 45.59 inches in only 36 days. This leaves only 41.79 inches for the remaining 197 days.

Considering now these three heaviest rains each month (midnight to midnight), we have the following interesting data:

Dry season: 12 days, 3.08 inches, or 79.2 percent of the dry season total.
Wet season: 24 days, 42.53 inches, or 50.9 percent of the wet season total.
The year: 36 days, 45.61 inches, or 52 percent of the year's total.

The remaining days when it rained show:

Dry season: 32 days, 0.32 inch, or an average of 0.01 inch per day of rain.
Wet season: 165 days, 40.96 inches, or an average of 0.248 inch per day of rain.
The year: 197 days, 41.79 inches, or an average of 0.212 inch per day of rain.

For comparison, the following tables are presented, covering the rainfall for other localities in the Canal Zone and Republic of Panamá data on temperatures, relative humidities, barometric pressures, etc.; and the maximum and minimum yearly rains of record for 19 important localities. These data are taken from the reports of the Chief Meteorologist of the Panama Canal. They give a better understanding of the climate, and it is only to be regretted that comparable data are not available for a great many more localities in the Republic of Panamá. To an ecologist, these data are of inestimable value.

TABLE 6.—*Annual rainfall at other Panamá stations, in inches*

	Total, 1946	Station average	Excess or deficiency	Years of record
Balboa	50.06	68.84	−18.78	48
Pedro Miguel	63.18	80.14	−16.96	39
Summit	76.00	86.94	−10.94	23
Gamboa	65.37	88.86	−23.49	64
Madden Dam	79.62	97.86	−18.24	47
Frijoles	94.39	106.64	−12.25	35
Bohio	99.67	95.14	+4.53	29
Trinidad	88.61	110.03	−21.42	23
Monte Lirio	95.43	118.71	−23.28	39
Gatun	121.83	125.30	−3.47	42
Cristobal	126.52	130.37	−3.85	76
Porto Bello	170.53	160.78	+9.75	35
Porto Armuelles	62.21	92.46	−30.25	17
Sta. Rosa	54.06	68.17	−14.11	21
Salamanca	90.30	100.74	−10.44	35
Chilibrillo	80.12	97.81	−17.69	35
Candelaria	120.95	131.64	−10.69	13
Peluca	103.12	123.10	−19.98	13

TABLE 7.—*Maximum and minimum rainfall, Barro Colorado Island, 1925 to 1946*

	Maximum	*Minimum*		*Maximum*	*Minimum*
January	4. 60	. 45	August	21. 44	5. 93
February	5. 91	. 05	September	19. 96	6. 07
March	5. 54	. 19	October	22. 23	6. 06
April	7. 61	. 10	November	41. 59	7. 21
May	19. 02	3. 09	December	28. 15	1. 88
June	19. 31	5. 43			
July	28. 58	5. 52	Year	143. 42	76. 57

TABLE 8.—*1946 pressure, temperature, relative humidity, etc*

	Balboa Heights	Madden Dam	Cristobal
Pressure (reduced to sea level):			
Maximum	30. 010	29. 990	30. 010
Minimum	29. 680	29. 660	29. 680
Annual mean (bihourly)	29. 831	29. 817	29. 843
Temperature (Fahrenheit):			
Annual mean	79. 6	77. 9	79. 9
Absolute maximum	97	96	90
Mean daily maximum	88. 2	87. 3	83. 8
Absolute minimum	69	64	70
Mean daily minimum	74. 0	72. 0	76. 5
Greatest daily range	23	26	16
Mean relative humidity (percent)	82. 8	82. 8	82. 2
Mean wet thermometer [1]	74. 1	73. 9	75. 4
Mean dew point [1]	73. 1	72. 9	73. 8
Mean vapor pressure [1]	. 814	. 807	. 835

[1] Mean of 8 a. m. observations except Cristobal which is the mean of 8 a. m. amd 8 p. m. values. Mean relative humidity is bihourly mean.

TABLE 9a.—*Maxium amounts of precipitation in inches (years of record)*

	5 minutes	10 minutes	1 hour	24 hours	Year
Balboa	. 90	1. 68	4. 78	7. 57	93. 06
Balboa Heights	. 69	1. 27	4. 49	7. 23	91. 42
Pedro Miguel	. 73	1. 23	3. 85	8. 53	110. 57
Madden Dam	. 68	1. 20	4. 19	9. 31	152. 04
Gamboa	. 65	1. 17	3. 85	7 48	136. 19
Barro Colorado	. 85	1. 40	3. 57	10. 48	143. 42
Gatun	. 68	1. 36	5. 68	12. 25	164. 19
Cristobal	. 66	1. 20	5. 16	13. 50	183. 41

TABLE 9b.—*Maximum amounts of precipitation in inches (1946)*

	5 minutes	10 minutes	1 hour	24 hours
Balboa	. 45	. 80	2. 54	3. 19
Balboa Heights	. 49	. 88	3. 26	3. 92
Pedro Miguel	. 45	. 85	2. 00	3. 92
Madden Dam	. 65	1. 15	3. 55	4. 87
Gamboa	. 52	. 95	2. 14	3. 99
Barro Colorado	. 60	1. 05	2. 29	4. 91
Gatun	. 59	1. 00	2. 11	4. 74
Cristobal	. 45	. 80	3. 30	8. 41

TABLE 10.—*Temperatures (Fahr.) and relative humidity, Balboa Heights (B. H.) and Cristobal (XBal), 1946*

Monthly mean			Maximum				Minimum				Relative humidity	
			B. H.		Xbal		B. H.		Xbal			
1946	B. H.	Xbal	Abs.	Mean	Abs.	Mean	Abs.	Mean	Abs.	Mean	B. H.	Xbal
January	78.7	80.4	90	88.0	88	84.4	69	72.4	73	76.9	78.1	75.6
February	79.2	79.7	92	89.4	87	83.5	69	72.6	75	76.8	73.0	75.1
March	80.3	79.8	93	90.6	88	83.7	70	73.4	74	77.2	71.9	75.8
April	81.7	81.1	97	92.2	87	85.1	70	74.7	77	78.2	72.8	76.8
May	80.9	80.8	96	89.0	90	84.7	72	75.5	71	77.6	83.3	83.3
June	80.5	80.6	94	75.4	87	77.4	72	75.4	70	77.4	85.8	86.0
July	80.3	79.8	92	88.3	86	83.5	72	75.5	72	76.7	86.0	87.2
August	79.4	79.8	92	86.9	86	82.7	69	74.7	70	76.6	87.6	87.1
September	78.9	79.1	91	86.4	88	83.4	71	74.2	72	75.5	89.5	87.4
October	78.2	79.0	89	86.0	90	84.0	71	73.2	72	74.9	88.3	84.1
November	78.0	78.9	90	85.9	90	83.2	71	72.7	71	74.7	89.1	83.3
December	78.9	79.6	90	86.8	86	82.9	70	73.1	71	75.9	87.6	84.1
Year	79.6	79.9	97	88.2	90	83.8	69	74.0	70	76.5	82.8	82.2
Dry	80.0	80.3	97	90.1	88	84.2	69	73.3	73	77.3	74.0	75.8
Wet	79.4	79.7	96	85.6	90	82.7	70	74.3	70	76.2	87.2	85.3

TABLE 11.—*Maximum and minimum annual rainfall of record, in inches (1946)*

	Maximum	*Minimum*		*Maximum*	*Minimum*
Balboa [1]	93.06	48.94	Cristobal [4]	183.41	86.54
Pedro Miguel [1]	110.57	58.31	Porto Bello [4]	237.28	118.04
Summit [2]	111.25	67.57	Puerto Armuelles (Chiriqui)	132.32	58.93
Gamboa [2]	136.19	62.02	Santa Rosa (Cocle)	77.20	48.58
Madden Dam [3]	152.04	71.95	Tonosi (Los Santos)	141.03	51.25
Frijoles [2]	138.36	78.06	Salamanca [3]	160.46	69.06
Barro Colorado [2]	143.42	76.57	Chilibrillo [2]	134.23	72.63
Trinidad [2]	144.48	87.61	Candelaria [3]	184.98	101.79
Monte Lirio [2]	179.73	85.15	Peluca [3]	179.64	91.14
Gatun [2]	164.19	80.31			

[1] Pacific drainage.
[2] Gatun Lake drainage (Gatun Lake area).
[3] Gatun Lake drainage basin (Madden Lake watershed).
[4] Atlantic drainage.

FISCAL REPORT

During the fiscal year 1947, $16,095.88 was available, none of which was appropriated by Congress. Of this amount, $13,140.29 was spent, leaving on hand $2,955.59 to begin the new fiscal year. In addition to this, $3,183.96 is still on deposit, representing local collections, a total of $6,139.55, to which will be added the few table subscriptions, an amount inadequate to take care of running expenses.

During the year $4,403.96 was collected as fees from scientists for board and lodging, fees from visitors, and similar items. It is hard to say how much will be collected during the 1948 fiscal year, but it is almost certain that it will not be sufficient to carry us through the year.

The organizations listed below continued to aid materially in the support of the Laboratory through the payment of table fees:

American Museum of Natural History	$300.00
Eastman Kodak Company	500.00
Harvard University	300.00
New York Zoological Society	300.00
Smithsonian Institution	300.00
University of Chicago	300.00

It is believed that more scientists will now be able to come to the island, and it is therefore imperative that more institutions and universities should help support the laboratory through table subscriptions. It is gratifying to report that Eastman Kodak Co. increased their subscription to $1,000 a year.

Respectfully submitted.

JAMES ZETEK, *Resident Manager.*

Dr. ALEXANDER WETMORE,
Secretary, Smithsonian Institution.

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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, 1947:

In this second postwar year of rehabilitation the work of the library was not greatly different in kind or amount from that of the previous year. Books are integral parts of the world of practical affairs as well as of ideas, and their production, distribution, and use, as well as their conception, follow the changing times. With the coming of peace there began a rise, not as yet very sharp, in the number of new books and serials important for the library to acquire. Prices rose and are still rising. The purchasing power of the inelastic allotment of book funds has correspondingly decreased. Paper shortages continued to limit the size of editions, and not a few new books went so quickly out of print as to make it difficult to get those for which prepublication orders had not been placed. Many fine and desirable works came into the old book market but prices were too high and funds too small to make it possible to buy more than a few of those most immediately important to the work of the Institution.

Among the more noteworthy of the 1,693 purchased books were the following: Description Méthodique du Musée Céramique de la Manufacture Royale de Sèvres, by Alexandre Brongiart and others, 1845; Mammals of Amazonia, by Eladio da Cruz Lima, volume 1, 1945; A Monograph of Oriental *Cicadidae*, by William Lucas Distant, 2 volumes, 1889–92; Histoire de la Locomotion Terrestre, les Chemins de Fer, by Charles Dollfuss and Edgar de Geoffroy, 2 volumes, 1935; Illustrationes Florae in Insularum Maris Pacifici, by Emmanual Drake del Castillo, 6 portfolios, 1886–92; The Royal Commentaries of Peru, written originally in Spanish by Garcilaso de la Vega, el Inca, and rendered into English by Sir Paul Rycaut, 1688; Histoire et Technique de la Montre Suisse de ses Origines à Nos Jours, 1945; The Etched Work of Whistler, Illustrated by Reproductions in Collotype of the Different States of the Plates, compiled, arranged, and described by Edward G. Kennedy, 1 volume of text and 3 portfolios of plates, 1910; The Artists of America, a Series of Biographical Sketches of American Artists, with Portraits and Designs on Steel, by C. Edwards Lester, 1846; The New World; the First Pictures of America, made by John White and Jacques Le Moyne and engraved by Theodore

De Bry, with Contemporary Narratives * * * edited and annotated by Stefan Lorant, 1946; Thomas Nast, his Period and his Pictures, by Albert Bigelow Paine, 1904; Denmarks Fugle, by E. Lehn Schiøler, 3 volumes, 1925–31; De Vogels van Nederlandsch Indië, by H. Schlegel, 3 parts in portfolio, 1863–66; The Voyage of Gregory Shelekhof, a Russian Merchant, from Okhotzk, on the Eastern Ocean, to the Coast of America, in the Years 1783, 1784, 1785, 1786, 1787, and his Return to Russia, from his own Journal, 1795; Fregatten Eugenies Resa, 1851–1853, under Befäl af C. A. Virgin, by C. J. A. Skogman, 2 volumes in 1, 1854–55.

Gifts of the year came from 230 different donors and included some of the most useful additions to the library. Reprints and separates on special subjects from scientific and technical serials are indispensable working tools of the different divisions of the Institution, and the gifts of Dr. Ray S. Bassler and of A. B. Gahan of their personal collections of some 1,500 pamphlets each, on geology and on Hymenoptera, respectively, were most appreciated additions to the sectional libraries of geology and of insects. Paul Garber's gift of 147 books and pamphlets on aeronautics greatly strengthened the library's working collection of material in that field. As usual, the publications generously turned over by the American Association for the Advancement of Science and by the American Association of Museums supplied considerable material not received from other sources, and furnished numbers of useful duplicates as well. The library is deeply indebted to all its friends at home and abroad who have so kindly made contributions to its collections.

The total number of publications recorded by the accessions division for the year was 62,137. Of these, 14,607 came through the International Exchange Service, almost three times as many as in the year before. With the gradual return to more nearly normal conditions it is gratifying to find in how many cases the continuity of sets of foreign serials published abroad during the war will not be broken in the library because of the care with which they were reserved, stored, and later shipped by the institutions with which we were in regular exchange before the war. This encouraging aspect of the postwar situation, however, does not mean that there are not, unavoidably, a distressing number of series that ceased publication altogether during the war, some of them probably never to be resumed.

The filling of gaps in serial sets, foreign and domestic, current and old, requires eternal vigilance, and most of the 6,812 pieces received in response to our 589 requests were numbers of periodicals needed to fill such gaps, and were obtained chiefly in exchange. New exchanges arranged were 290.

Of the current accessions, 7,265 were cataloged or entered as additions to the Smithsonian Deposit in the Library of Congress, and most of these were additions to the great Deposit sets of publications of scientific institutions and learned societies, so important to research. Some of them were continuations of series that formed part of the original Smithsonian Deposit in 1866. In addition, all documents, dissertations, and other publications on subjects not found to be of immediate interest to the Institution were sent directly upon receipt to the Library of Congress, and they numbered 13,422.

Most but not all of the 10,749 publications transferred to the Department of Agriculture, the Army Medical Library, the Geological Survey, and other libraries of the Government, had been received during the year.

Our large collection of duplicates continued to be drawn upon in aid of destroyed libraries abroad, and 31,781 pieces were turned over to the American Book Center for this purpose.

The cataloging of currently received material was well kept up on the whole in spite of the handicaps of inadequate staffing of this vitally important part of the library's work. There is always the problem of the huge "backlog" of poorly or completely uncataloged older material, which is not only serious in itself but which inevitably slows up some of the work of cataloging new material which is related to it.

The bad housing of the library continues to be the most obvious and distressing of its problems. The progressive deterioration of its fine collections caused by overcrowding and lack of funds for binding is deplorable, while the inadequacies of its reading and reference rooms, the scattered and inconvenient locations of its shelves and stack rooms, and the absence of proper work rooms for the staff, all make its service to the Institution increasingly difficult.

SUMMARIZED STATISTICS

Accessions

	Volumes	Total recorded volumes June 30, 1947
Astrophysical Observatory (including Radiation and Organisms)	323	12,243
Bureau of American Ethnology	148	34,462
Freer Gallery of Art	430	22,127
National Collection of Fine Arts	405	10,974
National Museum	2,851	239,167
National Zoological Park	24	4,166
Smithsonian Deposit at the Library of Congress	1,243	578,673
Smithsonian Office	220	32,185
Total	5,644	933,997

Neither incomplete volumes of periodicals nor separates and reprints are included in these figures.

Exchanges

New exchanges arranged 290
91 of these were assigned to the Smithsonian Deposit in the Library of of Congress.
Specially requested publications received 6,812
1,056 of these were obtained to fill gaps in the Smithsonian Deposit sets.

Cataloging

Volumes and pamphlets cataloged 6,614
Cards added to catalogs and shelf lists 35,763

Periodicals

Periodical parts entered 16,481
Of these, 4,709 were sent to the Smithsonian Deposit.

Circulation

Loans of books and periodicals 9,534
This figure does not include the intramural circulation of books and periodicals filed in 31 sectional libraries, of which no count is kept.

Binding

Volumes sent to the bindery 616
Volumes repaired in the Museum 1,057

Respectfully submitted.

LEILA F. CLARK, *Librarian.*

Dr. ALEXANDER WETMORE,
Secretary, Smithsonian Institution.

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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 during the year ended June 30, 1947.

The Institution published during the year 26 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 3 special publications.

The United States National Museum issued 1 Annual Report, 8 Proceedings papers, 3 Bulletins, and 2 separate papers in the bulletin series, Contributions from the United States National Herbarium.

The Bureau of American Ethnology issued 1 Annual Report and 1 Publication of the Institute of Social Anthropology.

The Freer Gallery issued 1 pamphlet, 1 paper in its Oriental Studies series, and 1 paper in its Occasional Papers series.

Of the publications there were distributed 158,129 copies, which included 35 volumes and separates of Smithsonian Contributions to Knowledge, 50,353 volumes and separates of Smithsonian Miscellaneous Collections, 20,880 volumes and separates of Smithsonian Annual Reports, 9,008 War Background Studies, 23,235 Smithsonian special publications, 22 reports on the Harriman Alaska Expedition, 34,952 volumes and separates of National Museum publications, 7,948 publications of the Bureau of American Ethnology, 257 publications of the Institute of Social Anthropology, 5 catalogs of the National Collection of Fine Arts, 2,561 volumes and pamphlets of the Freer Gallery of Art, 20 Annals of the Astrophysical Observatory, 374 reports of the American Historical Association, and 8,479 miscellaneous publications not printed by the Smithsonian Institution (mostly Survival Manuals).

SMITHSONIAN MISCELLANEOUS COLLECTIONS

In this series there were issued 1 paper and title page and table of contents in volume 104, whole volume 105, 18 papers and title page and table of contents in volume 106, and 6 papers in volume 107, as follows:

VOLUME 104

No. 23 (end of volume). The Cedartown, Georgia, meteorite, by Stuart H. Perry. 3 pp., 4 pls. (Publ. 3844.) Aug. 1, 1946.

Title page and table of contents. (Publ. 3891.) Feb. 11, 1947.

VOLUME 105

World Weather Records, 1931–1940, by H. Helm Clayton and Frances L. Clayton. x+646 pp. (Publ. 3803.) Apr. 4, 1947.

VOLUME 106

No. 1. The birds of San José and Pedro González Islands, Republic of Panamá, by Alexander Wetmore. 60 pp., 4 pls. (Publ. 3845.) Aug. 5, 1936.

No. 2. The vegetation of San José Island, Republic of Panamá, by C. O. Erlanson. 12 pp., 2 pls., 1 fig. (Publ. 3846.) July 18, 1946.

No. 5. Echinoderms from the Pearl Islands, Bay of Panamá, with a revision of the genus *Encope*, by Austin H. Clark. 11 pp., 4 pls. (Publ. 3849.) July 18, 1946.

No. 6. The nonmarine mollusks of San José Island, with notes on those of Pedro González Island, Pearl Islands, Panamá, by J. P. E. Morrison. 49 pp., 3 pls. (Publ. 3850.) Sept. 12, 1946.

No. 7. Mammals of San José Island, Bay of Panamá, by Remington Kellogg. 4 pp. (Publ. 3851.) July 18, 1946.

No. 8. Turtles collected by the Smithsonian Biological Survey of the Panama Canal Zone, by Karl Patterson Schmidt. 9 pp., 1 pl. (Publ. 3852.) Aug. 1, 1946.

No. 9. The species of *Platycopia* Sars (Copepoda, Calanoida), by Mildred Stratton Wilson. 16 pp., 2 figs. (Publ. 3853.) Aug. 23, 1946.

No. 10. A reexamination of the fossil human skeletal remains from Melbourne, Florida, by T. D. Stewart. 28 pp., 8 pls., 7 figs. (Publ. 3854.) Aug. 9, 1946.

No. 13. A new carnivorous dinosaur from the Lance formation of Montana, by Charles W. Gilmore. 19 pp., 4 pls. (Publ. 3857.) Sept. 12, 1946.

No. 14. A new dussumieriid fish of the genus *Jenkinsia* from Bermuda, by Luis Rene Rivas. 4 pp., 1 pl., 1 fig. (Publ. 3859.) Nov. 22, 1946.

No. 15. Ladybeetles of the genus *Epilachna* (sens. lat.) in Asia, Europe, and Australia, by H. Dieke. 183 pp., 27 pls. (Publ. 3860.) Jan. 20, 1947.

No. 16. New birds from Colombia, by Alexander Wetmore. 14 pp. (Publ. 3862.) Dec. 30, 1946.

No. 17. Some new Cambrian bellerophont gastropods, by J. Brookes Knight. 11 pp., 2 pls. (Publ. 3865.) Jan. 3, 1947.

No. 18. On the evolutionary significance of the Pycnogonida, by Joel W. Hedgpeth. 53 pp., 1 pl., 16 figs. (Publ. 3866.) Mar. 24, 1947.

No. 19. The lamina terminalis and preoptic recess of Amphibia, by Albert K. Reese. 9 pp., 4 pls. (Publ. 3867.) Jan. 27, 1947.

No. 20. A monograph of the West Atlantic mollusks of the family Aclididae, by Paul Bartsch. 29 pp., 6 pls. (Publ. 3868.) Feb. 24, 1947.

No. 21. Developmental physiology of the grass seedling. II. Inhibition of mesocotyl elongation in various grasses by red and by violet light, by Robert L. Weintraub and Leonard Price. 15 pp., 5 figs. (Publ. 3869.) May 8, 1947.

No. 22. Solar cycles, by H. H. Clayton. 18 pp., 9 figs. (Publ. 3870.) Mar. 5. 1947.

Title page and table of contents. (Publ. 3899.) June 11, 1947.

VOLUME 107

No. 1. The Ethnogeographic Board, by Wendell Clark Bennett. 135 pp., 2 figs. (Publ. 3889.) Apr. 14, 1947.

No. 2. The thoracic muscles of the cockroach *Periplaneta americana* (L.), by C. S. Carbonell. 23 pp., 8 pls. (Publ. 3890.) May 8, 1947.

No. 3. 1946–1947 report on the 27.0074-day cycle in Washington precipitation, by C. G. Abbot. 2 pp. (Publ. 3892.) Mar. 17, 1947.

No. 4. The sun's short regular variation and its large effect on terrestrial temperatures, by C. G. Abbot. 33 pp., 12 figs. (Publ. 3893.) Apr. 4, 1947.

No. 5. The dates and editions of Curtis' British Entomology, by Richard E. Blackwelder. 27 pp., 4 pls., 15 figs. (Publ. 3894.) June 12, 1947.

No. 6. Prehistory and the Missouri Valley development program: Summary report on the Missouri River Basin archeological survey in 1946, by Waldo R. Wedel. 17 pp., 2 pls., 1 fig. (Publ. 3895.) Apr. 23, 1947.

SMITHSONIAN ANNUAL REPORT

Report for 1945.—The complete volume of the Annual Report of the Board of Regents for 1945 was received from the Public Printer December 4, 1946:

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, 1945. iv+484 pp., 80 pls., 28 figs. (Publ. 3817.)

The general appendix contained the following papers (Publs. 3818–3839):

Our revolving "island universe" and its spiraling counterparts, by William T. Skilling.

Medical uses of the cyclotron, by F. G. Spear.

Drinking water from sea water, by W. V. Consolazio, N. Pace, and A. C. Ivy.

Plastics and metals—competitors or collaborators? by G. K. Scribner.

The mineral position of the United States and the outlook for the future, by Elmer W. Pehrson.

Japanese earthquakes, by N. H. Heck.

Conquest of the Northwest Passage by R. C. M. P. schooner *St. Roch*, by J. Lewis Robinson.

The New England hurricane of September 1944, by Charles F. Brooks and Conrad Chapman.

Conserving endangered wildlife species, by Hartley H. T. Jackson.

Living with the boll weevil for fifty years, by U. C. Loftin.

The indispensable honeybee, by James I. Hambleton.

The importance of plants, by William J. Robbins.

Fungi and modern affairs, by J. Ramsbottom.

The introduction of abacá (Manila hemp) into the Western Hemisphere, by H. T. Edwards.

Growing rubber in California, by E. L. Perry.

Thinking about race, by S. L. Washburn.

A unique prehistoric irrigation project, by Henry C. Shetrone.

Concepts of the sun among American Indians, by M. W. Stirling.

Human problems in military aviation, by Detlev W. Bronk.

Blood and blood derivatives, by Edwin J. Cohn.

The microbiotics, by John N. McDonnell.
A brief summary of the Smithsonian Institution's part in World War II.

Report for 1946.—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 January 7, 1947:

Report of the Secretary of the Smithsonian Institution and financial report of the executive committe of the Board of Regents for the year ended June 30, 1946. ix+134 pp., 2 pls. (Publ. 3864.) 1947.

The Report volume for 1946, containing the general appendix, was in press at the close of the year.

SPECIAL PUBLICATIONS

The first hundred years of the Smithsonian Institution, 1846–1946, by Webster P. True. viii+64 pp., 41 pls. (Publ. C.) Aug. 10, 1946.

The Smithsonian Institution edition of etchings and drypoints by Charles W. Dahlgreen. Catalogue. 19 pp., 71 illustrations. 1946.

Classified list of Smithsonian publications available for distribution December 1, 1946, compiled by Helen Munroe. 53 pp. (Publ. 3858.) 1946.

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, 8 Proceedings papers, 3 Bulletins, and 2 separate papers in the bulletin series, Contributions from the United States National Herbarium.

REPORTS

Report on the progress and condition of the United States National Museum for the year ended June 30, 1946. iii+113 pp. Jan. 14, 1947.

PROCEEDINGS: VOLUME 95

Title page, table of contents, list of illustrations, and index. Pp. i–viii, 615–647. Mar. 24, 1947.

VOLUME 96

No. 3200. Eight new species of chalcid-flies of the genus *Pseudaphycus* Clausen, with a key to the species, by A. B. Gahan. Pp. 311–327. Nov. 22, 1946.

No. 3201. New cerambycid beetles belonging to the tribe Disteniini from Central and South America, by W. S. Fisher. Pp. 329–333. Nov. 26, 1946.

No. 3202. *Machaeroides eothen* Matthew, the sawtooth creodont of the Bridger Eocene, by C. Lewis Gazin. Pp. 335–347, pls. 45–46. Dec. 16, 1946.

No. 3203. Review of some chalcidoid genera related to *Cerocephala* Westwood, by A. B. Gahan. Pp. 349–376, pls. 47, 48. Dec. 31, 1946.

No 3204. A revision of the genera of mullets, fishes of the family Mugilidae, with descriptions of three new genera, by Leonard P. Schultz. Pp. 377–395, figs. 28–32. Dec. 5, 1946.

No. 3205. The phorid flies of Guam, by G. E. Bohart. Pp. 397–416, figs. 33–48. Feb. 17, 1947.

VOLUME 97

No. 3209. New cerambycid beetles belonging to the tribe Rhinotragini, by W. S. Fisher. Pp. 47–57. June 6, 1947.

BULLETINS

No. 50, part 10. Birds of North and Middle America. Families Cracidae, Tetraonidae, Phasianidae, Numididae, Meleagrididae, by Robert Ridgway and Herbert Friedmann. Pp. i-xii, 1–484, figs. 1–28. Dec. 18, 1946.

No. 191. Life histories of North American jays, crows, and titmice, by Arthur Cleveland Bent. Pp. i–xi, 1–495, pls. 1–68. Jan. 27, 1947.

No. 192. The operculate land mollusks of the family Annulariidae of the island of Hispaniola and the Bahama Archipelago, by Paul Bartsch. Pp. 1–264, pls. 1–38. Oct. 3, 1946.

CONTRIBUTIONS FROM THE UNITED STATES NATIONAL HERBARIUM

VOLUME 29

Part 3. The American species of *Hymenophyllum*, section *Sphaerocionium*, by C. V. Morton. Pp. i-viii, 139–201. Apr. 16, 1947.

VOLUME 30

Part. 1. A botanical bibliography of the islands of the Pacific, by Elmer D. Merrill. Pp. 1–322. A subject index to Elmer D. Merrill's "A Botanical Bibliography of the Islands of the Pacific," by Egbert H. Walker. Pp. 323–404. Feb. 25, 1947.

PUBLICATIONS OF THE BUREAU OF AMERICAN ETHNOLOGY

The editorial work of the Bureau has continued under the immediate direction of the editor, M. Helen Palmer. During the year the following publications were issued:

Sixty-third Annual Report of the Bureau of American Ethnology, 1945–1946. 12 pp.

Institute of Social Anthropology Publ. No. 3. Moche, a Peruvian coastal community, by John Gillin. 166 pp., 26 pls., 8 figs., 1 map.

FREER GALLERY OF ART

The Freer Gallery of Art issued three publications, as follows:

The Freer Gallery of Art. 16 pp., 7 pls., 3 figs. January 1947.

A descriptive and illustrative catalog of Chinese bronzes acquired during the administration of John Ellerton Lodge, compiled by the staff of the Freer Gallery of Art. Oriental Studies, No. 3, 108 pp., frontispiece and 50 pls., 47 figs., 2 maps. (Publ. 3805.) 1946.

The Grand Empress Dowager Wên Ming and the Northern Wei Necropolis at Fang Shan, by A. G. Wenley. Occasional Papers, vol. 1, No. 1, 28 pp., 7 pls., 3 figs. (Publ. 3861.) Feb. 1, 1947.

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 communicated by him 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 for 1945. Vol. 1, Proceedings and list of members. 1947.

The following were in press at the close of the fiscal year: Annual Report of the American Historical Association for 1945. Vol. 2, Spain in the Mississippi Valley, 1765–1794, pt. 1, The Revolutionary period, 1765–1781; vol. 3, Spain in the Mississippi Valley, 1765–1794, pt. 2, Postwar decade, 1782–1791; vol. 4, Spain in the Mississippi Valley, 1765–1794, pt. 3, Problems of frontier defense, 1792–1794.

REPORT OF THE NATIONAL SOCIETY, DAUGHTERS OF THE AMERICAN REVOLUTION

The manuscript of the Forty-ninth Annual Report of the National Society, Daughters of the American Revolution, was transmitted to Congress, in accordance with law, October 30, 1946.

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, 1948, totals $100,000, allotted as follows:

General administration (Annual Report of the Board of Regents; Annual Report of the Secretary)	$18,500
National Museum	41,000
Bureau of American Ethnology	15,500
National Air Museum	950
Editorial Division (Annual Report of the American Historical Association; blank forms)	13,500
Reserve (preferably for binding)	10,550
	100,000

Respectfully submitted.

W. P. True, *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, 1947

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, etc., together with payment into the fund of the sum of £5,015, which had been withheld during the lifetime of Madame de laBatut, 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, etc.

	Investment	Income present year
Parent fund (original Smithson bequest, plus accumulated savings)	$728,876.85	$43,705.93
Subsequent bequests, gifts, etc., partly deposited in the U. S. Treasury and partly invested in the consolidated fund:		
Avery, Robert S. and Lydia, bequest fund	54,019.08	2,409.11
Endowment fund	315,080.70	12,120.32
Habel, Dr. S., bequest fund	500.00	30.00
Hachenberg, George P. and Caroline, bequest fund	4,074.69	156.60
Hamilton, James, bequest fund	2,908.99	165.71
Henry, Caroline, bequest fund	1,225.34	47.07
Hodgkins, Thomas G. (general), gift	146,377.67	8,127.52
Porter, Henry Kirke, memorial fund	290,162.47	10,860.78
Rhees, William Jones, bequest fund	1,069.31	53.79
Sanford, George H., memorial fund	2,001.92	100.63
Witherspoon, Thomas A., memorial fund	130,748.49	5,025.26
Special fund, stock in reorganized closed banks	2,280.00	144.00
Total	950,448.66	39,240.79
Grand total	1,679,325.51	82,946.72

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.

	Investment	Income, present year
Abbott, William L., fund for investigations in biology	$108,401.17	$4,202.60
Arthur, James, fund for investigations and study of the sun and lecture on same	40,519.67	1,557.36
Bacon, Virginia Purdy, fund, for traveling scholarship to investigate fauna of countries other than the United States	50,760.18	1,950.95
Baird, Lucy H., fund for creating a memorial to Secretary Baird	24,393.69	937.56
Barstow, Frederick D., fund, for purchase of animals for Zoological Park	1,012.92	38.94
Canfield Collection fund for increase and care of the Canfield collection of minerals	38,750.42	1,489.35
Casey, Thomas L., fund, for maintenance of the Casey collection, and promotion of researches relating to Coleoptera	9,292.84	357.15
Chamberlain, Francis Lea, fund, for increase and promotion of Isaac Lea collection of gems and mollusks	28,531.11	1,096.58
Eickemeyer, Florence Brevoort, fund, for preservation and exhibition of the photographic collection of Rudolph Eickemeyer, Jr	513.98	19.73
Hillyer, Virgil, fund, for increase and care of Virgil Hillyer collection of lighting objects	6,658.71	255.91
Hitchcock, Dr. Albert S., library fund, for care of Hitchcock Agrostological Library	1,598.68	61.43
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	18,633.01	716.12
Hrdlička, special	12,500.00	
Hughes, Bruce, fund, to found Hughes alcove	19,393.22	745.34
Long, Annette and Edith C., fund, for upkeep and preservation of Long collection of embroideries, laces, etc	550.14	21.12
Maxwell, Mary E., fund, for care, etc., of Maxwell Collection	9,988.40	95.98
Myer, Catherine Walden, fund, for purchase of first-class works of art for the use and benefit of the National Collection of Fine Arts	19,205.20	738.12
Strong, Julia D., bequest fund, for benefit of National Collection of Fine Arts	10,130.05	389.32
Pell, Cornelia Livingston, fund, for maintenance of Alfred Duane Pell collection	7,510.01	288.62
Poore, Lucy T. and George W., fund, for general use of the Institution when principal amounts to $250,000	105,985.13	4,648.64
Rathbun, Richard, memorial fund, for use of division of U. S. National Museum containing Crustacea	10,775.93	414.16
Reid, Addison T., fund, for founding chair in biology in memory of Asher Tunis	30,244.04	1,451.68
Roebling Collection fund, for care, improvement, and increase of Roebling collection of minerals	122,276.63	4,699.63
Rollins, Miriam and William, fund, for investigations in physics and chemistry	93,136.99	3,657.02
Smithsonian employees' retirement fund	80,277.80	3,085.45
Springer, Frank, fund, for care, etc., of Springer collection and library	18,168.84	698.28
Walcott, Charles D. and Mary Vaux, research fund, for development of geological and paleontological studies and publishing results thereof	430,819.07	15,891.98
Younger, Helen Walcott, fund, held in trust	50,125.12	2,684.58
Zerbee, Frances Brinckle, fund, for endowment of aquaria	961.02	36.94
Total	1,453,113.97	58,230.54

The above funds amount to a total of $3,132,439.48 and are carried in the following investment accounts of the Institution:

U. S. Treasury deposit account, drawing 6 percent interest	$1,000,000.00
Consolidated investment fund (income in table below)	1,859,686.86
Real estate, mortgages, etc	208,771.73
Special funds, miscellaneous investments	52,234.83
Uninvested capital	11,746.06
Total	3,132,439.48

CONSOLIDATED FUND

This fund contains substantially all the investments of the Institution, with the exception of those of the Freer Gallery of Art; the deposit of $1,000,000 in the United States Treasury, with guaranteed income of 6 percent; and investments in real estate and real-estate mortgages. This fund contains endowments for both unrestricted and specific use. A statement of principal and income of this fund for the last 10 years follows:

Fiscal year	Principal	Income	Percentage	Fiscal year	Principal	Income	Percentage
1938	$867,528.50	$34,679.64	4.00	1943	$1,316,533.49	$50,524.22	3.83
1939	902,801.27	30,710.53	3.40	1944	1,372,516.41	50,783.79	3.69
1940	1,081,249.25	38,673.29	3.47	1945	1,454,957.73	50,046.67	3.50
1941	1,093,301.51	41,167.38	3.76	1946	1,559,215.25	57,612.38	3.69
1942	1,270,968.45	46,701.98	3.67	1947	1,871,432.92	74,836.55	4.00

CONSOLIDATED FUND

Gain in investments over year 1946

Investments made from gifts and savings on income	$314,400.71
Less loss on sales of securities	2,183.04
Total	312,217.67

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 $6,069,845.32 in a selected list of securities classified later.

The invested funds of the Freer bequest are under the following headings:

Court and grounds fund	$679,970.31
Court and grounds maintenance fund	170,756.06
Curator fund	691,983.14
Residuary legacy fund	4,527,135.81
Total	6,069,845.32

Statement of principal and income for the last 10 years

Fiscal year	Principal	Income	Percentage
1938	$4,820,777.31	$255,651.61	5.30
1939	5,075,976.76	212,751.78	4.19
1940	6,112,953.46	242,573.92	3.96
1941	6,030,586.91	233,079.22	3.86
1942	5,912,878.64	241,557.77	4.08
1943	5,836,772.01	216,125.07	3.70
1944	5,881,402.17	212,395.27	3.61
1945	5,864,061.73	212,552.69	3.62
1946	5,994,394.31	220,818.86	3.68
1947	6,069,845.32	242,471.02	4.00

FREER FUND

Gain during present year from sale, call of securities, etc	$75,451.01

SUMMARY OF ENDOWMENTS

Invested endowment for general purposes	$1,453,113.97
Invested endowment for specific purposes other than Freer endowment	1,679,325.51
Total invested endowment other than Freer endowment	3,132,439.48
Freer invested endowment for specific purposes	6,069,845.32
Total invested endowment for all purposes	9,202,284.80

CLASSIFICATION OF INVESTMENTS

Deposited in the U. S. Treatury 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 (20 different groups)	$706,418.10	
Stocks (50 different groups)	1,276,348.59	
Real estate and first-mortgage notes	137,926.73	
Uninvested capital	11,746.06	
		2,132,439.48
Total investments other than Freer endowment		3,132,439.48
Investment of Freer endowment (cost or market value at date acquired):		
Bonds (27 different groups)	$2,783,575.97	
Stocks (53 different groups)	3,240,824.22	
Real estate first-mortgage notes	1,000.00	
Uninvested capital	44,445.13	
		6,069,845.32
Total investments		9,202,284.80

CASH BALANCES, RECEIPTS, AND DISBURSEMENTS DURING FISCAL YEAR 1947[1]

Cash balance on hand June 30, 1946		$807,410.45
Receipts:		
Cash income from various sources for general work of the Institution	$98,761.91	
Cash gifts for general work of the Institution (for investment)	290,500.00	
Cash gifts and contributions expendable for special scientific objects (not for investment)	66,150.80	
Cash income from endowments for specific use other than Freer endowment and from miscellaneous sources (including refund of temporary advances)	155,903.83	
Cash capital from sale, call of securities, etc. (for investment)	212,294.20	
Total receipts other than Freer endowment		823,610.74
Cash income from Freer endowment	242,471.02	
Cash capital from sale, call of securities, etc. (for investment)	952,838.45	
Total receipts from Freer endowment		1,195,309.47
Total		2,826,330.66
Disbursements:		
From funds for general work of the Institution:		
Buildings—care, repairs, and alteration	$2,441.18	
Furniture and fixtures	451.55	
General administration	37,110.39	
Library	3,133.88	
Publications (comprising preparation, printing and distribution)	19,186.21	
Researches and explorations	22,682.26	
		85,005.47
From funds for specific use other than Freer endowment:		
Investments made from gifts and from savings on income	312,217.67	
Other expenditures, consisting largely of research work, travel, increase and care of special collections, etc., from income of endowment funds, and from cash gifts for specific use (including temporary advances)	148,330.32	
Reinvestment of cash capital from sale, call of securities, etc	195,046.45	
Cost of handling securities, fee of investment counsel, and accrued interest on bonds purchased	3,478.27	
		659,072.71

[1] This statement does not include Government appropriations under the administrative charge of the Institution.

Disbursements—Continued.		
From Freer endowment:		
Operating expenses of the Gallery, salaries, field expenses, etc	$79,218.52	
Purchase of art objects	124,790.00	
Reinvestment of cash capital from sale, call of securities, etc	954,000.95	
Cost of handling securities, fee of investment counsel, and accrued interest on bonds purchased	21,786.82	
		$1,179,796.29
Cash balance June 30, 1947		902,456.19
Total		2,826,330.66

Included in the above receipts was cash received as royalties from sales of Smithsonian Scientific Series to the amount of $28,539.80. This was distributed as follows:

Smithsonian Institution endowment fund	$12,608.21
Smithsonian Institution emergency fund	3,152.05
Smithsonian Institution unrestricted fund, general	9,456.16
Salaries	3,323.38
	28,539.80

Included in the foregoing are expenditures for researches in pure science, publications, explorations, care, increase, and study of collections, etc., as follows:

Expended from general funds of the Institution:		
Publications	$19,186.21	
Researches and explorations	22,682.26	
		$41,868.47
Expenditures from funds devoted to specific purposes:		
Researches and explorations	64,917.41	
Care, increase, and study of special collections	3,186.41	
Publications	10,996.61	
		79,100.43
Total		120,968.90

The practice of depositing on time in local trust companies and banks such revenues as may be spared temporarily has been continued during the past year, and interest on these deposits has amounted to $642.64.

The Institution gratefully acknowledges gifts or bequests from the following:

The Viking Fund, Inc., New York City, for Iroquois research.
Ernest N. May, for scientific exploration, particularly in the West Indies.
John A. Roebling, as a further contribution for research in radiation.

Mary E. Maxwell, for care, preservation and additions to Maxwell collection of jewelry, etc.

Miss Annie-May Hegeman, for Henry Kirke Porter Memorial Fund.

All payments are made by check, signed by the Secretary of the Institution on the Treasurer of the United States, and all revenues are deposited to the credit of the same account. In many instances deposits are placed in bank for convenience of collection and later withdrawn and deposited in the United States Treasury.

The foregoing report relates only to the private funds of the Institution.

The following appropriations were made by Congress for the Government bureaus under the administrative charge of the Smithsonian Institution for the fiscal year 1947:

Salaries and expenses	$1,632,912.00
National Zoological Park	432,500.00

In addition, funds were transferred from other Departments of the Government for expenditure under direction of the Smithsonian Institution:

Cooperation with the American Republics (transfer from State Department)	$139,589.00
Working fund, transferred from National Park Service, Interior Department, for archeological investigations in Missouri River Basin	71,500.00

The report of the audit of the Smithsonian private funds is given below:

SEPTEMBER 17, 1947.

EXECUTIVE COMMITTEE, BOARD OF REGENTS,

Smithsonian Institution, Washington, D. C.

SIRS: Pursuant to agreement we have audited the accounts of the Smithsonian Institution for the fiscal year ended June 30, 1947, and certify the balances of cash on hand, including petty cash fund, June 30, 1947, to be $904,356.19.

We have verified the records of receipts and disbursements maintained by the Institution and the agreement of the book balances with the bank balances.

We have examined all the securities in the custody of the Institution and in the custody of the banks and found them to agree with the book records.

We have compared the stated income of such securities with the receipts of record and found them in agreement therewith.

We have examined all vouchers covering disbursements for account of the Institution during the fiscal year ended June 30, 1947, together with the authority therefor, and have compared them with the Institution's record of expenditures and found them to agree.

We have examined and verified the accounts of the Institution with each trust fund.

We found the books of account and records well and accurately kept and the securities conveniently filed and securely cared for.

All information requested by your auditors was promptly and courteously furnished.

We certify the balance sheet, in our opinion, correctly presents the financial condition of the Institution as at June 30, 1947.

WILLIAM L. YAEGER,
Certified Public Accountant.

Respectfully submitted.

VANNEVAR BUSH,
CLARENCE CANNON,
Executive Committee.

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