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J.P. Smith

Smithsonian Institution

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



1859



Smithsonian Institution

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



For the year ended June 30

1959

Smithsonian Publication 4389

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THE SMITHSONIAN INSTITUTION

June 30, 1959

Presiding Officer ex officio.—DWIGHT D. EISENHOWER, President of the United States.

Chancellor.—EARL WARREN, Chief Justice of the United States.

Members of the Institution:

DWIGHT D. EISENHOWER, President of the United States.

RICHARD M. NIXON, Vice President of the United States.

EARL WARREN, Chief Justice of the United States.

CHRISTIAN A. HERTER, Secretary of State.

ROBERT B. ANDERSON, Secretary of the Treasury.

NEIL H. McELROY, Secretary of Defense.

WILLIAM P. ROGERS, Attorney General.

ARTHUR E. SUMMERFIELD, Postmaster General.

FRED A. SEATON, Secretary of the Interior.

EZRA TAFT BENSON, Secretary of Agriculture.

LEWIS L. STRAUSS, Secretary of Commerce.

JAMES P. MITCHELL, Secretary of Labor.

ARTHUR S. FLEMMING, Secretary of Health, Education, and Welfare.

Regents of the Institution:

EARL WARREN, Chief Justice of the United States, Chancellor.

RICHARD M. NIXON, Vice President of the United States.

CLINTON P. ANDERSON, Member of the Senate.

J. WILLIAM FULBRIGHT, Member of the Senate.

LEVERETT SALTONSTALL, Member of the Senate.

FRANK T. BOW, Member of the House of Representatives.

OVERTON BROOKS, Member of the House of Representatives.

CLARENCE CANNON, Member of the House of Representatives.

JOHN NICHOLAS BROWN, citizen of Rhode Island.

ARTHUR H. COMPTON, citizen of Missouri.

ROBERT V. FLEMING, citizen of Washington, D.C.

CRAWFORD H. GREENEWALT, citizen of Delaware.

CARYL P. HASKINS, citizen of Washington, D.C.

JEROME C. HUNSAKER, citizen of Massachusetts.

Executive Committee.—ROBERT V. FLEMING, *chairman*, CLARENCE CANNON, CARYL P. HASKINS.

Secretary.—LEONARD CARMICHAEL.

Assistant Secretaries.—J. L. KEDDY, A. REMINGTON KELLOGG.

Assistant to the Secretary.—JAMES C. BRADLEY.

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

Treasurer.—T. F. CLARK.

Chief, editorial and publications division.—PAUL H. OEHSER.

Librarian.—RUTH E. BLANCHARD.

Curator, Smithsonian Museum Service.—G. CARROLL LINDSAY, *acting*.

Buildings Manager.—ANDREW F. MICHAELS, JR., *acting*.

Chief, personnel division.—MRS. ANN S. CAMPBELL, *acting*.

Chief, supply division.—A. W. WILDING.

Chief, photographic service division.—O. H. GREESON.

UNITED STATES NATIONAL MUSEUM

Director.—A. Remington Kellogg.

Registrar.—Helena M. Weiss.

MUSEUM OF NATURAL HISTORY

Director.—A. C. Smith.

DEPARTMENT OF ANTHROPOLOGY: F. M. Setzler, head curator; A. J. Andrews, exhibits specialist.

Division of Archeology: W. R. Wedel, curator; Clifford Evans, Jr., Ralph S. Solecki, associate curators.

Division of Ethnology: S. H. Riesenbergl, curator; G. D. Gibson, E. I. Knez, associate curators; R. A. Elder, Jr., assistant curator.

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

DEPARTMENT OF ZOOLOGY: Herbert Friedmann, head curator.

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

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

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

Division of Fishes: L. P. Schultz, curator; E. A. Lachner, W. R. Taylor, associate curators.

Division of Insects: J. F. G. Clarke, curator; O. L. Cartwright, R. E. Crabill, W. D. Field, associate curators; Sophy Parfin, assistant curator.

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

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

DEPARTMENT OF BOTANY (NATIONAL HERBARIUM): J. R. Swallen, head curator.

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

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

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

Division of Cryptogams: M. E. Hale, Jr., acting curator; P. S. Conger, associate curator; R. R. Ireland, Jr., assistant curator.

DEPARTMENT OF GEOLOGY: G. A. Cooper, head curator.

Division of Mineralogy and Petrology: G. S. Switzer, curator; R. S. Clarke, P. E. Desautels, E. P. Henderson, associate curators.

Division of Invertebrate Paleontology and Paleobotany: G. A. Cooper, acting curator; R. S. Boardman, P. M. Kier, associate curators.

Division of Vertebrate Paleontology: C. L. Gazin, curator; D. H. Dunkle, Nicholas Hotton, 3d, P. P. Vaughn, associate curators; F. L. Pearce, exhibits specialist.

MUSEUM OF HISTORY AND TECHNOLOGY

Director.—F. A. Taylor.

Assistant Director.—J. C. Ewers.

Chief exhibits specialist.—J. E. Anglim.

Chief zoological exhibits specialist.—W. L. Brown.

Assistant chief exhibits specialists.—B. S. Bory, R. O. Hower, B. W. Lawless, Jr.

DEPARTMENT OF SCIENCE AND TECHNOLOGY: R. P. Multhauf, head curator.

Division of Physical Sciences: R. P. Multhauf, acting curator.

Division of Mechanical and Civil Engineering: E. S. Ferguson, curator; E. A. Battison, associate curator; R. M. Vogel, assistant curator.

Division of Transportation: H. I. Chapelle, curator; K. M. Perry, associate curator; J. H. White, assistant curator.

Division of Agriculture and Wood Products: W. N. Watkins, curator; E. C. Kendall, associate curator.

Division of Electricity: W. J. King, Jr., acting curator.

Division of Medical Sciences: G. B. Griffenhagen, curator; J. B. Blake, associate curator.

DEPARTMENT OF ARTS AND MANUFACTURERS: P. W. Bishop, head curator.

Division of Textiles: Grace L. Rogers, acting curator.

Division of Ceramics and Glass: P. V. Gardner, acting curator.

Division of Graphic Arts: Jacob Kainen, curator; A. J. Wedderburn, Jr., associate curator; F. O. Griffith, 3d, assistant curator.

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

DEPARTMENT OF CIVIL HISTORY: A. N. B. Garvan, head curator; P. C. Welsh, associate curator; A. P. Krimgold, Jr., junior curator.

Division of Political History: W. E. Washburn, curator; Mrs. Margaret B. Klaphor, associate curator; C. G. Dorman, Mrs. Anne W. Murray, assistant curators.

Division of Cultural History: C. M. Watkins, acting curator; J. D. Shortridge, associate curator; Rodris C. Roth, assistant curator.

Division of Philately and Postal History: C. T. Turner, acting curator; F. J. McCall, associate curator.

Division of Numismatics: Vladimir Clain-Stefanelli, acting curator; Mrs. Elvira Clain-Stefanelli, assistant curator.

DEPARTMENT OF ARMED FORCES HISTORY: M. L. Peterson, head curator.

Division of Military History: E. M. Howell, acting curator; C. R. Goins, Jr., assistant curator.

Division of Naval History: M. L. Peterson, acting curator; P. H. Lundeberg, associate curator.

BUREAU OF AMERICAN ETHNOLOGY

Director.—F. H. H. Roberts, Jr.

Anthropologist.—H. B. Collins, Jr.

Ethnologists.—W. C. Sturtevant, W. L. Chafe.

RIVER BASIN SURVEYS.—F. H. H. Roberts, Jr., *Director*; R. L. Stephenson, *Chief, Missouri Basin Project*.

ASTROPHYSICAL OBSERVATORY

Director.—F. L. Whipple.

Associate Directors.—J. A. Hynek, T. E. Sterne.

Astrophysicists.—R. J. Davis, E. L. Fireman, L. G. Jacchia, Max Krook, F. B. Riggs, Jr., C. A. Whitney.

Mathematician.—R. E. Briggs.

TABLE MOUNTAIN, CALIF., FIELD STATION.—A. G. Froiland, *physicist*.

DIVISION OF RADIATION AND ORGANISMS:

Chief.—W. H. Klein.

Plant physiologists.—V. B. Elstad, Leonard Price.

Electronic engineer.—J. H. Harrison.

Instrument maker.—D. G. Talbert.

NATIONAL COLLECTION OF FINE ARTS

Director.—T. M. Beggs.

Associate curator.—Rowland Lym.

SMITHSONIAN TRAVELING EXHIBITION SERVICE.—Mrs. Annemarie H. Pope, *Chief*.

FREER GALLERY OF ART

Director.—A. G. Wenley.

Assistant Director.—J. A. Pope.

Associate in Near Eastern art.—Richard Ettinghausen.

Associate in technical research.—R. J. Gettens.

Associate curators.—J. F. Cahill, H. P. Stern.

NATIONAL AIR MUSEUM

Advisory Board:

Leonard Carmichael, *Chairman*.

Maj. Gen. Reuben C. Hood, Jr., U.S. Air Force.

Rear Adm. R. E. Dixon, U.S. Navy.

Lt. Gen. James H. Doolittle.

Grover Loening.

Director.—P. S. Hopkins.

Head curator and historian.—P. E. Garber.

Associate curators.—L. S. Casey, W. M. Male, K. E. Newland.

Junior curator.—R. B. Meyer.

NATIONAL ZOOLOGICAL PARK

Director.—T. H. Reed.

Associate Director.—J. L. Grimmer.

CANAL ZONE BIOLOGICAL AREA

Resident Naturalist.—M. H. Moynihan.

INTERNATIONAL EXCHANGE SERVICE

Chief.—J. A. Collins.

NATIONAL GALLERY OF ART

Trustees:

EARL WARREN, Chief Justice of the United States, *Chairman*.

CHRISTIAN A. HERTEE, Secretary of State.

ROBERT B. ANDERSON, Secretary of the Treasury.

LEONARD CARMICHAEL, Secretary of the Smithsonian Institution.

F. LAMMOT BELIN.

DUNCAN PHILLIPS.

CHESTER DALE.

PAUL MELLON.

RUSH H. KRESS.

President.—CHESTER DALE.

Vice President.—F. LAMONT BELIN.

Secretary-Treasurer.—HUNTINGTON CAIRNS.

Director.—JOHN WALKER.

Administrator.—ERNEST R. FEIDLER.

General Counsel.—HUNTINGTON CAIRNS.

Chief Curator.—PERRY B. COTT.

Honorary Research Associates, Collaborators, and Fellows

OFFICE OF THE SECRETARY

John E. Graf

UNITED STATES NATIONAL MUSEUM

MUSEUM OF NATURAL HISTORY

Anthropology

Mrs. Arthur M. Greenwood.
N. M. Judd, Archeology.
H. W. Krieger, Ethnology.
Betty J. Meggers, Archeology.

H. Morgan Smith, Archeology.
W. W. Taylor, Jr., Archeology.
W. J. Tobin, Physical Anthropology.

Zoology

Paul Bartsch, Mollusks.
J. Bruce Bredin.
M. A. Carriker, Insects.
C. J. Drake, Insects.
Isaac Ginsberg, Fishes.
D. C. Graham, Biology.
Horton H. Hobbs, Jr., Marine
Invertebrates.
A. B. Howell, Mammals.
Laurence Irving, Birds.
W. L. Jellison, Insects.

W. M. Mann, Hymenoptera.
Allen McIntosh, Mollusks.
J. P. Moore, Marine Invertebrates.
C. F. W. Muesebeck, Insects.
W. L. Schmitt.
Benjamin Schwartz, Helminthology.
R. E. Snodgrass, Insects.
T. E. Snyder, Insects.
Alexander Wetmore, Birds.
Mrs. Mildred S. Wilson, Copepod
Crustacea.

Botany

Mrs. Agnes Chase, Grasses.
E. P. Killip, Phanerogams.

F. A. McClure, Grasses.
J. A. Stevenson, Fungi.

Geology

R. S. Bassler, Paleontology.
R. W. Brown, Paleobotany.
Preston Cloud, Invertebrate
Paleontology.

C. Wythe Cooke, Invertebrate
Paleontology.
J. B. Knight, Invertebrate Paleon-
tology.
W. T. Schaller, Mineralogy.

MUSEUM OF HISTORY AND TECHNOLOGY

History

Elmer C. Herber.

F. W. MacKay, Numismatics.

BUREAU OF AMERICAN ETHNOLOGY

J. P. Harrington.
Sister M. Inez Hilger.

| M. W. Stirling.
A. J. Waring, Jr.

ASTROPHYSICAL OBSERVATORY

C. G. Abbot.

FREER GALLERY OF ART

Oleg Grabar.
Grace Dunham Guest.

| Max Loehr.
Katherine N. Rhoades.

NATIONAL AIR MUSEUM

Frederick C. Crawford.

| John J. Ide.

NATIONAL ZOOLOGICAL PARK

W. M. Mann.

| E. P. Walker.

CANAL ZONE BIOLOGICAL AREA

C. C. Soper.

Report of the Secretary of the Smithsonian Institution

LEONARD CARMICHAEL

For the Year Ended June 30, 1959

To the Board of Regents of the Smithsonian Institution:

GENTLEMEN: I have the honor to submit a report showing the activities and condition of the Smithsonian Institution and its branches for the fiscal year ended June 30, 1959.

GENERAL STATEMENT

The activities of the 113th year of the Smithsonian Institution are presented in this report. In many ways this has been an outstanding year at the Smithsonian. Once again the services rendered by the Institution demonstrate the wisdom of our distinguished founder and man of science, James Smithson, in establishing in Washington an institution for the "increase and diffusion of knowledge among men." The increase in knowledge is embodied in research, and this year the investigations of the Smithsonian staff have been very fruitful, as the details given herein will indicate. The diffusion of knowledge has involved the answering of some 260,000 specific inquiries related to the fields of expertness found in the Smithsonian's various divisions, laboratories, and libraries. The diffusion of knowledge has also been actively carried on by the publication of scholarly and semipopular works, which are also described elsewhere in this report. Possibly, however, the main means by which the Smithsonian Institution diffuses knowledge is through its museum exhibits and the educational and inspirational opportunity that these displays give to our millions of visitors each year.

As pointed out in recent annual reports, real progress has been made in the past few years in transforming the old, outmoded museum displays of the Smithsonian into modern, effective, teaching exhibits. The visitors who now come to the Smithsonian Institution are deeply grateful that Congress has made it possible to bring about this gradual transformation of Smithsonian exhibition halls from what in too many respects was until recently an old-fashioned place for "visual storage."

In 1954, for the first time in the long history of the Smithsonian Institution, a fully outlined program was adopted for the progressive improvement of all its exhibition halls and for the modern presentation of tens of thousands of appropriate objects from the great national collections that are in its charge. This modernization is now complete in 17 major galleries. To put this in another way, a total of about 80,000 square feet of exhibition space has now been transformed, and 673 separate exhibit units have been fully reorganized and modernized for the benefit and education of the public.

Before this modernization program began, many of the Smithsonian Institution exhibits had not been changed for as long as 75 years. Amazing as it may seem, the great and often unique treasures of the Institution, which today include over 52 million cataloged objects, were still being displayed in a manner that had long before become outmoded in almost every other national museum in the world. When the present transformation began, for example, gas fixtures were still in place, although not in use, in some of our exhibition halls. In a few large sections of Smithsonian buildings there was as recently as 5 years ago no provision for artificial light of any kind either in display cases or in public spaces. This meant that on many winter afternoons some of the great treasures of the Smithsonian were almost invisible to visitors.

It may be pointed out that all around the globe, especially since the Second World War, there has been a new recognition of the role of the museum as a public information center. More and more museums are seen as places needed to inspire each new generation with the kind of patriotism that is based on a valid understanding of the factors that have led to national growth. The history of the development of science, for example, as displayed in a modern museum has a significant function in interesting and inspiring a real interest in science on the part of school boys and girls.

This new museum philosophy has been wholeheartedly accepted and adopted at the Smithsonian. The experts in each of its great subject-matter fields have given much thought to developing the best ways to present their exhibits so as to meet this modern and challenging view of what a museum should be. The present objective of renovation at the Smithsonian, therefore, is not only to show many interesting objects in a clear way but also to explain how and why the particular items selected for display are intellectually significant. An old shoe with a wooden sole is unimportant alone, but when shown as part of the field equipment of a soldier of the Confederate States of America it explains much about the problems of equipment during the Civil War.

At the present time as a visitor studies the presentation of objects in any of the modernized exhibition halls of the Institution, he can

see clearly illustrated such great ideas as man's use of natural resources and man's gradual triumph in the long development of specific arts and sciences.

The newly modernized exhibits of the Smithsonian cover diverse fields. For example, the displays of the anthropology, ethnology, and archeology of the New World before Columbus have been admirably rearranged. The birds of the world are presented as important and beautiful in themselves and as significant elements in the economy of nature and in zoological science in general. A large section is devoted to the great mammals of America, showing in artistic and accurately composed habitat groups the way in which such animals as the bison, the wolves, and the elk lived. The geological sciences are presented in a new exhibition hall, which has been called the most notable display of its kind in the world. Here minerals, gems, and the new Vetlesen jade collection are most clearly displayed. But the minerals actually shown are not more than 3 percent of the total Smithsonian study collections in this field.

For more than a century the Smithsonian Institution has been assembling unequaled collections of important items dealing with the history of the United States. Some of the most significant of these have never been displayed for the benefit of the public. Now thousands of these objects are presented in an appropriate and instructive manner. Typical of the display of historic materials is the hall in which the dresses of the First Ladies of the White House are shown, each in an authentic setting. In the period room in which Martha Washington's dress is shown, for example, there are exhibited only objects that belonged to and were used by George Washington himself. The halls of American military history have been transformed, and the displays of many of the arts and manufacturing processes have also been entirely made over. Among other new displays is a hall for the presentation of machines and products used in the graphic arts and one for textiles and textile machinery. In the latter hall a great Jacquard loom has been installed in operating condition, with its amazing punch-card mechanism clearly explained to the visitor. Another new exhibit is a complete 17th-century American house brought piece by piece from Massachusetts and carefully and authentically reerected and furnished with objects of everyday use of just the sort employed by early New England Colonial families.

One indirect result of the still far from complete modernization program of the Smithsonian has been an increase in the use of the study collections of the Institution by research workers. Students in schools and colleges now also come in larger numbers to the new exhibition halls of the Institution. Some come alone or with parents and some under the supervision of teachers. In the new halls

they learn as they cannot elsewhere important lessons about the natural resources of America, the natural history of the world, and special aspects of the history of their own United States. Many leave better informed and are more truly patriotic Americans than when they came. As noted elsewhere in this report, volunteer, unpaid but well-trained docents from the Junior League of Washington instruct thousands of schoolchildren each year as they carefully lead them through specially selected halls on educational tours.

The modernization program has had a great effect on attendance at the Smithsonian. The number of visitors to the Smithsonian, not including the National Gallery of Art or the National Zoological Park, in 1954, when the modernization of exhibits program began, was 3,658,000. The attendance of the year covered by this report, 1959, was, as is elsewhere noted, 6,351,000. This phenomenal increase in number of visitors is certainly due in considerable measure to the new interest generated by the modernized exhibits.

The staff of the Smithsonian Institution has planned and is continuing active work on the modernization of an additional 28 exhibition halls in our existing buildings. It is also engaged in planning and preparing exhibits for 47 large halls in the Smithsonian's new Museum of History and Technology Building, which is being erected on Constitution Avenue between 12th and 14th Streets.

This total exhibit-development program in the Smithsonian, therefore, will, when it is completed, have included well over a hundred large galleries or major halls and literally thousands of specific exhibition units. These units will in sum total display for the public more than a million objects from our unrivaled national collections in new, clear, and intelligible settings.

The Smithsonian Institution has long been called the Nation's Treasure House. When the modernization program described in the preceding paragraphs is complete and when the new Museum of History and Technology Building is opened, certainly this great national treasury will at long last be presented in a way that is worthy of modern America.

When James Smithson specified that he wished his institution to be concerned not only with research but also with the diffusion of knowledge, he set a pattern that has inspired the devoted and effective work of the staff of his institution that has made this modernization program so successful.

THE ESTABLISHMENT

The Smithsonian Institution was created by act of Congress in 1846, in accordance with the terms of the will of James Smithson, of England, who in 1826 bequeathed his property to the United States of America "to found at Washington, under the name of the Smith-

sonian 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

The current year brought the retirement of two members of the Board of Regents: Senator H. Alexander Smith and Representative John M. Vorys. At the time of the annual meeting the Speaker of the House of Representatives appointed Representative Frank T. Bow of Ohio to succeed Representative John M. Vorys. On February 5, 1959, the Vice President appointed Senator J. William Fulbright of Arkansas to succeed Senator H. Alexander Smith.

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

On the evening of January 15, 1959, preceding the annual meeting, an informal dinner was given in the main hall of the Smithsonian Building amid various exhibits showing the present-day phases of the work of the bureaus and departments. Dr. Richard Ettinghausen spoke on "Objects Dealing with Christian Themes in the Freer Gallery Collections"; Dr. Charles Lewis Gazin on "Eocene Mammals of the Bridger Formation in Southwestern Wyoming"; Dr. Vladimir Clain-Stefanelli on "Comparative Die Studies: A Method of Numismatic Investigation and Its Historical Significance"; and Edgar M. Howell on "Private Hermann Steiffel—Sometime Artist of the West."

The annual meeting was held on January 16, 1959. The Secretary presented his published annual report on the activities of the Institution together with the 1958 Annual Report of the United States National Museum. The Chairman of the Executive and Permanent Committees of the Board, Dr. Robert V. Fleming, gave the financial report for the fiscal year ended June 30, 1958.

FINANCES

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

of the Board of Regents, page 234. Funds appropriated to the Institution for its regular operations for the fiscal year ended June 30, 1959, totaled \$7,587,800. Besides this direct appropriation, the Institution received funds by transfer from other Government agencies as follows:

From the District of Columbia for the National Zoological Park.....	\$953, 800
From the National Park Service, Department of the Interior, for the River Basin Surveys.....	162, 000

VISITORS

Visitors to the Institution's exhibition halls continue to increase. Visitors to the Smithsonian group of buildings on the Mall reached a total of 6,351,352, an all-time high and nearly a million more than the previous year. April 1959 was the month of largest attendance, with 978,230; May 1959 second, with 867,817; August 1958 third, with 769,086. Largest attendance for a single day was 92,945 on April 12, 1959. Table 1 gives a summary of the attendance records for the five buildings; table 2, groups of schoolchildren. These figures, when added to the 951,608 visitors recorded at the National Gallery of Art and the 4,055,673 estimated at the National Zoological Park, bring the year's total number of visitors at the Institution to 11,358,633.

TABLE 1.—Visitors to certain Smithsonian buildings during the year ended June 30, 1959

Year and month	Smithsonian Building	Arts and Industries Building	Natural History Building	Aircraft Building	Freer Building	Total
<i>1958</i>						
July.....	105, 654	310, 882	150, 153	97, 050	12, 872	676, 611
August.....	141, 457	312, 426	175, 188	125, 124	14, 891	769, 086
September.....	49, 885	122, 427	68, 848	40, 766	8, 682	290, 608
October.....	45, 002	115, 621	96, 748	34, 129	7, 502	299, 002
November.....	55, 269	127, 064	146, 618	38, 483	7, 488	374, 922
December.....	27, 724	57, 956	73, 220	20, 221	4, 018	183, 139
<i>1959</i>						
January.....	32, 672	72, 515	86, 980	25, 461	6, 248	223, 876
February.....	46, 899	103, 074	109, 682	36, 037	6, 218	301, 910
March.....	110, 821	229, 864	209, 894	69, 695	10, 825	631, 099
April.....	170, 520	392, 353	303, 991	96, 800	14, 566	978, 230
May.....	139, 186	301, 701	319, 018	95, 398	12, 514	867, 817
June.....	126, 039	286, 978	217, 407	111, 119	13, 509	755, 052
Total.....	1, 051, 128	2, 432, 861	1, 957, 747	790, 283	119, 333	6, 351, 352

TABLE 2.—Groups of schoolchildren visiting the Smithsonian Institution during the year ended June 30, 1959

Year and month	Number of children	Number of groups
<i>1958</i>		
July.....	7, 670	301
August.....	8, 648	405
September.....	4, 433	145
October.....	19, 534	644
November.....	21, 083	612
December.....	9, 801	295
<i>1959</i>		
January.....	9, 769	346
February.....	18, 339	581
March.....	54, 235	1, 426
April.....	110, 950	2, 431
May.....	148, 789	3, 338
June.....	44, 424	1, 354
Total.....	457, 675	11, 878

SUMMARY OF THE YEAR'S ACTIVITIES

National Museum.—The national collections were augmented during the year by a total of 1,144,445 specimens, bringing the total catalog entries in all departments to more than 52 million. Some of the outstanding items received included: In anthropology, a 12th-century stone Buddha from Cambodia, 4 collections of Micronesian ethnological material, and a cast of the Gánovce (Slovakia) Neanderthal skull; in botany, the entire herbarium of Goucher College, consisting of about 6,100 specimens; in geology, the legendary Hope diamond, a superb collection of Chinese jade carvings, the largest dinosaur bone known from this country, and more than 7,300 specimens of Carboniferous plants; in zoology, large lots of mammals and birds from Panama, 2 large collections of fishes from the eastern United States; the Monrós collection of more than 54,000 chrysomelid beetles, and many mollusks and marine invertebrates collected by the Bredin-Smithsonian Caribbean Expedition; in civil history, an entire room from the Gothic Revival Harral-Wheeler house in Bridgeport, Conn., an entire 18th-century loghouse from Wilmington, Del., additions to the White House china collection, and important lots of philatelic and numismatic material, including the Dwight D. Eisenhower collection of coins, medals, and memorabilia; in Armed Forces history, early U.S. military and naval insignia from the W. Stokes

Kirk collection and 117 original drawings of U.S. sailing ships; in arts and manufactures, several important gifts of ceramics and glass, a group of fine prints, and an 18th-century French hand-and-foot treadle loom for the new textile hall; and in science and technology, a collection of early handmade locks, bolts, and decorative hardware, an acquisition of dental instruments, furniture, and equipment relating to the history of dentistry, and a group of scientific instruments used by Ira Remsen at Johns Hopkins University.

Members of the staff conducted fieldwork in Central America, South America, the Caribbean, Europe, and many parts of the United States.

Under the exhibits-modernization program, three new halls were opened to the public during the year—the Graphic Arts Hall, the Hall of Gems and Minerals, and the Textile Hall. An event of the year of particular public interest was the unveiling of the Fénykövi elephant in the rotunda of the Natural History Building. Fitting ceremonies were also held in connection with the opening of the room displaying the Maude Monell Vetlesen collection of Chinese jade carvings.

Bureau of American Ethnology.—The members of the Bureau staff continued their research in archeology and ethnology: Director Roberts particularly on matters pertaining to the River Basin Surveys, Dr. Collins his Arctic and Eskimo studies, Dr. Sturtevant his Seminole and Seneca researches, Mr. Miller his archeological work at Russell Cave in Alabama.

Astrophysical Observatory.—The year's researches of the Smithsonian Astrophysical Observatory have embraced solar astrophysics, upper atmosphere studies, meteoritical studies, and satellite science. The satellite-tracking program was continued, with notable results. The division of radiation and organisms continued its researches on the photomorphogenic mechanism in plants as controlled by radiant energy.

National Collection of Fine Arts.—The Smithsonian Art Commission accepted for the Gallery 19 bronzes, 1 bronze plaque, 4 medallions, 3 oils, and 4 watercolors. The Gallery held 17 special exhibitions during the year; and the Smithsonian Traveling Exhibition Service circulated 100 exhibitions (29 new and 71 held from previous years) to 240 museums.

Freer Gallery of Art.—Purchases for the Freer Gallery Collections included outstanding examples of Syrian glass; Indian lacquerwork; Indian and Persian metalwork; Indian, Chinese, and Japanese painting; and Chinese and Japanese pottery. The Gallery continued its program of illustrated lectures by distinguished scholars in the auditorium, the 1958-59 season numbering six.

National Air Museum.—Site for the new building for the National Air Museum was approved during the year, and preliminary studies

and estimates of planning costs are in progress. During the year 341 specimens in 56 separate accessions were added to the aeronautical collections, including an early example of a German one-man helicopter, a DM-1 delta-winged glider of World War II, the Jupiter "C" missile and the recovered nose cone of the Jupiter "C," the "Data-Sphere" (a recovered instrumented capsule from a long-range ballistic missile), and a large quantity of documents and memorabilia pertaining to the pioneer rocketry research by Dr. Robert H. Goddard.

National Zoological Park.—The Zoo accessioned 1,286 animals during the year. The net count at the close of the year was 2,384. Noteworthy among the additions were a herd of 14 reindeer from Kotzebue, a trio of Rocky Mountain goats and 5 pronghorns, 6 albatrosses, the first Dall sheep ever to be exhibited in an American zoo, and a pair of Pallas's cats. A female wisent was born in captivity.

Canal Zone Biological Area.—About 400 persons visited the island during the year, including 54 scientists, students, and observers using the station's facilities for special researches, particularly in plant and insect studies, wildlife observation, nature writing, and photography.

International Exchange Service.—As the official U.S. agency for the exchange of governmental, scientific, and literary publications between this country and other nations, the International Exchange Service handled during the year 1,129,476 packages of such publications, weighing 767,389 pounds.

National Gallery of Art.—The Gallery received 370 accessions during the year, by gift, loan, or deposit. Eight special exhibits were held, and 27 traveling exhibitions of prints from the Rosenwald Collection were circulated elsewhere. Exhibitions from the "Index of American Design" were given 43 bookings in 17 States and the District of Columbia, and 1 in Germany. More than 40,500 persons attended the general tours conducted by Gallery personnel, and more than 11,500 attended tours, lectures, and conferences by special appointment. The Sunday afternoon auditorium lectures drew 14,500 persons. The Sunday evening concerts in the east garden court were continued.

Library.—The library received a total of 52,669 publications during the year, and 159 new exchanges were arranged. At the close of the year the holdings of the library and its branches aggregated 982,596 volumes, including 586,722 in the Smithsonian Deposit at the Library of Congress but excluding unbound periodicals and reprints and separates of serial publications.

Publications.—Eighty-one publications appeared under Smithsonian imprint during the year. (See Report of Publications, p. 224, for full list.) Outstanding among these were: "Studies in Inverte-

brate Morphology," papers by 18 contributors published in honor of Dr. Robert Evans Snodgrass; "Pueblo del Arroyo, Chaco Canyon, New Mexico," by Neil M. Judd; "The Journals of Daniel Noble Johnson (1822-1863), United States Navy," edited by Mendel L. Peterson; "First Book of Grasses," third edition, by Agnes Chase; "Checklist of the Millipeds of North America," by Ralph V. Chamberlin and Richard L. Hoffman; "Ichneumon-flies of America North of Mexico," by Henry and Marjorie Townes; "The Native Brotherhoods: Modern Intertribal Organizations on the Northwest Coast," by Philip Drucker; "The North Alaska Eskimo: A Study in Ecology and Society," by Robert F. Spencer.

Personnel.—Lawrence L. Oliver, buildings manager, retired on May 31, 1959, after 38 years of service with the Institution. Charles C. Sinclair, assistant buildings manager, retired on February 24, 1959; he had been with the Smithsonian since 1935.

Other changes in staff made during the year are noted as appropriate in the reports of the various branches of the Institution that follow.

Report on the United States National Museum

SIR: I have the honor to submit the following report on the condition and operations of the U.S. National Museum for the fiscal year ended June 30, 1959:

COLLECTIONS

Specimens incorporated into the national collections totaled 1,144,445, distributed among the eight departments as follows: Anthropology, 14,497; zoology, 452,163; botany, 50,641; geology, 139,070; Armed Forces history, 934; arts and manufactures, 12,699; civil history, 469,612; science and technology, 4,829. This increase is smaller than last year, when an unusual accretion resulted from the accession of a large number of stamps. This year's total is a more normal figure. Most of the accessions were acquired as gifts from individuals or as transfers from Government departments and agencies. The Annual Report of the Museum, published as a separate document, contains a detailed list of the year's acquisitions, of which the more important are summarized below. Catalog entries in all departments now total 52,022,520.

Anthropology.—Prince Norodom Sihanouk, formerly King of Cambodia and now Prime Minister of that country, presented to the people of the United States through President Dwight D. Eisenhower a fine example of a stone Buddha, seated on a coiled serpent (the King Muchilinda) and protected by a crown of seven heads of the serpent. The Buddha was made in the Cambodian city of Angkor Thom during the reign of King Jayavarmon VII, A.D. 1181–1215.

Four collections, totaling 249 specimens, were received by transfer from the Department of the Interior, through Delmas H. Nucker, High Commissioner, Trust Territory of the Pacific Islands, from the districts of Yap, Truk, Ponape, and the Marshall Islands. These specimens, obtained especially for the division of ethnology, considerably enrich the material from Micronesia, an area until now not well represented in the national collections. Among them are two fishing kites from Ifalik, which are flown from canoes and from which dangle a ball of cobwebs for catching garfish. After a fish strikes the sticky substance it cannot open its mouth. There is a war club from Satawan, some excellent knuckle dusters and weather charm

idols, belt looms with ring-woven fabrics, and a good stick chart used as a native navigational device by the Marshall Islanders.

Several archeological accessions are of especial interest. One is a plaster cast of a colossal stone head of the Olmec culture (ca. 500 B.C.), the original of which was found near San Lorenzo in southern Veracruz, Mexico. The cast was received in 31 pieces, which were assembled, painted, and placed on exhibit in the Highlights of Latin American Archeology Hall. A collection of primitive stone implements from northern Australia, collected by F. D. McCarthy, of the Australian Museum, and Frank M. Setzler during the Smithsonian-National Geographic Society Arnhem Land Expedition in 1948, constitutes an unusual accession. Type samples and all unique specimens collected in British Guiana in 1952-53 by the Smithsonian Institution-Fulbright Research Fellowship Expedition have added much to the Museum's collections from South America.

New accessions in the division of physical anthropology include a plaster cast of the Gánovce Neanderthal skull found in 1926 in a travertine quarry in northern Slovakia. The original is a travertine cast of the endocranial cavity with only a little adherent cranial bone still in place. So far as is known, no other copy of this important specimen has reached the United States. A skull (with parts of the skeleton) exhibiting filed teeth was found in January 1954 by Dr. Preston Holder in a burial pit at the great Cahokia Mound site in East St. Louis, Ill. Although the pit contained the skeletal remains of a number of individuals, only the one skeleton has filed teeth, and the fact that it alone was articulated suggests that filed teeth were a sign of distinction. One of the conclusions reached, in a report published in the November 1958 Journal of the Washington Academy of Sciences, is that the custom of tooth filing in the Mississippi Valley probably had its origin in Middle America but became attenuated and modified.

Botany.—Significant gifts to the department of botany were 130 slides of diatoms, presented by Mrs. Eloise Stump, Oak Park, Ill.; 6,133 specimens given by Goucher College, Baltimore, Md., consisting of their entire herbarium, including a large number of cryptogams; 388 plants of Australia from Dr. C. L. Wilson, Hanover, N.H.; and 1,749 mosses contributed by E. C. Leonard from his personal collection.

Among the numerous exchanges were 4,875 specimens of Sumatra and the East Indies from the University of Michigan; 1,152 specimens of Canadian and Arctic plants, received from the Canada Department of Agriculture; 1,403 specimens from Cuba received from the Colegio de la Salle, Havana; 921 specimens, collected in Argentina by T. M. Pedersen, from the Botanical Museum, University of Copenhagen; 1,002 specimens of New Guinea and Australia from the Commonwealth Scientific and Industrial Research Organization, Canberra, Australia;

352 plants, collected by Dr. Bassett Maguire in the "Lost World" region of Venezuela, from the New York Botanical Garden; and 282 plants from the V. L. Komarov Botanical Institute, Academy of Sciences of the USSR, consisting of issues 81-84 of their "Herbarium of the Flora of the USSR" and "Decas I-V Hepaticae and Musci USSR Exsiccati."

Several large collections were received with identifications requested, including 490 specimens, collected in Colombia by Jean Langenheim, from the University of California; 943 plants of Santa Catarina, Brazil, from the Herbário "Barbosa Rodrigues," Itajaí, Santa Catarina, Brazil; and 268 miscellaneous South American specimens from the Muséum National d'Histoire Naturelle, Paris.

Dr. Mason E. Hale and Robert R. Ireland collected 4,295 lichens and 1,491 mosses on field trips in Virginia in connection with their research projects. Transferred from the Department of the Interior were 1,851 plants of Polynesia collected by Dr. F. R. Fosberg. There were purchased from the Archbold Expeditions 1,902 specimens collected by L. J. Brass on the Fifth Archbold Expedition to New Guinea; from Paul Aellen, Basel, Switzerland, 1,140 specimens collected by Dr. K. Rechinger in Iran and Greece; and from Winifred M. A. Brooke, Liss, England, 830 plants she collected in Sarawak.

Geology.—The legendary Hope diamond, the largest and most notable of all blue diamonds, was presented on November 10, 1958, by Harry Winston, New York gem merchant and connoisseur. The Hope diamond ranks in importance with other famous gems, such as the Kohinoor, Cullinan, and Regent, found only in the Crown Jewels of Europe. Because of its long and dramatic history, the legends built around it, and its rare, deep-blue color, the Hope diamond is probably the best known diamond in the world. Mr. Winston acquired it in 1949 from the estate of the late Mrs. Evalyn Walsh McLean, of Washington, who received it from her husband, Edward B. McLean, in 1911. Its known history prior to the McLean purchase dates from 1830, when David Eliason, a noted gem dealer, sold the stone to Henry Thomas Hope, an Irish squire and banker. The stone was shown at the London Exposition in 1851. In 1867 it was sold at Christie's in London. It was acquired in 1908 by the Sultan Habib Bey, but after the Young Turks Revolt the gem was again placed on the market and purchased by Mr. McLean in 1911.

One of the world's finest collections of Chinese jade carvings was presented by the estate of Mrs. Maude Monell Vetlesen through her son, Edmund C. Monell. The collection comprises 130 pieces, carved in one or the other of the two jade minerals, nephrite or jadeite. Some of the specimens date from the Ming Dynasty (1368-1644), but most are from the Ching Dynasty (1644-1912). Noteworthy gifts in min-

erals received from individuals are: genthelvite, Colorado, from Glenn R. Scott; opal, Nevada, from Mark C. Bandy; jade, Burma, from Martin L. Ehrmann; milky quartz crystals, Colorado, from E. M. Gunnell; gorceixite, French Equatorial Africa, from Mahlon Miller; spangolite, Arizona, from Arch Oboler; and clinchedrite and roeblingite, New Jersey, from John S. Albanese.

Important additions to the Roebling collection by purchase and exchange include a collection of 249 specimens of exceptional rarity and quality; a fine large crystal of phosphophyllite from Bolivia; a crystal of beryl, variety aquamarine, from Brazil; bikitaite from Southern Rhodesia; an unusually large mass of thorite from Colorado; danburite from Mexico; and four tourmaline crystals from Mozambique.

Several items of outstanding exhibition quality were added to the Canfield collection by purchase. Among these are proustite from Chile; spodumene from Brazil; pyrite from Colorado; euclase from Brazil; smoky quartz from Switzerland; and cyrtolite from Colorado.

Gems and jewels acquired for the Isaac Lea collection by purchase from the Chamberlain fund include a 10.8-carat kornerupine from Madagascar; an 18.5-carat golden sphalerite from Utah; a colorless zircon from Ceylon, weighing 48.2 carats; a star garnet sphere weighing 67.3 carats, from Idaho; and a 43.4-carat sinhalite from Ceylon.

Important additions to the meteorite collection include the following: Ladder Creek, Kans., from the Argonne National Laboratory; Vera, Santa Fé, Argentina, from Lorenzo Orestes Giacomelli; Belle Plaine, Kans., from Prof. Walter Scott Huston; Idutwa, Cape Province, South Africa, from Dr. Edgar D. Mountain; Nuevo Laredo, Mexico, from C. C. Patterson; and Sikhote-Alin, Union of Soviet Socialist Republics, from the USSR Academy of Sciences.

In the division of vertebrate paleontology the outstanding accession of the year resulted from fieldwork by Peter P. Vaughn, who obtained excellent materials representing a number of genera of fishes, amphibians, and reptiles from the Clyde and Arroyo formations of Baylor County, Tex. A dinosaur bone, the largest known from this country, 6 feet 10 inches long, a humerus of the Jurassic genus *Brachiosaurus*, was donated by D. E. Jones. Two accessions of fossil fishes received in exchanges furnished exhibition material: one, a specimen of the Triassic coelacanth *Diplurus newarki*, together with its life restoration to scale, was received from Princeton University; the other includes 81 specimens of fossil sharks and ray-finned fishes from two marine Upper Cretaceous formations in Lebanon from the School of Engineering, American University of Beirut, through Dr. Harry M. Smith. Of mammalian materials acquired, the skull of the Miocene whale *Cetotherium megalophysum* is outstanding. It was

collected by Capts. Daniel and Edward Harrison of Ewell, Md., and was presented by the Ewell Junior High School.

Among the important gifts received in the division of invertebrate paleontology and paleobotany are 7,345 specimens of Carboniferous plants collected by Dr. Harvey Bassler, received from the Maryland Department of Geology, Mines, and Water Resources, Johns Hopkins University; 23 type specimens of Miocene mollusks from the Chesapeake Bay area from Dr. John Oleksyshyn, Boston University; 144 slides of Recent Foraminifera and Ostracoda from the Antarctic from Rear Adm. Charles W. Thomas; 63 specimens of Oligomiocene ostracods from the Brasso formation of Trinidad from Dr. W. A. van den Bold; 200 Mesozoic invertebrate fossils from Israel from Dr. J. Wahrman; and 263 foraminiferal concentrates and well cuttings from Italian Somalia from the Sinclair Oil and Gas Co.

Through funds provided by the Walcott bequest 438 invertebrate fossils, including over 400 goniatites from Oklahoma, were acquired by the Museum. A grant from the National Science Foundation permitted Associate Curator Porter M. Kier to collect 1,490 echinoids and other invertebrate fossils in Belgium, France, Holland, and Switzerland.

Among the important exchanges received are 750 specimens of assorted invertebrate fossils from the Mesozoic and Tertiary of Great Britain from Sgt. Philip Cambridge; 61 blocks of Permian limestone from West Texas from Harvard University through Dr. H. B. Whittington; and one specimen of the very rare brachiopod *Enantiosphen* from the Devonian of Germany donated by Dr. Wolfgang Struve, Senckenberg Museum, Frankfurt, Germany.

Zoology.—The largest accession and the largest single collection to be received in the division of mammals in several years includes more than 1,600 specimens from Panama collected by C. O. Handley, Jr., and Bernard Feinstein in cooperation with the Gorgas Memorial Laboratory. More than a hundred mammals, including a specimen of the rare suni antelope, were collected in East Africa and presented by Judge Russell E. Train. Antarctic explorations connected with the International Geophysical Year, under the auspices of the National Academy of Sciences, brought a specimen of the rare Ross seal. Individual specimens of unusual interest are the skin of a snow leopard collected in the Himalayas by Maj. Gen. M. Hayaud Din and presented by the Embassy of Pakistan, and the unique type specimens of a new race of the large spiny rat *Haplomys gymnurus* collected by Dr. A. Wetmore on the tiny island of Escudo de Veraguas, Panama.

An important accession to the bird collection consisted of 572 birdskins amassed in Panama by Dr. A. Wetmore. Another large acces-

sion of 591 skins of birds and other ornithological material from North America was transferred from the Fish and Wildlife Service, Department of the Interior. The Public Health Service, Department of Health, Education, and Welfare, also transferred 75 birdskins from Arctic America. The rarest single specimen received was a lyre-tailed honeyguide, *Malichneutes robustus*, from Camerouns, a gift from the Zoological Society of London. This is the second known example of this bird to come to an American museum.

In reptilian and amphibian material a number of accessions of types and paratypes of recently described species was received, the most notable single lot being a gift of 172 specimens from Haiti, Cuba, and Trinidad, received from Dr. W. G. Lynn.

The division of fishes received two large collections of fresh-water fishes from the eastern United States. One of these, comprising 25,057 specimens, is an exchange from the University of South Carolina through Dr. Harry Freeman; the other, consisting of 25,000 fishes, was donated by the University of Maryland through Dr. G. W. Wharton. The Woods Hole Oceanographic Institution gave 852 fishes from Labrador through Dr. Richard H. Backus. A very fine collection totaling 2,449 fishes from the eastern Pacific was presented by the University of California through Wayne J. Baldwin. This group includes numerous species not otherwise represented in the national collections.

Several outstanding collections were acquired by the division of insects: the Monrós collection of 54,245 chrysomelid beetles transferred by the U.S. Department of Agriculture; 30,507 insects collected in El Salvador by O. L. Cartwright; 26,385 specimens of beetles from Europe, Asia, and the Americas, collected and donated by Paul J. Spangler; the Fish and Wildlife Service transferred 33,063 miscellaneous New World insects through Dr. Daniel L. Leedy; N. L. H. Kraus presented 6,924 insects from Asia, from many localities not previously represented in the national collections. Other important accessions are as follows: From Dr. W. B. Muchmore some 800 New York State centipedes, providing valuable records being incorporated into a statewide survey that is currently in preparation; from Dr. Thomas C. Barr, Jr., a number of cave collections of centipedes, giving information about unexplored fauna; and from Dr. George E. Ball, some 1,000 centipedes, comprising the largest chilopod collection known to date from Alaska and adjacent islands.

The outstanding accession of mollusks was a gift from Dr. R. L. Alsaker of some 280 specimens of marine species of the family Volutidae, including many rare and beautiful forms. Other notable accessions include 900 lots, 3,100 specimens, of mollusks from the British Virgin Islands and the Leeward Islands, collected by the Bredin-

Smithsonian Caribbean Expedition; 178 lots, 1,225 specimens, of marine, fresh-water, and land mollusks from Chile, a gift of Dr. Walter Riese; and 279 lots, 521 specimens, of marine mollusks from Mozambique, purchased through the Frances Lea Chamberlain fund.

The division of marine invertebrates received 7,685 specimens collected by the Bredin-Smithsonian Caribbean Expedition. Dr. R. E. Coker donated over 3,400 crustaceans, largely copepods, and Dr. T. E. Bowman presented his collection of 7,154 miscellaneous invertebrates. Type material was included in the following gifts: 397 copepod crustaceans from Dr. Arthur G. Humes; 8 hermit crabs, including 3 paratypes of three species from Anthony J. Provenzano; and 3 paratypes of a species of an ostracod crustacean from Dr. Eugene W. Kozloff. One small accession, a gift from R. P. Higgins, of the holotype and two paratypes of a species of *Echinodera* added the first representatives of this little-known phylum of the Animal Kingdom to the national collections.

Civil history.—Several gifts enhanced the furniture collection in the division of cultural history. A Louis XV commode with marble top, labeled with the maker's name, "M. Cresson," was given by Mr. and Mrs. William W. Wickes, and a painted Tyrolean wardrobe on frame was presented by the estate of Dr. Elisabeth Lotte Franzos. Mrs. H. B. Blackmar gave a Connecticut cherry "highboy," an Empire sofa, and several chairs; Mr. and Mrs. Louis Rothschild donated an American secretary-bookcase, a chest of drawers, and a card table, all late 18th century; and Mr. and Mrs. Edmund C. Monell presented several examples of Chinese lacquered furniture.

Three outstanding acquisitions of architectural importance were made this year. An entire room and numerous fragments were obtained from the Gothic Revival-style Harral-Wheeler house in Bridgeport, Conn., designed by Andrew Jackson Davis about 1848. The material was given by the city of Bridgeport upon dismantling. A wide variety of cast-iron architectural fragments from office buildings and store fronts of the now-demolished old mercantile section of St. Louis was transferred by the Jefferson National Expansion Memorial of the National Park Service. An entire loghouse, built in Wilmington, Del., in the German tradition in the late 18th century, was given by the Board of Trustees and Building Commission of the Henry C. Conrad School Department of Wilmington. Other gifts include a pair of 18th-century wine coolers used in the Winter Palace of St. Petersburg and a silver tea and coffee service originally owned by Czar Alexander I from Col. William E. Shipp, an American Empire-style silver tea and coffee service from Mrs. Mary A. Swanton, and a Pennsylvanian stove plate, dated 1784, from the Union Fork & Hoe Co.

The division of political history received important new additions to the White House china collection. Henry Francis Du Pont donated a dessert service purchased for the White House during the administration of Monroe. The china has an amaranthine border with vignettes representing military might, agriculture, commerce, art, and science, and was made in France by Dagoty. Outstanding accessions to the collection of American period costume were an early dress of homespun cotton, given by Mrs. Charles D. Collins; a dress and wedding petticoats of the early 19th century, a gift of the Misses Marion and Elinor Abbot; a collection of late 19th- and early 20th-century costumes, presented by Miss Eleanor P. Custis; and a wedding dress and other costumes of the 1890's of historic importance because of their connection with famous South Carolina families, the gift of Mrs. Pinckney Alston Trapier. A flag which had been hung out in mourning at the time of Lincoln's death was donated by John M. Harlan, Associate Justice of the Supreme Court.

The donation of Mrs. Catherine E. Bullowa, consisting of 21,531 coins, medals, and paper currencies, is an important addition to the numismatic collection. Of special interest in this series is a group of 504 early German and Italian silver and copper coins, dating from the 11th through the 16th centuries, and a collection of 62 German patterns engraved by C. Goetz at the Munich Mint after World War I. Another noteworthy accession is the President Dwight D. Eisenhower collection of coins, medals, and memorabilia, including a group of 149 gold, silver, and copper mintings covering all periods of history from Ancient Greece to modern times. Especially remarkable are the silver shekel from Judea struck during the first revolt against the Romans in A.D. 66-70 and a silver shekel from Tyre, Phoenicia, considered similar to the "thirty pieces of silver" of the Bible. A set of 14 gold medals issued by the Italo-Venezuelan Bank portraying World War II leaders and a 20-dollar gold piece engraved on the reverse "Reims, May 7, 1945, 0240" are part of a group of coins bearing special dedications to President Eisenhower.

A collection of nine medals and plaques engraved by the American medalist Victor D. Brenner was received from the Eric P. Newman Numismatic Education Society of St. Louis. An important collection of 307 proclamation pieces, struck by different Mexican cities and organizations in the late 18th and early 19th centuries in commemoration of the late Spanish kings, was presented by Joseph B. Stack.

Former Postmaster General James A. Farley converted two additional units from loan to gift in the division of philately and postal history, thus concluding the transaction begun in 1956. Two collections of inestimable reference value were transferred from the Library of Congress—the Ackerman collection of U.S. die and plate proofs in

three volumes features postage, and the Clarence H. Eagle collection of U.S. revenue proofs and essays includes a comprehensive showing of match and medicine varieties. John P. V. Heinmuller donated his prize-winning collection of Zeppelin covers. Housed in 21 volumes, the collection portrays the early experimental flights of the 1908-10 period, World War I, and all flights of the Graf Zeppelin. One interesting specimen is a scorched cover carried on the ill-fated flight of the Zeppelin *Hindenberg*, which burned at Lakehurst, N.J., May 6, 1937. Comdr. W. R. Anderson, Commanding Officer, U.S. Navy submarine *Nautilus*, presented in the name of the Navy and his crew the rubber canceling devices made by the crew members and used to cachet envelopes in commemoration of the first navigation by submarine beneath the polar icecap.

Armed Forces history.—Among the outstanding material received in Armed Forces history were early U.S. military and naval insignia from the unique W. Stokes Kirk collection, a very rare pair of epaulets owned by Gen. George Washington acquired from Mrs. Janet Randolph Ball Haden, and an early 19th-century broadax from the Fort Ticonderoga Museum. Transferred from the U.S. Naval Academy were 17 builders' half models of early naval vessels, and examples of diving gear were received from the Experimental Diving Unit, Department of the Navy.

Original drawings numbering 177 of plans for U.S. sailing ships were presented by Howard I. Chapelle, author of the important work "The History of the American Sailing Navy." Frank Mather Archer presented an excellent example of the type of uniform coat worn by a lieutenant of the U.S. Infantry during the period of 1828-36. An outstanding collection of prints and books illustrating European uniforms and equipment was presented by Col. William E. Shipp. Edward B. Tucker of Somerset, Bermuda, donated objects recovered from 16th- and 19th-century shipwrecks. Collections of objects recovered from 18th-century shipwreck sites in Florida were received through the courtesy of Edwin A. Link, Arthur McKee, and Dr. and Mrs. George Crile, Jr. An iron shot from the site of the 16th-century fortress of San Lorenzo was given by Karl P. Curtis of Panama.

Arts and manufactures—An outstanding addition to the division of ceramics and glass is a collection of 600 pieces of Dutch and German pottery and stoneware, the gift of the Honorable Wiley T. Buchanan, Jr., Chief of Protocol, and Mrs. Buchanan. The collection is especially rich in Medieval Dutch household wares and Rhenish stoneware types, many of which are exhibited nowhere else in the United States. A noteworthy slip-decorated Rhenish jar from Pingsdorf, Germany, dated 12th or 13th century, is representative of the beginnings of the very important German stoneware industry. A ewer from Rheren

dated 1585, in almost perfect condition, is exceptional in that most wares of this type lack the spout or handle or both. The collection of 170 glass items donated by Mrs. Clara W. Berwick includes a rare group comprising early American glass pieces of Stiegel and Amelung type, as well as later wares from the famous Sandwich factory in Massachusetts. Mrs. Mary Roebling gave three sculptured birds and the figures of horses by Edward Marshall Boehm. Mrs. George Hewitt Myers presented 48 pieces of Castleford porcelain made in England between 1790 and 1820. Among these rare items are teapots and pitchers decorated with an American eagle after the design of contemporary coins.

The division of graphic arts acquired an important group of fine prints. The selection of these examples by outstanding printmakers from the year 1500 to the present day made it possible to fill a number of significant gaps in the collection. The prints include an engraving by the Italian Renaissance master Marcantonio Raimondi, "St. Cecilia"; two prints by important French artists of the turn of the 20th century—a lithograph by Edouard Manet, "La Barricade," and a color lithograph by Edouard Vuillard, "Les Deux Belles Soeurs"; and an exceptionally fine impression of an etching by Rembrandt van Rijn, "Landscape with a Flock of Sheep." A 50-line halftone screen was presented by Max Levy & Co., Philadelphia, through Howard S. Levy; R. R. Donnelley & Sons Co., Chicago, through Walter L. Howe, gave a panel describing the rotogravure process; and the firm of Edgerton, Germeshausen & Grier, Inc., Boston, donated the first battery-operated portable electronic flash unit, invented by Dr. Harold E. Edgerton.

The division of textiles received from Arthur E. Wullschleger an 18th-century French hand-and-foot treadle loom to which a Jacquard head had been added in the 19th century. Mr. Wullschleger obtained the loom in Lyons, France, and it was renovated at Wedgewood Mills, Jewett City, Conn. An excellent model of the 1787 patent of Cartwright's power loom, an invention unrepresented in the national collection, was made by Robert Klinger of the exhibits staff. A fine collection of 46 18th- and 19th-century printed cottons was given by Mrs. Kenneth Franzheim. Beautiful examples of contemporary hand- and power-woven fabrics were presented by the Irish Linen Guild, Potomac Craftsmen, Designer-Weavers, the American Cotton Manufacturers Institute, the Corduroy Council, the International Silk Association, and the Man-Made Fibers Association.

The division of industrial cooperation received the original equipment used in 1956-57 to carry out the experiments suggested by Nobel prize winners Dr. T. D. Lee of Columbia University and Dr. C. N. Yang of the Institute for Advanced Studies to demonstrate that in

the decay of an elementary particle into another particle parity is not conserved. Examples of early seismometers used in exploration for oil were presented by the Continental Oil Co.

Science and technology.—The most noteworthy accession acquired in the division of agriculture and wood products comprised 111 authentic wood samples of Santa Catarina, Brazil, collected and donated by Dr. Lyman B. Smith. A portable farm steam engine made in 1877 by Frick & Co. was donated by this firm.

Among the pieces of major importance added to the division of electricity are the following: A group of pieces constructed by Thomas Davenport, a Vermont blacksmith who obtained the first patent on an electric motor, given by Frank Chandler; and from the General Electric Research Laboratory, replicas of Dr. Irving Langmuir's vacuum distillation pump and of his apparatus for measuring surface tension which was basic to the work for which he received the Nobel prize. Mrs. Edith Earle donated two examples of the telephone that her father, James H. Earle, made in the winter of 1876-77 at Brown University under the direction of a group of professors there. The acoustical design of the group at Brown was incorporated in the design of the Bell telephone.

The following significant objects were acquired in the division of mechanical and civil engineering: The personal watch of Edward Howard, considered the parent of all American factory-made watches, from the Massachusetts Charitable Mechanic Association; a rare and fine wagon-spring clock given by Mrs. Francis Boutelle Allen; and three noteworthy precision clocks presented by the Georgetown University Observatory through Father F. J. Heyden. A valuable and attractive collection of early handmade locks, bolts, and decorative hardware, with pieces dating from the 16th century, was presented by the Yale & Towne Manufacturing Co. Two important early machine tools were received—an 1851 Robbins and Lawrence chain-feed lathe given by Curtis Woodruff, and a Jones & Lamson turret lathe of about 1880 donated by George F. Kiley. A Porter-Allen steam engine, prototype of the compact high-speed steam engine which dominated the medium-size engine field for many years, was presented by the Philadelphia Electric Co.

The most significant acquisition in the division of medical sciences is a collection of dental instruments, furniture, and equipment relating to the history of dentistry, totaling 2,869 specimens, received from the University of Pennsylvania School of Dentistry. This provides an excellent cross section of the equipment used by the dentist from the mid-19th century until the early 20th century, containing rare individual items such as an early ether inhaler and two extraction instruments. An important collection of material relating to the dis-

covery and development of the Salk poliomyelitis vaccine was contributed by the National Foundation for Infantile Paralysis. This collection includes original flasks used by Dr. John F. Enders to grow polio viruses in cultures of human embryonic skin and muscle tissue; a bottle and automatic rocker used at the University of Toronto Connaught Laboratories to grow polio virus in quantity; syringe and residues of the first vaccines given by Dr. Jonas E. Salk; and the original draft of the report by Dr. Thomas Francis, Jr., evaluating the 1954 field trials of poliomyelitis vaccine.

The division of physical sciences continued its efforts to acquire early scientific apparatus used in colleges. The majority of the apparatus collected this year is chemical, and the most noteworthy accession is a group of instruments used by Ira Remsen at Johns Hopkins University. Other outstanding items obtained are the first equatorial telescope (1876) of the Warner & Swasey Co., the gift of that firm, and the first helium liquefier built in the United States in 1931 donated by the National Bureau of Standards.

Specimens of major importance acquired in the division of transportation are a model representing the sister ships *Independence* and *Constitution*, modern American liners, received from American Export Lines, and the models of the Hudson River steamer *Francis Skiddy* from F. Van Loon Ryder and the Narragansett Bay steamer *Mount Hope* from Mary T. Campbell. Other outstanding accessions include an oil-tank wagon from the Esso Standard Oil Co., a private coach, presented by Mrs. Richard Saltonstall through the interest of Senator Leverett Saltonstall, and a Conestoga wagon from Howard C. Frey. The private coach, a most significant addition, was built in 1851 by the famous carriage maker Thomas Goddard of Boston.

EXPLORATION AND FIELDWORK

The department of anthropology has underway an extensive program to revitalize the famous paintings of Indians by George Catlin. F. M. Setzler, head curator, went to Boston between May 26 and 28, 1959, to investigate the progress of the renovations, which are being carried out under the guidance of Henri Courtais. Cleaning the painted surfaces involves a variety of methods and chemical solutions, depending on the condition of the painting and the canvas. A large percentage of the original Catlin paintings had been relined with a canvas about 75 years ago, when someone repainted the backgrounds of most of the paintings involved. This repainting was done on top of dirt, smoke, and water blemishes. The overpaint requires additional time and effort to remove before Mr. Courtais and his assistants can clean the original painted surface. After this overpaint is removed, the excellence of the painting can be truly appreciated and

furthermore the garments, feathers, and Indian and European ornaments as depicted by Catlin can be readily identified. Mr. Courtais is continuing his work, and it is hoped that the entire program will be completed within the next 2 or 3 years.

Between January 18 and 20, 1959, Dr. Waldo R. Wedel, curator of archeology, visited the Metropolitan Museum of Art in New York City to examine duplicate Egyptian antiquities with a view to obtaining objects suitable to our exhibits program. With the aid of Mrs. Virginia M. Pollak, Dr. Wedel selected 33 items for purchase. These include several reliefs, two baskets, a bedstead and stool, a wooden hawk case with hawk mummy, and a bronze hawk and small bronze mummy case. Practically all these will be suitable for exhibit and will provide displays that do not now exist in our Egyptian collections. Early in May, following the annual meetings of the Society for American Archeology in Salt Lake City, Utah, Dr. Wedel devoted several days to examination of the collections of the University of Utah Museum, with particular reference to materials that are related to Western Plains cultures. He also visited Ogden, Utah, where he examined an unusual collection, including many stone bowls and manos and a considerable variety of projectile points and stone ornaments. The material acquired will be useful for exhibit and study purposes.

Between July 7 and September 20, 1958, Dr. Clifford Evans, associate curator of archeology, and Dr. Betty J. Meggers, honorary research associate, visited Panama, Costa Rica, and Ecuador. They spent 4 days in Panama City examining collections in the Museo Nacional and discussing problems of museum modernization with the director. They also discussed in detail the possibilities of collaborative research, using the services of H. Morgan Smith, involving archeological sites now being discovered or destroyed by road or building construction. Subsequently Mr. Smith was appointed a collaborator of the Smithsonian Institution.

Between July 19 and July 28, Drs. Evans and Meggers participated in the 33d International Congress of Americanists at San José, Costa Rica. This very successful meeting was attended by a large representation of scientists from Latin America, North America, and Europe. The Smithsonian Institution representatives participated in several important symposia dealing with the problem of the Formative Period in Mesoamerica and South America, in addition to delivering a scientific paper on the preliminary results of their archeological investigations in the headwaters of the Orinoco. At this meeting, Middle American and South American specialists decided that a coordinated program of research toward a solution of a specific problem will produce better results than individual research projects. A

committee was appointed to organize research centering on the importance of Mesoamerican and northern South American connections from the Formative Period up to Spanish Contact, and Dr. Evans accepted the secretaryship of this committee.

Proceeding to Guayaquil, Ecuador, on July 28, Drs. Evans and Meggers continued their archeological research in cooperation with Emilio Estrada, Director of the Museo Arqueológico "Victor Emilio Estrada." This research was principally directed toward filling in certain gaps in the sequences that have been worked out in the past 5 years by Estrada, Evans, and Meggers for the south coast. It is felt that progress toward the solution of this problem is now being made. On their return trip Drs. Evans and Meggers stopped briefly in New Orleans and visited specialists at Tulane University. In March 1959, Dr. Evans examined collections at the Heye Foundation in New York City to study important material referring to coastal Ecuador; many photographs were taken which will serve as a basis for future study.

Dr. Ralph S. Solecki, associate curator of archeology, visited University Park and Philadelphia, Pa., between September 15 and 19, 1958. At Pennsylvania State University he consulted with staff members about fieldwork in the Near East and viewed the ceramic collections made by Dr. Dupree and Dr. Matson of the State University staff, in connection with the material recovered by the Smithsonian Institution Shanidar project. At the University Museum at Philadelphia, Dr. Solecki conferred with staff members concerning fieldwork in Iran and Iraq. A general survey of the Old World archeological collections was made in order to ascertain what materials are lacking in the Smithsonian collections.

During the period March 15 to April 8, 1959, Dr. Solecki was detailed to participate in a UNESCO meeting in Paris, called to discuss measures to minimize the unfavorable effects of large-scale engineering works upon items of cultural interest as well as upon the ecological conditions of the regions affected. Dr. Solecki conferred with the Secretariat of UNESCO and the Bureau of the International Committee on Monuments on matters of procedure regarding the problem. He prepared a summary statement of the problems involved and suggested solutions, and subsequently participated in a regular meeting of the Bureau of the International Committee on Monuments on April 2. In Paris, and also in London, Dr. Solecki visited several museums and scientific institutions to arrange possible archeological exchanges between these institutions and the Smithsonian Institution.

From December 1 to 14, 1958, Dr. S. H. Riesenbergh, curator of ethnology, visited the Peabody Museum, Salem, Mass., and Harvard University. He continued his study of Micronesian ethnographical collections at the Peabody Museum and also examined and abstracted

pertinent Caroline Islands materials from important collections of early American ships' logs, journals, and manuscripts of early voyages contained in the archives of that museum and the Essex Institute. Parallel studies were made in the Harvard Peabody Museum and in the Houghton Library of Harvard University, where many pertinent ethnohistorical manuscript records of the American Board of Commissioners for Foreign Missions are housed. Such museum and library studies are aiding Dr. Riesenbergh in his projected analysis of Micronesian material culture, which is an attempt to place Micronesia in its proper ethnological position with respect to Pacific island cultural development and history. A trip for the same purposes was made by Dr. Riesenbergh to the Chicago Natural History Museum between March 9 and 13, 1959. At this important museum he examined and studied the collections of important ethnographical materials from the Caroline and Marshall Islands.

In continuation of his African studies, Dr. Gordon D. Gibson, associate curator of ethnology, spent the week of May 18 to 23, 1959, examining ethnological materials from Angola in the collections of the Chicago Natural History Museum and in conferring with staff members with respect to the identification of African specimens in our collections, certain problems of museum display, the possibility of exchanging specimens, and problems connected with his research. The Chicago Natural History Museum has probably the largest collection of Angolan ethnological materials in the United States, and therefore the opportunity to study these materials at firsthand was a significant aid to the progress of Dr. Gibson's research on the ethnology of the southwestern Bantu.

In the latter part of July and early in August 1958 Dr. T. Dale Stewart, curator of physical anthropology, visited several countries in Central America. Together with Dr. Evans and Dr. Meggers, he visited the National Museum in Panama, where, as indicated above, the Smithsonian Institution party was very well received. They made a brief trip to the San Blas Islands on the Atlantic side of the Isthmus, in order to see firsthand the San Blas or Cuna Indians living thereon. These Indians have kept themselves pureblooded and therefore offer opportunities for research. Dr. Stewart also attended the 33d International Congress of Americanists in San José, Costa Rica. Like Drs. Evans and Meggers, he was asked to act as chairman at one of the sessions, and in addition he read an invited paper. It is felt that the Smithsonian Institution staff has been and still is at work in a critical area for the solution of problems referring to prehistoric cultures of Central America and the coast of Ecuador.

Following the congress, Dr. and Mrs. Stewart went north to Guatemala, where they were joined by about 20 anthropologists. On

August 1, as guests of the Guatemalan Government, they were flown into Tikal, a great Mayan ruin being excavated and restored by the University of Pennsylvania. The travelers also made a quick trip to Lake Atitlán and to Chichicastenango. Because of his work on the living Indians in this area in 1947 and 1949, Dr. Stewart was interested to observe the rate of acculturation here. As far as he could judge, there was very little change since his last visit. In Mexico City Dr. and Mrs. Stewart called at the National Museum and subsequently examined some promising fossil sites in the Valley of Mexico, where a new excavation is being made and a human skull was found at the Pleistocene level. During the visit to Mexico City Dr. Stewart obtained considerable information that will be of use to him in working for the Handbook of Latin American Studies and the projected Handbook of Middle American Indians.

Between March 25 and April 13, 1959, Dr. Stewart was detailed to travel to Czechoslovakia to act as the official U.S. representative at ceremonies honoring the 90th birthday of the late Dr. Aleš Hrdlička, who for so long was curator of physical anthropology at the Smithsonian Institution. At formal ceremonies in Prague, Dr. Stewart had the opportunity to stress the fact of Hrdlička's American citizenship. In his address to the delegates he was able to point out that only in America could Hrdlička have achieved his fame as an anthropologist. Later the celebration moved to Humpolec, Hrdlička's birthplace, 80 or 90 miles from Prague. Here Dr. Stewart and other delegates were taken through the local high school, which has been renamed for Hrdlička. They also visited the site of his home, saw the street named for him, and visited various local institutions. At a celebration Dr. Stewart again had an opportunity to say something about Dr. Hrdlička's life in America and the opportunity for scientific research in this country. On March 31 he participated in scientific meetings at the Institute of Anthropology at Charles University in Prague, on this occasion giving the delegates a report of his study of the Shanidar skeleton. This visit to Prague gave Dr. Stewart an opportunity to meet several of his colleagues whom he has previously known by correspondence. On his return trip Dr. Stewart made a brief stop in Zurich to visit the Anthropological Institute. In London he visited the British Museum to examine the Mount Carmel Neanderthal remains, this visit providing him with a very profitable 2 days of research.

In March 1959 Dr. Lyman B. Smith, curator of phanerograms, visited Cambridge, Mass., to study Herbarium material and to verify bibliographic references in the Harvard Herbarium in connection with his research on the family Bromeliaceae and the flora of Santa Catarina, Brazil.

Dr. Richard S. Cowan, associate curator of phanerogams, visited the Gray Herbarium of Harvard University and the New York Botanical Garden in November 1958 in connection with his work on the *Index Nomina Genericorum*, the flora of Santa Catarina, and plants of the Guyana Highland. At the second of these institutions he conferred with Drs. Maguire and Wurdack for the purpose of outlining in a general way the structure and content as well as the geographic limits of the proposed Flora of Guyana. Dr. Cowan also represented the department of botany on the 1959 Smithsonian-Bredin Expedition.

In connection with her continuing studies of *Ormosia* and other genera of the family Leguminosae, Dr. Velva E. Rudd, associate curator of phanerogams, visited New York and Philadelphia in November and Chicago in December 1958. At the New York Botanical Garden, the Academy of Natural Sciences of Philadelphia, and the Chicago Natural History Museum she surveyed the available study materials in groups of interest to her, and selected specimens for borrowing.

Between August 20 and 24, 1958, C. V. Morton, curator of ferns, participated in the annual summer foray of the American Fern Society in southern Ohio, after which he attended the meetings of the American Institute of Biological Sciences at Indiana University. In November and December he studied in the herbarium and library of the Harvard University Herbarium in Cambridge in order to check the bibliographical citations for the *Index Nomina Genericorum*. In connection with the same project he also visited the New York Botanical Garden.

In July 1958 Dr. Mason E. Hale, associate curator of cryptogams, spent several days in southwestern Virginia and the adjacent area of Tennessee in company with R. R. Ireland, assistant curator of cryptogams, in pursuance of his fieldwork on Appalachian lichens. This study, undertaken with the aid of a grant from the National Science Foundation, has resulted in the collection of many specimens of lichens in the area. In February 1959 Dr. Hale spent several days in the cryptogamic herbarium of Duke University, examining lichens in the very important Harmand Herbarium with particular reference to the study of the lichen flora of the central Appalachian Mountains. In May he continued his work on the same project by studying in the rich cryptogamic library and herbarium of Harvard University.

Dr. Herbert Friedmann, head curator of the department of zoology, spent the period between July 7 and 26, 1958, in England, principally to attend the 15th International Congress of Zoology in London and a colloquium on zoological nomenclature. The congress, attended by

more than 1,900 zoologists from all over the world, marked the centenary of the first announcement of the theory of evolution by natural selection by Darwin and Wallace. Dr. Friedmann presented a paper on some of his current work on wax digestion in honeyguides and its microbiological implications. In October 1958 Dr. Friedmann represented the Museum of Natural History at a conference bringing together the directors of systematic collections, held at the New York State Museum in Albany.

On January 21, 1959, Dr. Alexander Wetmore, honorary research associate and retired Secretary of the Smithsonian Institution, returned to Panama to continue the survey of the birdlife of the Isthmus. The first few days, at Juan Mina, on the Río Chagres, he devoted to study of limpkins, tropical yellow rails, least bitterns, and other water birds concerning which little information has been available. On February 6 he left Panama City for El Real in eastern Darién, where, through the kind assistance of Frank L. Greene, resident manager of the oil company, Panamanian Delhi Petrolera, Inc., in Panama City, and Heinz Meyer, in charge at El Real, storage for part of the field outfit and other facilities were made available. On February 9 he continued by dugout canoe (piragua) up the Río Tuira and the following day reached the point where the Río Paya, which has its headwaters in Colombia, enters the larger stream. This is a region of high forest with few small, scattered clearings, made by Chocó Indians or an occasional pioneer settler from elsewhere. Tropical-zone forest birds were present in great variety of species, but so widely scattered through the vast forests of huge, tall trees that much search was required to find the more unusual kinds. Many are of South American affinity, as there is only a low divide between the upper Paya drainage and the lower Atrato Basin of northwestern Colombia. The collections and notes obtained here were thus of especial importance.

On March 18 Dr. Wetmore returned to El Real, to continue by dugout the following morning up the Río Chucunaque in company with the engineer, William Sun, to a camp of the oil company above the mouth of the Río Tuquesa. This also is a region of vast primitive forest, with a few Indian families living along the streams. Birds were common, with numbers of unusual kinds not found on the Tuira, so that the work here added much of value, particularly since the region worked between the Tuquesa and Ucургantí Rivers was one that scientifically had been unknown. In addition, there was the advantage of the engineer camp, with its small screened houses, electric light at night, and other facilities. The work closed on April 3 with return to El Real and from there to the Canal Zone on April 6 and to Washington on April 14.

During April and early May 1959, three members of the staff of the Museum of Natural History accompanied the 1959 Smithsonian-Bredin Caribbean Expedition, made possible through the generosity of Mr. and Mrs. J. Bruce Bredin, of Wilmington, Del. This was the fifth of a series of expeditions organized by Mr. Bredin in collaboration with the Smithsonian Institution, and the third in which he has personally taken an active part. As on the previous expeditions, Dr. Waldo L. Schmitt, research associate, was in charge of field operations. The other Smithsonian scientists participating were Dr. Thomas E. Bowman, associate curator of marine invertebrates and specialist on copepods, and Dr. Richard S. Cowan, associate curator of phanerogams. Dr. Cowan left in advance of the other members and spent the period between March 19 and April 2 on the island of Trinidad, where he made headquarters at the Imperial College of Tropical Agriculture, near Port-of-Spain. Excellent facilities provided by this college enabled him to reach several areas in Trinidad from which our department of botany had only limited collections heretofore.

The expeditionary party included, besides Mr. Bredin, John Finlay of Varadero, Cuba, expert malacologist; Dr. Richard F. Darsie, Jr., entomologist of the College of Agriculture of the University of Delaware, especially interested in tropical mosquitoes and their life histories; and William H. Amos, head of the science department of St. Andrews School, Middletown, Del., photographer to the expedition. They departed from Port-of-Spain, Trinidad, on the yacht *Caribee* on April 3 for the island of Tobago. Following several days of intensive work on the famed Bucco Reef off the west side of Tobago, where they obtained valuable invertebrate material, and a visit to the bird-of-paradise sanctuary on Little Tobago, the party made brief stops at Dominica, St. Lucia, Montserrat, Barbuda, and Antigua, where the labors of the expedition were concluded on May 5. Most interesting specimens of reef fishes were obtained off the windward side of Barbuda. On this island a series of caves explored by earlier Smithsonian-Bredin expeditions had yielded several unknown species of crustaceans, of which more extensive material was much desired; supplementary specimens were taken in traps carried along this year for the purpose. Many bats inhabiting a large cave on Antigua were captured primarily for a study that Dr. Darsie wished to make of their ectoparasites. This third trip to the Lesser Antilles sponsored by Mr. and Mrs. Bredin has still further enhanced the collections of the Smithsonian Institution from that important area, in which still further undescribed species of marine life have been discovered.

Dr. Charles O. Handley, Jr., associate curator of mammals, spent December 1 to 12, 1958, visiting the Academy of Natural Sciences of Philadelphia, the Museum of Comparative Zoology at Harvard University, and the American Museum of Natural History in New York to study types and other specimens pertinent to research projects in progress. Accompanied by Bernard R. Feinstein, museum aide in the division of birds, Dr. Handley continued his mammal survey of Panama between January 15 and March 27, 1959, working in the portion of Darién adjacent to the Colombian boundary. Members of the party reached mountainous areas where zoologists have not previously collected. As a result of the trip, collections totaled more than 1,500 mammals and several hundred birds, reptiles, and various insects and other animals. Conditions for netting bats were especially good, and new techniques were developed. No fewer than 45 species of bats were obtained, possibly a record high for this country. It is planned to continue this project, which is sponsored by the Gorgas Memorial Laboratory, Panama. In continuation of his research on the mammal fauna of the southeastern United States, Dr. Handley spent two periods collecting in Virginia in May 1959. One of these trips took him to the peninsulas on the west side of Chesapeake Bay and the other to some of the northernmost ridges of the Great Smoky Mountains. The mammal specimens preserved on these trips will add to the background material for his continuing research.

Between March 18 and 23, 1959, Herbert G. Deignan, associate curator of birds, visited England, primarily to participate in the centenary celebration of the British Ornithologists' Union, which was held at Cambridge. The meetings were largely devoted to series of symposia on various aspects of ornithology.

Dr. Ernest A. Lachner, associate curator of fishes, attended the annual meetings of the American Institute of Biological Sciences in Bloomington, Ind. While there he examined the fish collections of the university and on the return trip to Washington studied the fish collection at the University of Louisville. Dr. Lachner was accompanied by Dr. William R. Taylor, associate curator of fishes. On their return east the two ichthyologists made collections in streams draining Kentucky, West Virginia, and Virginia.

Between November 3 and 8, 1958, Drs. Lachner and Taylor made a trip to the University of South Carolina to prepare and pack major portions of the fish collection of that institution for shipping to the Smithsonian Institution. This valuable collection, consisting of about 25,000 specimens, is composed of preserved material that is sure to be very useful for future group revisionary studies, especially since it comes from an area of the country not too well represented in the national collections. On the return trip Drs. Lachner and Taylor

collected at an important locality in North Carolina and also visited the Marine Laboratory at the University of North Carolina, Morehead City, and the U.S. Fish and Wildlife Service Laboratory at Beaufort, N.C.

With the aid of a grant from the National Science Foundation, Dr. J. F. Gates Clarke, curator of insects, made a trip to South America between December 29, 1958, and March 24, 1959, the major purpose of which was to obtain material of Microlepidoptera in localities not otherwise represented in the collections of the Smithsonian Institution. Dr. Clarke traveled widely in Colombia, making headquarters at Bogotá, Cali, Popayán, Pasto, and Barranquilla. In Peru Dr. Clarke centered his work in Lima and Cusco, from which cities he was able to reach interesting collecting territory. A brief stop was made in the area of Santa Cruz, Bolivia, and then he proceeded to Argentina, making his principal headquarters at Tucumán. While at Tucumán Dr. Clarke prepared the valuable Monrós collection of chrysomelid beetles for shipment to the National Museum. This collection adds greatly to the value of the holdings of South American insects in the Smithsonian Institution. He spent the latter part of his visit in Chile, collecting in the southern part of the country in areas reached from Punta Arenas, Puerto Varas, Peulla, and Petrohue. Dr. Clarke collected about 15,000 specimens of insects of all groups, but particularly of the Microlepidoptera, which will serve as the major basis of his proposed revision of the South American species of this large and important group.

Between May 9 and June 4, 1959, Oscar L. Cartwright, associate curator of insects, engaged in field research in Florida to collect Scarabaeidae, especially species of *Onthophagus* and *Ataenius*, genera he is at present revising. The trip traversed peninsular Florida as far south as Big Pine Key. Of the 2,356 insects collected, few have yet been identified to species, but there are among them new records for Florida and the United States and quite possibly some undescribed species.

Dr. Ralph E. Crabill, Jr., associate curator of insects, spent the period July 14-18, 1958, in Cambridge, Mass., carrying on studies at the Museum of Comparative Zoology in connection with several research projects in chilopod systematics.

Dr. Frederick M. Bayer, associate curator of marine invertebrates, visited Europe between July 17 and August 25, 1958, to attend the 15th International Congress of Zoology in London and to visit several European museums for the purpose of evaluating the significance of their collections of octocorals to future studies and to examine specimens. Following the congress he visited museums in Leiden, Amsterdam, and Copenhagen, as well as the British Museum (Natural His-

tory) in London, and had an excellent opportunity to study important historic collections in the field of his speciality.

In addition to participating in the Smithsonian-Bredin Caribbean Expedition discussed earlier, Dr. Thomas E. Bowman, associate curator of marine invertebrates, visited Puerto Rico for 2 weeks in early April 1959, at the request of Dr. Robert M. Coker, who is directing a study of the zooplankton of the bays along the southwestern coast. With headquarters at the Institute of Marine Biology, Dr. Bowman made extensive collections that will materially assist him in his project of identification of the copepods of the region.

Dr. Harald A. Rehder, curator of mollusks, spent the week of February 16-23, 1959, in Florida, primarily to act as one of the judges of the annual show of the St. Petersburg Shell Club. The Smithsonian Institution offers an annual award for the best exhibit in this show. Subsequently he visited the Marine Laboratory of the University of Miami, where he observed some of the current studies of staff members of level bottom marine invertebrate communities along the south Florida coast.

Dr. G. A. Cooper, head curator, department of geology, accompanied by Dr. Richard S. Boardman, associate curator of invertebrate paleontology and paleobotany, spent the period May 18-30, 1958, on a field trip to central New York. They were accompanied by Dr. Gertrude Biernat, of Polska Akademia Nauk, Zaklad Paleozoologii, Warsaw, Poland, a visitor to the museum for several months, and by two members of the Geological Survey staff. They spent several days studying and collecting from the type section of the Hamilton group of the Devonian, which extends from Stockbridge Falls on the north to North Norwich on the south. The party was joined by other geologists, including Dr. Paul Sartenaer, of Belgium, and members of the staff of the New York State Museum, and with this company a study of the facies changes which take place in the Tully formation was made. Subsequently sections were examined in the area of Cooperstown, Cobleskill, Albany, Kingston, N.Y., and Stroudsburg, Pa. Following this trip Dr. Boardman spent a few days at the New York State Museum at Albany to investigate the possibility of identifying bryozoan fragments in well cuttings in the Middle Devonian in New York State.

During August 1958 Dr. George Switzer, curator of mineralogy and petrology, made an extended collecting trip to western localities, particularly to various individuals and well-known localities in Iowa, Colorado, New Mexico, California, and Montana. He obtained much material of value to the Smithsonian for purposes of study or exhibit. Accompanied by Paul E. Desautels, associate curator of mineralogy and petrology, Dr. Switzer made several other trips for the purpose

of visiting mineral dealers and obtaining material for the Smithsonian collections. Short visits were made to the American Museum of Natural History in New York and the Academy of Natural Sciences of Philadelphia; a valuable collection of minerals from the famous zinc mine at Franklin, N.J., was examined and purchases from it were made for the Smithsonian collections. During August 1958 and March 1959 Mr. Desautels made separate trips to Asheville, N.C., and to several cities in Pennsylvania, New Jersey, and Massachusetts to acquire and examine mineralogical specimens for the Museum.

E. P. Henderson, associate curator of mineralogy and petrology, spent the period November 30–December 10, 1958, in Boston, New Haven, and New York. He discussed meteorites with members of the staffs of the Massachusetts Institute of Technology, Harvard University, Yale University, and the American Museum of Natural History.

In addition to participating in the field trip to New York State discussed above, Dr. Richard S. Boardman traveled in Tennessee and southern Virginia between September 22 and October 24, 1958, in the company of two visiting paleontologists, one from Australia and one from Norway. The principal objectives were to study the regional stratigraphy and to collect Bryozoa in the Middle Ordovician rocks of the Central Basin area of Tennessee and the southern Appalachians of eastern Tennessee and southern Virginia. This preliminary survey will form the basis for planning a continuing program in the largely unstudied bryozoan faunas of the Middle Ordovician of the region. Collections totaled 2,500 pounds and include many bryozoan colonies that have biological and taxonomic interest in addition to their potential stratigraphic value.

In connection with his work on fossil echinoids, Dr. Porter M. Kier, associate curator of invertebrate paleontology and paleobotany, spent the period between July 19 and August 29, 1958, in Europe. Dr. Kier's trip was sponsored by a grant from the National Science Foundation. He spent several days in England examining specimens in the British Museum (Natural History) in London and the Sedgwick Museum in Cambridge and subsequently visited museums at the University of Liège and the Institute Royal des Sciences Naturelles in Brussels. In Paris he visited three museums where there are important collections of fossil echinoids. During part of his stay in Europe, Dr. Kier collected fossils in Belgium, Holland, and France in company with various specialists. Between March 9 and 13, 1959, he visited the Museum of Comparative Zoology at Harvard University to study the fossil echinoid collections. Several

valuable and overlooked European type specimens were found there, in addition to specimens that will subsequently be described as new species. Accompanied by Henry B. Roberts, museum aide, he made a field trip to Alabama and Florida, April 6-16, 1959. Collecting was particularly productive in the Ocala area.

Dr. C. Lewis Gazin, curator of vertebrate paleontology, visited Princeton University and the American Museum of Natural History in New York between November 16 and 23, 1958, to study their collections of lower Eocene primates and to make comparisons between lower Eocene Knight materials and various Eocene collections and type materials at those institutions. In June 1959 he made a further visit to these same institutions and also to Yale University, Amherst College, and Harvard University to study lower Eocene and Paleocene insectivores, primates, condylarths, creodonts, and related groups.

Dr. David H. Dunkle, associate curator of vertebrate paleontology, spent September 24-30, 1958, at the University of Kansas, studying their excellently curated collections of fossil fishes. In particular, he made anatomical observations upon an extensive series of syllaemid fishes. In May 1959 he visited the site of the new airport construction at Chantilly, Va., where he examined and collected some Triassic bones reported by a member of the U.S. Geological Survey staff. The bones have been tentatively identified as pertaining to a phytosaur, an extinct reptile quite crocodylian in appearance, distantly related to the dinosaurs. This specimen is believed to be the first such animal in the national collections from the Virginia Triassic.

Dr. Peter P. Vaughn, associate curator of vertebrate paleontology, made a trip to the University of Michigan and the Chicago Natural History Museum between September 1 and 14, 1958, to study Permian vertebrates in those important collections. Between October 6 and 13, 1958, he undertook a reconnaissance study in the Permian Cutler formation of southwestern Colorado. The information gained on this trip will be incorporated into a report on the fossil fauna of the region which he is preparing in collaboration with staff members of the Geological Survey.

The Director of the Museum of History and Technology, Frank A. Taylor, spent 2 days in September 1958 near Essex, N.Y., where he visited the site of a 1776 gunboat.

Dr. Robert P. Multhauf, head curator of science and technology, made several extensive field trips during the year for the purpose of examining new exhibits and inspecting or acquiring important apparatus to illustrate the development of the physical sciences. He visited many institutions and individuals in the San Francisco area, in the vicinity of New York, and in Baltimore, Philadelphia, Fred-

ericksburg, Va., and Lexington, Ky., and acquired many items of interest to the Smithsonian Institution exhibits and study collections. Among them were materials associated with Ira Remsen, the famous Johns Hopkins University chemist. At the Stevens Institute of Technology he examined the residues of the formerly extensive museum. These comprise about 100 items, mostly models of considerable importance. Of particular interest also was a visit to Transylvania College, in Lexington, Ky., where Dr. Multhauf examined a collection of early 19th-century "philosophical apparatus," which proved to be the most complete representation of instructional apparatus for a single period that has yet been located. There are about 150 pieces, all obtained between 1815 and 1839. Dr. Multhauf offered to give his advisory assistance to Transylvania College to carry out plans for the exhibition and study of these materials.

In continuation of his efforts to build up the exhibit and study materials pertaining to the division of mechanical and civil engineering, Eugene S. Ferguson, curator of that division, visited many individuals and institutions throughout the eastern United States, in Connecticut, Rhode Island, Pennsylvania, Ohio, Indiana, Michigan, and Wisconsin. Mr. Ferguson's most extensive trip, however, took him to various European countries between February 28 and April 13, 1959. During the 6 weeks that he spent in looking critically at European technical museums, he visited Great Britain, Sweden, Germany, Italy, Austria, France, and Holland, seeing altogether 31 museums. He acquired many impressions and ideas that will be useful in designing new halls in the Museum of History and Technology. In his opinion the best technical museum that he visited was the Deutsches Museum in Munich. It is extravagant in its use of space and dioramas, and of all museums he believes it to be the one that is most meticulous in the details of exhibit design and execution.

Edwin A. Battison, associate curator of mechanical and civil engineering, made several trips to various points in the eastern United States to examine clocks and other timepieces, particularly examples of early electric watch models and historic instruments. He visited many watch factories, with a view to the acquisition of material with potential value in the exhibits and study collections of the Museum of History and Technology.

Robert M. Vogel, assistant curator of civil and mechanical engineering, made several visits to museums and other institutions in New York, Pennsylvania, New Jersey, and Delaware in connection with the planned Smithsonian Hall of Engineering. He examined extensive collections of photographs of bridges, tunnels, and other structural works and investigated various historic examples of refrigera-

tion, farm machinery, elevators, and mills, with a view to the possible acquisition of materials for exhibit in new Smithsonian halls.

Primarily to study models of ships, Howard I. Chapelle, curator of transportation, visited various institutions and individuals in New England, New York, and Virginia. He made arrangements for photographing ships and investigating some builder's models. Of particular value was a visit to the Mariners' Museum at Warwick, Va., where plans are available for several ships built in the late 18th century. Mr. Chapelle's most extensive trip took him to Rome, Paris, and London between April 3 and 18, 1959. In Rome he attended the International Fishing Boat Congress and delivered a paper on hull form. He inspected fishing fleets and shipyards near Rome and also saw models of fishing boats built around 100 B.C. By visiting museums in Paris and London, Mr. Chapelle acquired some very useful information in reference to details of the planned Smithsonian Transportation Hall.

Kenneth M. Perry, associate curator of transportation, made several trips through the Eastern States to acquire models of ships and to examine other models that are being built for the Smithsonian Institution. His visits took him to many museums and shipyards. At the Mariners' Museum at Warwick, Va., Mr. Perry examined a card file of prints and paintings in the collection and recorded those pertaining to clipper ships, pilot boats, and Hudson River steamers with their descriptions.

John H. White, assistant curator of transportation, traveled to museums and other institutions in the eastern United States to acquaint himself with materials pertaining to land transportation. He discussed problems of model making with staff members of various institutions, with particular emphasis on various railroad and street railway collections.

In July 1958 E. C. Kendall, associate curator of agriculture and wood products, spent a few days in New York visiting museums and examining exhibits especially relating to forestry and agriculture. A valuable trip was made to Waynesboro, Pa., on December 4, 1958, to examine the 1877 steam engine owned by the Frick Co., of particular interest since practically all the farm steam engines now available date from the early 1900's. Mr. Kendall also accompanied Mr. Vogel on a trip to the vicinity of Wilmington, Del., on March 24, 1959. At Chadds Ford they visited an old mill now owned by Andrew Wyeth and examined the equipment and machinery. The mill dates from 1762 and was enlarged in the late 18th century by adding another story; it was in operation until 1950. Some machinery of the type in this mill would be useful in the new Agriculture Hall to illustrate early processes relating to flour milling. Between March 27 and

April 10, 1959, Mr. Kendall made a western trip to examine certain pieces of farm machinery. In Detroit he visited the Henry Ford Museum, which has a large collection of machinery including an early mowing or reaping machine made by Enoch Ambler. In Omaha he was much impressed by the Joslyn Art Museum, where he saw good examples of ingenuity in producing effective exhibits at relatively low cost. In California he visited the Caterpillar Tractor Co. near San Francisco and the Holt Manufacturing Co. in Stockton, examining machinery of potential use in Smithsonian exhibits.

With the intention of examining and perhaps acquiring examples of electrical equipment for the Smithsonian Institution, W. James King, acting curator of electricity, made several field trips. In July 1958 he visited Cornell University to study Anthony's dynamo and a Westinghouse alternator of the late 1880's. In Pittsfield, Mass., he visited the General Electric Co. to examine William Stanley's papers in the Stanley Library and to see the Stanley transformer at the Crane Museum, and at Housatonic, Mass., the site of Stanley's pioneer a.c. power installation. In September Mr. King discussed the new Hall of Electricity with several officials of the American Telephone & Telegraph Co. Visits to the General Electric Research Laboratory, the Chicago Museum of Science and Industry, and the Westinghouse Electric Co. in Pittsburgh, Pa., were productive of ideas for new exhibits for the Smithsonian Institution. Between February 2 and 8, 1959, Mr. King made a tour of various institutions in New England and New York to gain information regarding equipment in connection with the history of radio.

George B. Griffenhagen, curator of medical sciences, made several field trips to museums and pharmaceutical houses throughout the Eastern States, traveling to Chicago, Missouri, and Wisconsin. He investigated several health museums to obtain ideas that might be useful in planning details of new exhibits for the Museum of History and Technology. Mr. Griffenhagen's most extended trip took him to England, Spain, Italy, and Belgium, between August 14 and September 16, 1958. The primary purpose of the trip was to attend the 17th general assembly of the International Pharmaceutical Federation, held in Brussels. Included was an all-day meeting of the World Union of Pharmaceutical Historical Societies, during which Mr. Griffenhagen presented a paper on "The Equipment of the Early American Pharmacy." He also visited the Brussels Universal Exhibition. In Spain, and also in Italy, he saw some outstanding collections of pharmaceutical antiquities and apothecary shop and alchemical laboratory restorations.

Between November 17 and 21, 1958, Dr. John B. Blake, associate curator of medical sciences, studied the clinical amphitheater at the

Pennsylvania Hospital in Philadelphia and the Fry collection of medical prints in New Haven and examined the outstanding microscope collection of Dr. George S. M. Cowan in New York. He also made trips to institutions and individuals in the Eastern States to study problems of historical importance in the medical field.

Dr. Philip W. Bishop, head curator of arts and manufactures, visited Chicago between October 26 and 29, 1958, to inspect the Whiting refinery and meet its officials, primarily to discuss the origins of thermal cracking of crude petroleum. He also visited the Museum of Science and Industry to see and measure the Nasmyth steam hammer. In November 1958 he visited the Ethyl Corp. and the Esso Standard Oil Co. in New York to discuss matters of mutual interest pertaining to the Hall of Petroleum of the Museum of History and Technology. Between January 19 and 23, 1959, he visited several institutions in southern California, primarily to inspect nuclear research activities and to examine data on various geological formations as an aid to planning some of the new halls for the Smithsonian Institution. In New York in April and June he inspected a model of a deep-sea drilling barge and examined details of a fluid catalytic cracking model.

Between September 28 and October 4, 1958, Miss Grace L. Rogers, acting curator of textiles, visited New Haven, Boston, and other areas in New England. She made an extensive study of an original model of the Whitney cotton gin in the collections of the New Haven Colony Historical Society. At Jewett City, Conn., she examined the old Jacquard loom that was being assembled for the renovated Textile Hall of the Smithsonian Institution. The Old Slater Mill Museum in Pawtucket, R.I., provided a valuable opportunity to study a collection of old textile machinery and noted exhibition techniques.

Paul V. Gardner, acting curator of ceramics and glass, made several trips during the year to Norwood, Mass., to select, list, and pack various pieces of rare glass presented to the Smithsonian Institution by Mrs. Clara W. Berwick. Between August 20 and 23, 1958, he visited the Corning Museum of Glass at Corning, N.Y., where he studied many samples of different glass objects. Here it was possible to run ultraviolet light tests on a number of glass objects from the Smithsonian collections to determine their origin and age. From September 8 to 15, 1958, Mr. Gardner visited New York and various points in New England to talk with collectors and dealers in the interest of obtaining additional ceramics and glass collections for the Smithsonian.

Between September 25 and 30, 1958, Jacob Kainen, curator of graphic arts, visited Kansas City to study the engravings of Hendrick Golzius (1558-1617) in pursuance of a research project, particu-

larly in the Print Department of the William Rockhill Nelson Gallery of Art. He visited New York between March 22 and 28, 1959, to check data for his study of John Baptist Jackson, to study the work of Hendrick Golzius, and to select prints for possible purchase for the new Museum of History and Technology. Mr. Kainen visited the New York Public Library, the Frick Art Reference Library, and the Metropolitan Museum of Art. Between May 20 and 24, 1959, he made a trip to Sarasota, Fla., to gather further background data in connection with his research project on Golzius. An extended visit to the Ringling Museum permitted Mr. Kainen to study the largest collection of baroque art in this country and to note its international influences.

Alexander J. Wedderburn, associate curator of photography, visited New York City between May 27 and 29, 1959, to discuss material for exhibit in the Museum of History and Technology with a number of manufacturers and distributors.

Fuller O. Griffith, assistant curator of graphic arts, spent 3 days in New York in November 1958, carrying out research for his catalog of lithographs of the American artist Childe Hassam (1859-1935). He visited the Knoedler, Kennedy, and Weyhe galleries, where he examined numerous prints by Hassam, as well as the Grand Central Art Galleries, the New York Historical Society, the Pierpont Morgan Library, and the New York Public Library, where there is a large body of Hassam's lithographs.

Rudolph G. Morris, museum aide, division of graphic arts, visited the Rochester, N.Y., Museum of Arts and Sciences in January 1959 to discuss with staff members the role of photography and the Museum's audiovisual program. Extending his visit to Holyoke, Mass., he made an extensive tour of inspection of the facilities of the Technifax Corp. and discussed research facilities with members of the staff.

The head curator of civil history, Dr. Anthony N. B. Garvan, made several trips to institutions and other organizations in the eastern half of the country in connection with his historical studies. In July he visited the Marine Historical Association in Mystic, Conn., where he discussed with staff members the possibility of acquiring objects relating to marine industry for exhibit in the Growth of America Hall. In October he went to St. Louis, Mo., where he spent some time with the National Park Service, selecting structural and decorative iron from the vast accumulation preserved by that Service. At Williamsburg, Va., Dr. Garvan visited the Information Center in February 1959, and examined new exhibits and material of possible value to the Smithsonian Institution. He viewed a superb series of plaster models of houses showing their outline and linking them with horizontal photographs and labels. He also examined a complete archeological

site made of a new plastic material so realistic and so colored to resemble earth, brick, stone, etc., that the visitor feels that the actual site has been transported into the museum. At Jamestown Dr. Garvan examined a variety of objects recovered from the area in the anticipation that some of these may be used in the Smithsonian's hall demonstrating the growth of the United States.

In August 1958 Dr. Wilcomb E. Washburn, curator of political history, spoke at a dinner meeting of the Eastern Shore of Virginia Historical Society on the personalities of Governor Sir William Berkeley and rebel Nathaniel Bacon. Subsequently he examined several historic sites in the area, including St. George's Church, where archeological work is taking place, and Hungars Church. In November 1959 he went to Princeton, N.J., to participate in a conference of the Institute of Early American History and Culture of Williamsburg, Va., following which he did some research in the manuscript collections of the University Library. In Baltimore he examined the observation platform that the Baltimore & Ohio Railroad expects to donate to the Smithsonian Institution for use in a political history exhibit.

Mrs. Margaret B. Klapthor, associate curator of political history, traveled to New York in January 1959 to pursue her research on matters pertaining to the First Ladies Hall. She selected samples of fabrics and discussed in some detail two mannequins to be used.

Charles G. Dorman, assistant curator of political history, visited Dover and Wilmington, Del., in March 1959 to study 18-century tax lists. He located hitherto unknown midcentury cabinetmakers and followed the movements of others who moved about the colony after their apprenticeships had been served. Mr. Dorman also spoke on the subject of "Philadelphia Presidential Mansion" at a meeting of the Chester County Historical Society, West Chester, Pa. Between May 19 and 24, 1959, he visited several towns in New England to study museum design and exhibits installation. He also gave a talk before the Quincy Historical Society of Quincy, Mass., on "The Adams Family in Washington, 1800-1847."

To examine collections offered the Smithsonian Institution by various individuals, C. Malcolm Watkins, acting curator of cultural history, made several trips to points in the Eastern States. At Wilmington, Del., in December 1958, he examined a loghouse offered to the Institution for exhibit purposes and discussed ways and means of dismantling it and shipping it to Washington.

Rodris C. Roth, assistant curator of cultural history, visited Philadelphia in September 1958 for research at the American Swedish Historical Foundation and Museum pertaining to an exhibit on Scandinavian backgrounds planned for the Hall of Everyday Life in

Early America in the new Museum of History and Technology. In connection with planning for this hall, she visited the Winterthur Museum in Delaware in December 1958 and again in June 1959. At the Baltimore Museum of Arts, Miss Roth studied an imaginative display entitled "Age of Elegance, the Rococo and Its Effect," consisting of an assemblage of fine and decorative arts of the 18th century grouped by country of origin.

George T. Turner, acting curator of philately and postal history, and Francis J. McCall, associate curator of that division, attended the American Stamp Dealers' Show in New York in November 1958. They displayed a special Smithsonian exhibit, and Mr. Turner gave a talk on the history of the National Postage Stamp collection and its development under the preceding curators. During the first 10 days of 1959 Mr. Turner visited several cities in California to meet numerous philatelists, to inform them of the material needed in the exhibits planned for a new hall, and to tell them something of the stamps missing in the National collection. He spoke before a meeting of the Philatelic Research Society on the "Activities of the Smithsonian's Division of Philately and Postal History."

On two occasions Francis J. McCall visited New York City to discuss with several philatelists material of potential interest to the Museum of History and Technology. At the New York Historical Society, the Philatelic Society, and the New York Public Library he supplemented previous studies and strengthened contacts with staff members. Between October 31 and November 2, 1958, he attended the American Philatelic Congress in New York. From March 15 to 20, 1959, he visited Boston and Cambridge, Mass., to discuss with philatelists matters of mutual interest and to study documents at various libraries.

Dr. Vladimir Clain-Stefanelli, curator of numismatics, made several trips to New York, Philadelphia, St. Louis, and cities in Massachusetts during the year to select material missing from the Smithsonian library. On September 16, 1958, he gave an illustrated address to the Philadelphia Coin Club concerning the history of the Smithsonian and of the national coin collections. In October 1958 he spent several days in Worcester, Mass., where he visited the American Antiquarian Society and studied their collections of colonial notes. At the Worcester Numismatic Club he discussed the Smithsonian's modernization program and examined a collection of German Renaissance medals, multiple talers, and ancient Greek coins. In February 1959 he spent several days in New York, principally at the museum of the American Numismatic Society, where he studied post-humous Lysimachus gold and silver coinages struck in various ancient Greek cities.

In Philadelphia, Mrs. Elvira Clain-Stefanelli, assistant curator of numismatics, examined a collection of Mrs. Catherine Bullowa, from which she was able to select for the national collections numerous coins, medals, and tokens in silver, copper, and other metals, representing practically all periods, from the early 13th century to date. In September 1958 she went to New York to study Italian numismatic periodicals at the library of the American Numismatic Society in order to complete a study on modern Italian coin engravers.

From May 14 to 18, 1959, Dr. and Mrs. Clain-Stefanelli went to Albany, Gloversville, and New York, N.Y. In the New York State Museum they had useful discussions with staff members about early trade and examined unusual collections of wampum beads and ceremonial belts. Dr. Albert F. Goodwin, of Gloversville, permitted them to study his very fine collection of foreign medals and decorations.

During the year Mendel L. Peterson, head curator of Armed Forces history, made several trips to Boston, New York, and several other east-coast cities. In Trenton, N.J., at the State Museum Building, he attended an open meeting on the subject of underwater exploration, where he delivered a lecture. The Museum of the Naval Academy at Annapolis, Md., disclosed some material that will be useful to the Smithsonian exhibition series, including, for example, a letter written by John Paul Jones.

Edgar M. Howell, acting curator of military history, made several trips to points in the eastern United States and Canada in connection with material needed by the Smithsonian for exhibit. Between September 8 and 12, 1958, he visited the Canadian War Museum in Ottawa, the Citadel in Quebec City, Fort Henry at Kingston, Ontario, and Fort Niagara, in New York, studying collections and exhibit techniques and photographing specimens. He made especially valuable contacts with curators specializing in the French and Indian War and the War of 1812 periods. Between April 20 and 24, 1959, Mr. Howell visited the Fort Sumter National Monument, the Confederate Museum, and the Charleston Museum in Charleston, S.C., the Museum at Grant Park in Atlanta, Ga., and the Castillo de San Marcos in St. Augustine, Fla., studying collections and observing new exhibit techniques.

Craddock R. Goins, Jr., assistant curator of military history, visited several museums in New York State during the period August 25 to 30, 1958, to study ordnance material, observe special exhibit techniques, and arrange for the acquisition of specimens needed in the Hall of Ordnance, in the Museum of History and Technology. The most comprehensive collections of ordnance material in New York State are part of the Museum of the U.S. Military Academy at

West Point. Here Mr. Goins was particularly interested in the extensive collection of artillery tubes. The library of the Military Academy also includes a considerable quantity of material concerning ordnance boards, which is missing from the Ordnance Department records in the National Archives. In February 1959 he made a short trip to Harpers Ferry, W. Va., to examine records in the custody of the National Park Service pertaining to a study he is preparing on the Hall rifle.

Lucile McCain, assistant registrar, visited museums in London and in Leiden, Holland, between September 17 and October 27, 1958, to examine their registration methods. At the British Museum (both Natural History and Bloomsbury), the Victoria and Albert Museum, and the Rijksmuseum in Leiden Miss McCain learned much from the methods in use, particularly as they refer to customs matters and to plans for reviewing permanent files after 25 years.

Members of the staff of the office of exhibits traveled during the year in order to examine exhibits techniques used by various museums, with a view to their application to the new halls in the Museum of History and Technology and the Museum of Natural History.

John E. Anglim, chief exhibits specialist, spent the period April 24 to June 20, 1958, in Europe, where he visited 16 cities in 10 countries and inspected about 70 museums and attended the World's Fair in Brussels. His general impression of European museums is that nearly everywhere they are attempting to bring their exhibitions up to higher standards.

R. O. Hower, supervisory exhibits specialist, visited New York in November 1958, to examine new exhibition techniques in the American Museum of Natural History and the Metropolitan Museum of Art, where many new techniques are being developed in the exhibits laboratories.

Benjamin Lawless, supervisory exhibits specialist, and Robert Widder, exhibits designer, visited New York between September 16 and 18, 1958, to discuss with specialists various types of illumination for the new exhibits of the Smithsonian Institution. In March 1959 Mr. Lawless visited the new Museum of Military History and Science at the U.S. Military Academy, at West Point, where he examined the extensive modernization that has been completed there. In May 1959, accompanied by James A. Mahoney, exhibits designer, he went to Chicago and Cleveland to examine various types of exhibition cases now being devised or in use.

Between August 19 and 22, 1958, Judith Borgogni, exhibits designer, and Violet Moyer, exhibits worker, went to New York to study exhibit techniques and to discuss trends in the exhibition of costumes and fashions. Among institutions visited were the Museum

of the City of New York, the Metropolitan Museum of Art, and the New York Public Library.

William E. Geoghegan, exhibits technician, with Kenneth Perry, visited Warwick and Richmond, Va., between October 29 and 31, 1958. At the Mariners' Museum in Warwick and at the Confederate Museum in Richmond they worked on models of ships that will be exhibited in the Museum of History and Technology. In November 1958 Mr. Geoghegan went to Providence, R.I., and Essex, Conn., to examine the models of certain historic ships. Work on several such models is progressing as anticipated and it is expected that they will greatly enhance the educational value of the hall being planned by the division of transportation.

Exhibits technician Chris Karras made a field trip in May 1959 that took him to several museums in the eastern half of the country. He was mainly interested in marine biological displays in connection with the new Hall of Oceanic Life that is being planned for the Museum of Natural History.

Mrs. Ann Karras, exhibits designer, visited the Cincinnati Art Museum and the Taft Museum, in Cincinnati, Ohio, in June 1958 to acquire background information for details of the Hall of Musical Instruments of the Museum of History and Technology. Between November 15 and 26, 1958, she visited several museums for the purpose of studying fossil mammal exhibits, in connection with a pending renovation of a hall in our Museum of Natural History. This visit took her to the Chicago Natural History Museum, the University of Nebraska State Museum, the Denver Museum of Natural History, the Peabody Museum of Natural History at Yale, and the American Museum of Natural History.

Between November 17 and 21, 1958, James A. Mahoney, exhibits designer, visited George Eastman House, Eastman Kodak Co., and Bausch & Lomb Co. in Rochester, N.Y., for technical data needed in the Hall of Photographic History, in the Museum of History and Technology. He obtained much valuable information, and got a general view of present methods of displaying photographic and historical topics.

William Pennock, exhibits designer, went to New York in the company of Dr. Clain-Stefanelli between August 7 and 9, 1958, to examine various exhibit methods, color and lighting techniques, case designs, architecture, and manufacturing processes pertaining to numismatic displays.

John C. Widener, exhibits specialist, attended sessions of the National Plastics Exposition held in Chicago from November 17 to 21, 1958. He discussed the utilizations of various plastics with specialists who attended the exposition and visited several companies in order to

investigate their products and techniques, in connection with the use of plastics in exhibit construction at the Smithsonian Institution.

EXHIBITIONS

The progressive modernization of the exhibition halls of the Smithsonian Institution was carried forward. The program has now completed 5 years. Construction bids were received in May 1959 for the second North American Archeology Hall, and in June 1959 for the halls that will be devoted to the geological and fossil record of the age of mammals; medical and pharmaceutical history; and the history of money or numismatics.

The formal opening of the renovated Graphic Arts Hall in the connecting range of the Smithsonian Institution Building was held on the evening of July 10, 1958. Prentiss Taylor, president of the Society of Washington Printmakers, was the principal speaker. Hand processes employed to produce etchings, wood engravings, lithographs, and silk-screen prints are displayed in this hall. The history of printing from the invention of the alphabet to the commercial production of the printed book is illustrated by an original woodcut for a page of a very old Chinese block book, a reproduction of ancient Korean movable type, and a page from the Gutenberg Bible of about 1454.

The newly modernized Hall of Gems and Minerals in the Natural History Building was dedicated by Secretary Leonard Carmichael on the evening of July 31, 1958. Mrs. W. F. Foshag, wife of the late head curator of the department of geology, was invited to cut the ribbon at the formal opening. Exhibits in this hall include the most extensive collection of gems on display in this country, and a large and representative sampling of specimens from the national mineral collection, which is regarded as the world's finest. Nearly every variety of gem is represented. Included in this display are: A 316-carat star sapphire; an 18.3-carat canary-yellow diamond; a 66-carat alexandrite; and a 310-carat peridot. Among the historic items shown is a set of pearls consisting of a necklace, choker, and earrings given by the Imam of Muscat to the U.S. Government; the original gold nugget responsible for the initiation of the California gold rush which was discovered at Sutter's Mill in 1848 by James Marshall; and the world's largest flawless quartz crystal ball, a sphere almost 13 inches in diameter and weighing 106¾ pounds. The Hope diamond, a gift of Harry Winston, world-famous gem merchant of New York, is spotlighted against a dark-red velvet in a centrally located, specially designed case. In the mineral section of this hall are shown examples of all the principal kinds of minerals, arranged in accord-

ance with a chemical classification, and selected and lighted to make a colorful display of their natural beauty. A fine large specimen of smithsonite, a carbonate of zinc, named for its discoverer James Smithson, whose bequest founded the Smithsonian Institution, is exhibited in this hall. The spectacular display of fluorescent minerals on a revolving stand has attracted considerable visitor interest.

The room designed solely for the display of the Maude Monell Vetlesen collection of Chinese jade carvings of the 16th to 19th centuries was opened to the public on the evening of December 11, 1958, in ceremonies featuring addresses by the Vice President of the United States and Regent of the Smithsonian Institution Richard M. Nixon, Edmund C. Monell, the Honorable Wiley T. Buchanan, Jr., Chief of Protocol of the United States, and Dr. Leonard Carmichael, Secretary of the Smithsonian Institution. These pieces of exquisitely carved jade include an apple-green chrysanthemum dish of nearly 11½ inches in diameter, a massive white imperial altar incense burner and cover of classic design, a pair of deep spinach-green altar boxes in the shape of the divine tortoise, and two imperial scepters, made of gold filigree and each inset with three large carved jade plaques.

The basic contract construction of the Hall of Fossil Fishes and Primitive Tetrapods, as well as the Hall of Fossil Invertebrates and Plants, was completed in May 1959. Shortly thereafter the exhibits staff placed in their respective cases the giant fish *Xiphactinus* and the slab displaying the skeleton of the Triassic amphibian *Eupelorus fraasi*. Materials for other display units have been prepared for installation. In addition to the materials prepared by the museum's exhibit staff, two habitat groups, depicting Cretaceous and Ordovician life associations, were completed and two additional groups were being prepared with the help of George Marchand of Ann Arbor, Mich.

Preparators in the paleontology laboratory commenced the assembly of mammalian skeletons for the Age of Mammals Hall. Skeletons of the Eocene horse *Orohippus*, the Oligocene *Mesohippus*, and the Miocene *Parahippus* are in various stages of completion.

The unveiling of the Fénykövi elephant on the evening of March 6, 1959, was witnessed by a large number of invited guests following a lecture in the auditorium of the Natural History Building by the donor. This record specimen of African bush elephant, standing 13 feet 2 inches at the shoulder, is the largest land mammal ever to be placed on display. Josef J. Fénykövi, Hungarian-born engineer and big-game hunter who tracked down and shot this elephant in the largely unexplored Cuando River region of southeastern Angola on November 13, 1955, and who presented the specimen to the Smithsonian Institution, came to Washington with his wife from Madrid to participate in the

ceremonies. This elephant has been placed in the center of the rotunda of the Natural History Building.

The preparation and installation of the habitat groups and topical displays were nearing completion at the end of the fiscal year in the two halls featuring the World of Mammals, following the contract construction of the exhibit fixtures in June 1958. Nearly all the topical units have been installed and much of the work on the habitat groups is completed. Staff zoologists under the chairmanship of Dr. Herbert Friedmann, head curator of zoology, continued to develop plans for the Hall of Oceanic Life.

Associate Curator Clifford Evans, in cooperation with John E. Ewers, Assistant Director of the Museum of History and Technology, Howard Cline of the Hispanic Foundation of the Library of Congress, and John Corbett of the National Park Service, prepared the scripts and supervised the installation of an exhibit, "Anthropology and the Nation's Capital," which was shown in the foyer of the Natural History Building during November and December 1958 coincident with the annual meetings in Washington of the American Anthropological Association and the American Association for the Advancement of Science.

Three types of prehistoric surgery, assembled by Dr. T. Dale Stewart, curator of physical anthropology, were shown at the January 1959 meeting of the Regents of the Smithsonian Institution: (1) Amputation of the right arm in the Shanidar I Neanderthal skeleton from Iraq (45,000 years old); (2) cranial trephining from Peru; and (3) filed teeth from the Mississippi Valley.

The panels of photographs at the south end of the hall devoted to Highlights of Latin American Archeology were removed and a large, full-size plaster cast of a colossal stone head of the Olmec culture was installed in February 1959. This cast of San Lorenzo Monument No. 1 from southern Veracruz was delivered in 31 sections and was assembled by Paul Willis of the cabinet shop, with the artwork and final painting performed by A. Joseph Andrews, chief exhibits specialist of the department of anthropology. Three carved jade figures from La Venta in Tabasco, Mexico, as well as other Olmec jade objects such as beads, ceremonial axes, pendants, and ear ornaments, were installed in June 1959 in an exhibit adjacent to the head. This exhibit also illustrates aboriginal methods of working jade by drilling, sawing, pecking, and polishing. The Andean arts and crafts exhibit was renovated in December 1958 and a few objects were withdrawn to permit the installation of a gold Chimú mask from Peru.

At the close of the fiscal year construction of the exhibit fixtures for Hall 21, which will feature the archeology of the southwestern United States, the Pacific coast and Columbia River Valley, and Arctic

America, was well advanced toward completion. A series of general displays, such as native mines and quarries, Indian stoneworking methods and products, Euroamerican trade items from Indian sites, native smoking devices, and the diffusion of tobacco are planned for topical purposes.

The Third Biennial Creative Crafts Exhibition was shown from August 27 to September 26, 1958, in the foyer of the Natural History Building. This was organized and installed by local craft organizations and sponsored by the division of ceramics and glass. Contemporary examples of ceramics, textiles, jewelry, and woodworking were displayed, and daily demonstrations of pottery making, weaving, and other craftwork conducted.

A ceremony of acceptance was held on the afternoon of December 11, 1958, to open the E. Stanley Wires collection of decorative tiles in the specially reconditioned room in the foyer of the National History Building. New acquisitions of glass from Mrs. Clara W. Berwick and of Castleford porcelain from Mrs. George Hewitt Myers were also put on exhibition, and two appropriate cases were built to house a collection of paperweights lent by Mrs. Florence Bushee.

Historic Dutch and Rhenish pottery and stoneware now displayed in a large alcove at the west end of the Cultural History Hall in the Natural History Building were formally accepted by Secretary Leonard Carmichael as a gift from the Honorable Wiley T. Buchanan, Jr., Chief of Protocol of the United States, and Mrs. Buchanan on the afternoon of January 5, 1959. All these examples of ceramics were excavated at sites in the Netherlands and assembled by P. Weers of Vooburg. The exhibit illustrates household ceramics from the Roman and Merovingian periods to the beginning of the 19th century, and provides a basis for an understanding of the materials exported to America during the period of early settlement as well as its influence on the workmanship of American potters of the 17th century.

The renovated textile exhibit located in the main south hall of the Arts and Industries Building was formally opened to the public on the evening of January 20, 1959, by A. E. Wullschleger and Secretary Carmichael. In this hall the exhibits trace the history of the fibers and fabrics used by man in the context of the implements and machines that produced them, with the emphasis placed on the technological developments from colonial times through the ensuing years. The Eli Whitney cotton gin and the Samuel Slater cotton machinery from the Pawtucket Mill of 1790, both unique examples of the work of these skilled mechanics, are supplemented by many other historic devices. Among these are a well-preserved Jacquard loom from Lyons, France, presented by Mr. Wullschleger, of New

York. No more than 4 or 5 inches of fabric could be woven on this loom in a day. Fabrics from ancient Egypt, Colonial America, and contemporary hand- and power-woven fabrics show the development of the art of weaving. Another featured exhibit is an early 18th-century Don Quixote tapestry presented by Mrs. Kermit Roosevelt.

Contract construction work on the fixtures in the south hall gallery of the Arts and Industries Building for display of the dyeing and printing of fabrics, needlework and lace crafts, and the development of the sewing machine was nearing completion in June 1959. Renovation of the southeast range of the Arts and Industries Building, which will be utilized for the display of farm machinery and other agricultural implements, was completed in April 1959 by the construction contractor. These exhibits will trace the growth of labor-saving farm machines in America, with particular emphasis on the 19th century, during which various types of machinery were invented or perfected for efficient planting, cultivating, and harvesting of the Nation's rapidly expanding farm acreage.

With the cooperation of a number of leading concerns in the petroleum industry, plans have been developed for a small hall to illustrate the history of this important industry.

During March and April 1959 the Atomic Energy Commission's traveling exhibition "You and the Atom" was presented to the public in the rotunda of the Arts and Industries Building.

On June 24, 1959, a construction contract was awarded for the renovation of the east gallery of the Arts and Industries Building in which will be installed a series of new display units interpreting the history of medicine and pharmacy. These display units will be moved to the Museum of History and Technology where they will comprise portions of the more comprehensive exhibits in the fields of medical, dental, and pharmaceutical history. The most important new exhibits installed in the division of medical sciences during the year were the two cases prepared and contributed by the National Foundation for Infantile Paralysis, which illustrate the discovery and development of the Salk poliomyelitis vaccine.

An exhibit of "World Ebonies," selected from the Rudolph Block collection of walking sticks, was installed in the corridor through the hall of wood products; and four exhibit units displaying American oaks, other important American hardwoods, fruitwoods, and foreign cabinet woods are being renovated.

A temporary exhibit was prepared to commemorate the 100th anniversary of the birth of William Stanley. He was responsible for the design of the first practical electrical transformer and for the first demonstration of an a.c. power distribution system in the

United States. The use of transformers made it possible to send electrical power over great distances, instead of being limited to a mile or so from the generating station.

Additions to the horological exhibits included a large operating model of the Hamilton electric clock, constructed on a scale of 8 to 1, and a group of recently cleaned and restored Japanese clocks. During the annual meeting of the National Association of Watch and Clock Collectors in May 1959, a number of New England watches were placed on display.

The completely renovated 1893 Duryea automobile was returned to the exhibition series and the Cornell-Liberty Mutual survival car was placed on temporary exhibition.

A special exhibit commemorating the 150th anniversary of the birth of Abraham Lincoln was opened in the west hall of the Arts and Industries Building on February 11, 1959. Selected items from the Museum's collection of Lincoln memorabilia and a life-size figure on which is displayed the office suit worn by President Lincoln on the morning of his assassination comprise the essential elements of this exhibit. Included are many of the items that have recently been donated to the Institution by Lincoln Isham, of Dorset, Vt., great-grandson of President Lincoln. At the same time the division of philately prepared a special exhibit, "Lincoln on Stamps," including free franked covers of Mrs. Lincoln lent through the assistance of Mrs. Morton Dean Joyce of New York, and the division of numismatics arranged groups of Lincoln medals to portray Lincoln's life and impact on history. The division of numismatics also prepared a large exhibit of U.S. commemorative coins, presidential medals, and American medallic art for the first Ibero-American Numismatic Exhibition in Barcelona, Spain, which opened November 24, 1958.

The department of Armed Forces history presented two special exhibitions in the rotunda of the Arts and Industries Building during the year. From July through September 1958 a special showing of the Tole paintings of Mrs. Irving Olds and naval prints from the collection of Mr. Olds was displayed under the joint sponsorship of the U.S. Marine Corps and the division of naval history. A special exhibition featuring the submarines *Nautilus* and *Holland* was set up during May 1959.

During the year the appearance of the uniforms exhibited on the west gallery of the Arts and Industries Building was materially enhanced by placing them on adjustable mannequins.

DOCENT SERVICE

In January 1959 the general direction of the educational program of volunteer docent guide service, conducted with the cooperative as-

sistance of the Junior League of Washington, was transferred to the Smithsonian Museum Service. This program had been under the direction of Frank M. Setzler, head curator of anthropology, since its inception in 1955. This transfer was made in accord with the purposes for which the Museum Service was established. The program continued under the supervision of G. Carroll Lindsay, acting curator of the Smithsonian Museum Service, working with Mrs. Peter Macdonald, volunteer chairman of the Smithsonian Docent Committee of the Junior League of Washington. After serving for 2 years as chairman of this committee, Mrs. Macdonald submitted her resignation at the conclusion of the tours season. She was succeeded as chairman by Mrs. C. Clarke Gearhart, formerly cochairman of the docent committee. Mrs. Dean Cowie will serve as co-chairman of the committee with Mrs. Gearhart.

During the 6-month season beginning in October 1958, 398 tours were conducted, in which 11,996 children were escorted through the 3 exhibit halls included in the docent program—the American Indian Hall, the Hall of Power Machinery, and the Hall of Everyday Life in Early America. This represented an increase of nearly 50 percent in the total number of children participating in this program over the previous year.

In addition to Mrs. Macdonald and her cochairman, Mrs. Gearhart, the following members of the Junior League of Washington participated in the docent work: Mrs. George Armstrong, Mrs. Harrison Brand III, Mrs. Dean Cowie, Mrs. Walter Edwards, Mrs. William Graves, Mrs. H. F. Gregory, Miss Mary Harbert, Mrs. Edward Lamont, Mrs. Ralph W. Lee III, Mrs. John Manfuso, Jr., Miss Grace C. Marshall, Mrs. William McClure, Jr., Mrs. Robert McCormick, Mrs. John A. Medaris, Mrs. William Minshall, Mrs. Minot Mulligan, Mrs. George Pendleton, Mrs. John Schoenfeld, Mrs. W. James Sears, Mrs. William D. Sloan, Jr., Mrs. Walter Slowinski, Mrs. James H. Stallings, Mrs. E. Tillman Stirling, Mrs. G. G. Thomas, Mrs. David Toll, Mrs. Richard Wallis, Mrs. Marc A. White, and Mrs. George A. Wyeth, Jr.

In the coming season, the docent service will be extended to two more exhibit areas—the Hall of Gems and Minerals and the Hall of Textiles.

BUILDINGS AND EQUIPMENT

Senator Clinton P. Anderson, Regent of the Smithsonian Institution and chairman of the Joint Congressional Committee on Construction of a Building for a Museum of History and Technology, turned the first shovelful of earth on August 22, 1958, and excavation for the foundations was commenced immediately. At the close of the fiscal year the excavation and driving piles had been accomplished. Work-

ing drawings and specifications for the building were completed by the contract architects, McKim, Mead & White, and reviewed by the Smithsonian Institution and the General Services Administration. The construction of the superstructure was advertised for bids on June 23, 1959.

Working drawings for the construction of additions to the Natural History Building were completed by the contract architects, Mills, Petticord & Mills, and were reviewed in detail by the staff of the Smithsonian Institution. Thus the architectural planning for these wings, which are urgently required to house the increasing scientific collections and to provide efficient working facilities for the staff, has been accomplished. The Congress recognized the immediate need for these additions when it appropriated the funds for the architectural services to prepare the working drawings. The Smithsonian Institution is now prepared to contract for the construction of the additions when funds are appropriated for the purpose.

John E. Cudd, architect of the Public Buildings Service assigned to the Smithsonian Institution, continued to advise on both building projects, assisting in the transmittal of requirements to the architects and in the review of the drawings and specifications. Many individuals and sections of the Public Buildings Service contributed counsel and advice.

The contract work for replacement of the roof covering on the Natural History Building, the first phase of which was started in the fiscal year of 1957, has been completed. This project included the removal of the skylight glass, the installation of sheathing and metal covering, and the installation of fluorescent lighting to provide uniform illumination in the three large halls.

The floors of the auditorium in the Natural History Building have been re-covered to minimize the hazards of the sharply inclined aisles as well as to provide a more noiseless walking surface.

A revised electrical system has been installed to serve the Arts and Industries, Smithsonian, and Freer Buildings. This project required the construction of two additional transformer vaults, the installation of two transformers, and the extensive revision of the electrical service in order to provide sufficient electrical capacity to serve the constantly increasing needs of the Institution.

The east entrance of the Arts and Industries Building has been remodeled to permit installation of a heavy-duty hydraulic elevator for use in the handling of large and heavy objects from truck height to floor level. The combination of this elevator with a full-height rollup-type door will be especially useful during the transfer of museum objects from the Arts and Industries Building to the Museum of History and Technology on its completion. Many former hazards oc-

curing during handling of heavy objects at this entrance have been eliminated.

All exterior surfaces of window sash and frames of the Natural History Building were painted and glass replaced where necessary. During the year many offices and workrooms have been renovated, including those of the registrar, division of political history, and the library.

CHANGES IN ORGANIZATION AND STAFF

Dr. A. C. Smith was appointed Director of the Museum of Natural History effective August 28, 1958, following transfer from the National Science Foundation.

John C. Ewers was promoted to Assistant Director of the Museum of History and Technology on November 29, 1958.

Dr. Ralph S. Solecki, associate curator of archeology, resigned on June 30, 1959, to accept an associate professorship in anthropology at Columbia University. In the division of ethnology of the department of anthropology, Dr. Gordon D. Gibson accepted an appointment as associate curator on July 30, 1958, and Dr. Eugene Knez as associate curator on April 30, 1959.

Dr. Peter P. Vaughn, associate curator of vertebrate paleontology, resigned on January 15, 1959, to accept an appointment tendered by the University of California at Los Angeles. This vacancy was filled by Dr. Nicholas Hotton III, who reported for duty June 1, 1959.

George B. Griffenhagen, curator of medical sciences since December 8, 1952, resigned on June 27, 1959, to accept the position of director of communications for the American Pharmaceutical Association.

The curatorial vacancy in the division of philately and postal history was filled by the appointment of George T. Turner on July 7, 1958.

Dr. Philip K. Lundeberg was appointed as associate curator, division of naval history, effective June 10, 1959. Dr. Lundeberg has been serving as consultant in the department of Armed Forces history since January 19, 1959. Peter C. Welsh accepted an appointment as associate curator in the department of civil history and reported for duty June 15, 1959.

John D. Shortridge was appointed, effective July 28, 1958, associate curator of musical instruments in the division of cultural history, and G. Carroll Lindsay, associate curator of cultural history, was transferred to the Smithsonian Museum Service.

William L. Brown, zoological exhibits specialist and chief taxidermist, retired on June 30, 1959, after 51 years 3 months of service in the taxidermy shop. Mr. Brown was responsible for the modeling and preparing for display of the major portion of the mammals ex-

hibited in the Natural History Building. He was recognized by co-workers as one of the foremost skilled artisans and modelers of naturally posed mammals and gained an enviable reputation for the excellence of his work.

Dr. Egbert H. Walker, associate curator in the division of phanerogams, retired on June 30, 1959. Dr. Walker, who was appointed to the Smithsonian staff on July 2, 1928, has specialized in the taxonomy and pertinent bibliography of eastern Asiatic flowering plants. He plans to continue, under the aegis of the American Institute of Biological Sciences, his preparation of a supplement to Merrill and Walker's "Bibliography of Eastern Asiatic Botany" (1938).

Clarence R. Shoemaker, who was appointed research associate following his retirement on March 30, 1944, as assistant curator of marine invertebrates after having served more than 34 years as an employee of the Institution, died on December 28, 1958, in Washington, D.C. Mr. Shoemaker was a recognized amphipod specialist.

Dr. Frederick L. Lewton, research associate who retired on June 30, 1946, as curator of arts and industries after 44 years of service in the U.S. National Museum, died on February 21, 1959, at Winter Park, Fla.

Dr. John B. Reeside, Jr., research associate in invertebrate paleontology since June 19, 1944, died in Hyattsville, Md., on July 2, 1958. Dr. Reeside has also served for 17 years as chief of the paleontology and stratigraphy branch of the U.S. Geological Survey.

Paul A. Straub, research associate in numismatics since July 6, 1955, died at Summit, N.J., on December 9, 1958. Mr. Straub donated to the division of numismatics over 5,000 gold and silver coins representing a span of 400 years. Because of the many outstanding rarities included in the collection, these coins as a whole are priceless and, in addition, enable the Smithsonian Institution to display to its visitors the largest exhibit of gold coins in the world.

Respectfully submitted,

REMINGTON KELLOGG, *Director.*

Dr. LEONARD CARMICHAEL,
Secretary, Smithsonian Institution.

Report on the Bureau of American Ethnology

SIR: I have the honor to submit the following report on the field researches, officework, and other operations of the Bureau of American Ethnology during the fiscal year ended June 30, 1959, conducted in accordance with the act of Congress of April 10, 1928, as amended August 22, 1949, which directs the Bureau "to continue independently or in cooperation anthropological researches among the American Indians and the natives of lands under the jurisdiction or protection of the United States and the excavation and preservation of archeologic remains."

SYSTEMATIC RESEARCHES

(Prepared from data submitted by staff members)

Dr. Frank H. H. Roberts, Jr., Director of the Bureau, devoted a portion of the fiscal year to office duties and the general supervision of the activities of the Bureau and the River Basin Surveys. In September he went to the Mesa Verde National Park in southwestern Colorado as a consultant to the Research Committee of the National Geographic Society. While there he visited a number of ruins that are to be excavated to obtain new information on the aboriginal people of the region and also to provide additional exhibit areas for visitors to the park. As a result of the conferences on the Mesa Verde, the National Geographic Society made a grant to the National Park Service to assist in the excavation program on Wetherill Mesa. It is contemplated that the digging will continue over approximately six field seasons. Following the sessions on the mesa, Dr. Roberts spent a day at Hovenweep National Monument on the Colorado-Utah line north of the McElmo Canyon area where the late Dr. J. Walter Fewkes, a former Chief of the Bureau, carried on investigations some 50 years ago. Judging from Dr. Fewkes's report and the condition of the area today, there has been little change since he first described the towers for which the area is famous.

After his return to Washington, D.C., Dr. Roberts went late in September to Athens, Ga., and visited a number of projects in other parts of Georgia and South Carolina where salvage operations were underway, and participated in discussions relative to continuing work

in the area. During the early part of November he went to Austin, Tex., where he attended the Second International Congress of Historians which was being held at the University of Texas. He served as one of the commentators at the session on Pre-Hispanic peoples in the southwestern United States and northern Mexico. Following his return to Washington he took part in the sessions of the American Anthropological Association, and toward the end of the month went to Lincoln, Nebr., to discuss various problems in Plains archeology with members of the Missouri Basin project staff and to attend the sessions of the Annual Plains Conference for Archeology. During December Dr. Roberts was a member of a panel at one of the sessions of the American Association for the Advancement of Science, where the subject of "Anthropology in the Federal Service" was presented.

In January Dr. Roberts attended the meetings of the Committee for the Recovery of Archeological Remains held at the Department of the Interior in Washington, D.C., and presented a summary of the results of the preceding year's activities of the River Basin Surveys. He also took part in discussions pertaining to future plans for the Inter-Agency Archeological Salvage Program. At the end of January he went again to Georgia where he met with representatives from the National Park Service, various State and local institutions, and assisted in the preparation of plans for a salvage program along the Chattahoochee River in Alabama and Georgia. Early in June he went to Colorado where he examined collections pertaining to early inhabitants of the Western Plains area at the Denver Museum of Natural History and in the University Museum at Boulder. Returning to Nebraska he spent several days at the field headquarters and laboratory of the Missouri Basin project at Lincoln where plans were being completed for the summer's investigations in reservoir areas along the Missouri River in South Dakota. From Nebraska Dr. Roberts returned to Washington.

During the fall and winter months Dr. Roberts reviewed several draft manuscripts of technical reports and returned them to their authors with suggestions for correction and revision. In addition, he did the technical editing on a series of six reports on historic sites archeology in the Missouri Basin which will appear as Bulletin 176 of the Bureau of American Ethnology.

Dr. Henry B. Collins, anthropologist, continued his Arctic research and activities. Material was assembled for an analysis of the "Tunnit" legends of the Canadian Eskimos, which describe in some detail the aboriginal inhabitants of the Canadian Arctic. On the basis of recent archeological investigations, particularly those by Dr. Collins in the Hudson Bay region, it appears that the mysterious Tunnits were in fact the prehistoric Dorset Eskimos rather than the

Thule as previously assumed. Also in preparation was an article evaluating recent archeological discoveries in Alaska and northeast Siberia and their bearing on pre-Eskimo and Eskimo culture sequences and relationships in the Bering Strait area.

In December Dr. Collins attended a 2-day conference on polar research held at Hanover, N.H., under the auspices of Dartmouth College and the National Academy of Sciences Committee on Polar Research. The conference discussed the probable future course of polar research in this country and the advisability of establishing a research institute to coordinate and administer scientific research in the Arctic and Antarctic.

In June Dr. Collins went to Burke County, Ga., to examine an old Indian village site near Waynesboro where Dr. Roland Steiner in the 1890's had collected an unusually large number of flint implements, now in the U.S. National Museum. The implements, numbering some 16,000, were of particular interest because most of them were deeply patinated and were types which are now recognized as belonging to the Archaic period; one of the types, an unusual form of asymmetric knife or scraper, was identical with a specialized form characteristic of the prehistoric Dorset culture of the eastern Canadian Arctic. Through the cooperation of Raymond De Laigle, clerk of court of Burke County, and his brothers, Ray and Roy De Laigle, it was possible to locate the site from county records. It was found to be very much as described by Steiner 70 years ago and still prolific in stone artifacts and rejectage. A sizable collection of flint implements and flakes from this and other sites around Waynesboro was brought back for study.

Dr. Collins continued to serve as a member of the research committee of the Arctic Institute of North America, which evaluates applications for research grants, and of the publications committee, which exercises supervision of the Arctic Institute's quarterly journal *Arctic*, its *Technical Papers*, and its series of *Special Publications*. As chairman of the directing committee, Dr. Collins also devoted considerable time to the planning, supervision, and financing of the *Arctic Bibliography*, which is prepared by the Arctic Institute for and with the support of the Department of Defense. This comprehensive reference work abstracts and indexes the contents of publications in all languages and in all fields of science relating to the Arctic and sub-arctic regions of the world. Volume 8, containing abstracts of 5,623 publications in 1,281 pages, was scheduled for publication by the Government Printing Office early in July 1959, and work on volume 9 is underway. Subject fields receiving special emphasis in volume 8 include body systems, human and other; botany; construction; disease; ecology; economic and social conditions; environmental effects

of darkness, light, and low temperature on man, animals, and plants; Eskimos; expeditions, especially Russian; fishes and fisheries; frost-bite; geology; hypothermia; ice and ice conditions; insects; meteorology; physiology, human and animal; Siberian native peoples; snow; transportation. These and some 230 other topics are listed alphabetically in the index and, as necessary, also under the name of the particular locality or major geographical region to which they pertain. Heretofore the *Arctic Bibliography* has been supported almost entirely by the Department of Defense. During the past year additional generous support has been provided by the National Science Foundation, the National Institutes of Health, and the National Geographic Society.

Dr. Collins also made plans for a Russian translation project whereby the Arctic Institute, with the support of the National Science Foundation, would make available to American anthropologists translations of Russian publications on the archeology, ethnology, and physical anthropology of Siberia.

Dr. William C. Sturtevant, ethnologist, spent the first part of the fiscal year in Washington at work on various projects related to his Seminole and Seneca research. He also prepared for publication a paper on the economic uses of *Zamia*, a cycad with a large underground stem from which starch has been extracted for centuries by various Indian and other inhabitants of the West Indies and Florida. Another paper brought to completion reconsiders, with negative results, the ethnological evidence for contacts between Indians of the southeastern United States and the West Indies (previously widely considered to have been quite significant for the history of the culture of the southeastern tribes). Brief papers were completed on the history of the classification of eastern Siouan languages (published in *American Anthropologist*), on the authorship of J. W. Powell's famous classification of North American Indian languages published by the Bureau of American Ethnology in 1892, and on two new techniques for ethnographic fieldwork. Dr. Sturtevant's pamphlet "Anthropology as a Career," issued by the Institution in July 1958, proved so useful to students and their advisers throughout the country that a second printing was required in May 1959.

In mid-February Dr. Sturtevant left for Florida to begin 6 months' fieldwork among the Seminole Indians, with the support of a grant from the National Science Foundation. This was a continuation of the fieldwork Dr. Sturtevant conducted among these people before joining the Smithsonian staff. Besides filling in gaps in information obtained during previous trips, Dr. Sturtevant has concentrated on studying Seminole knowledge and uses of plants, both wild and cultivated. These Indians are the only ones in the eastern United

States who still use agricultural techniques once common to all the Indians of this region but heretofore undescribed by careful observers. Fields are cleared by cutting and burning, planted without fertilizer, and soon abandoned for new fields when fertility decreases and weeds become difficult to control. In addition to the ancient North American Indian crops—corn, pumpkins, and beans—the Seminole grow a number of plants that were introduced from the West Indies during and after the 18th century (banana, sugarcane, sweetpotato, taro, elephantear [*Xanthosoma*], manioc, papaya, guava, citrus). Seminole knowledge of wild plants is also extensive, and they still use many of them for medicine, food, and in the manufacture of utensils and other artifacts. Dr. Sturtevant found that at least two dozen fields are being cultivated with aboriginal methods, but intensive study of these fields and other aspects of Seminole society and culture has been even more difficult than he anticipated, owing largely to increased political factionalism and antagonism toward inquisitive outsiders.

Dr. Sturtevant compiled genealogical information preparatory to collaboration with Dr. John Buettner-Janusch, a physical anthropologist at Yale University, on a study of the genetic characteristics (chiefly blood groups) of the Seminole, who certainly have fewer non-Indian ancestors than any other surviving eastern tribes.

Besides collecting herbarium specimens of plants used and recognized by the Indians, Dr. Sturtevant made an ethnological collection to supplement the Seminole holdings of the National Museum. He paid particular attention to clothing, since Seminole styles have changed rapidly but are still unique in many respects, and objects made for sale. The latter are an important part of Seminole economy and involve objects quite different from those usually made for sale by other tribes.

Dr. Wallace L. Chafe, ethnologist, joined the staff of the Bureau in April but did not report for duty until June as he was completing teaching duties at the University of Buffalo. Dr. Chafe spent the 3 weeks before departing on June 29 in preparing for fieldwork on the Seneca reservations in western New York State. He will gather material that will enable him to complete a Seneca dictionary and will make further tape recordings of religious and mythological texts. This work was started under the sponsorship of the New York State Museum and Science Service and is being continued as a cooperative effort.

On June 3, 1958, Carl F. Miller was temporarily transferred from the staff of the River Basin Surveys to that of the Bureau of American Ethnology in order that he might continue directing the excavations of the Smithsonian Institution-National Geographic Society

Expedition which had been started in 1956 at Russell Cave in Alabama. This third season of work continued through September 29 and brought to completion the investigations at that site. Russell Cave has contributed extensive information pertaining to Indian peoples who inhabited that area over a considerable period of time. Several cultural horizons are represented, the earliest of which is some $9,020 \pm 350$ years old on the basis of carbon-14 dating of charcoal from a hearth at that level. The first peoples apparently had a completely hunting-fishing economy and from that progressed through what is called the Archaic period to a more sedentary mode of life and became makers of pottery. The latter handicraft appeared at about 3500 B.C. The culture subsequently developed into what is known as the Early Woodland and continued through stages known as Middle and Late Woodland. It was during these three stages that agriculture became a part of their economy. The latest occupation seems to have been by Chickamauga Cherokee Indians in the early 1600's. During the 1958 season Mr. Miller reached the original and lowest floor in the cave, some 43 feet below the present floor. However, no evidence of occupation was found below the 37-foot level. During the course of the digging he found a fifth burial which helped to throw additional light on the mortuary customs of the people who inhabited the cave.

While in northern Alabama, Mr. Miller visited several other caves, also Indian sites in the open, and studied many local collections in order to correlate the cultural remains from Russell Cave with those of the surrounding areas, particularly those attributable to Early Man phases. Mr. Miller also spoke before different groups of people in Bridgeport and Huntsville, Ala., and in South Pittsburg, Richard City, and Tullahoma, Tenn. Following his return to Washington on October 4, Mr. Miller devoted his time to the preparation of reports. In November and December he attended meetings of the American Indian Ethnohistoric Conference and the American Anthropological Association in Washington, D.C., and was one of the speakers at the Southeastern Archeological Conference in Chapel Hill, N.C. Mr. Miller returned to duty on the River Basin Surveys staff December 14, 1958.

RIVER BASIN SURVEYS

The River Basin Surveys continued its program for salvage archeology in areas to be flooded or otherwise destroyed by the construction of large dams. These investigations were carried on in cooperation with the National Park Service and the Bureau of Reclamation of the Department of the Interior, the Corps of Engineers of the Department of the Army, and several State and local institutions. Dur-

ing the fiscal year 1958-59 the work of the River Basin Surveys was supported by a transfer of \$162,000 from the National Park Service to the Smithsonian Institution. Of that sum, \$137,000 was for use in the Missouri Basin and \$25,000 was for investigations along the Chattahoochee River in Alabama and Georgia. The Missouri Basin Project had a carryover of \$22,173 on July 1, 1958, and that, with the new appropriation, provided a total of \$159,173 for the program in that area. The grand total of funds available for the River Basin Surveys for 1958-59 was \$184,173.

Field investigations throughout the year consisted mainly of excavations, although some limited surveys were carried on. On July 1, 1958, 10 parties were in the field, all of them working in the Missouri Basin in South Dakota. Five of the parties were doing intensive digging in the Big Bend Reservoir area near Fort Thompson, four were excavating, and one was doing survey testing in the Oahe Reservoir area north of Pierre. Most of the field parties had returned to their headquarters at Lincoln, Nebr., by the end of August. Two small parties made brief investigations in the Merritt and Big Bend Reservoir areas during December and January. In February three parties began excavations and test excavations along the Chattahoochee River in Alabama-Georgia. The latter continued operations until late in June, when work was stopped and the men returned to their headquarters. Early in June a party from the Missouri Basin project headquarters began excavations in several sites in the construction area for the Big Bend Dam in South Dakota.

As of June 30, 1959, reservoir areas where archeological surveys had been made or excavations carried on since the beginning of field-work by the River Basin Surveys in the summer of 1946 totaled 254, located in 29 States. Two lock projects and four canal areas had also been examined. The survey parties have located 4,909 archeological sites, and of that number 1,017 have been recommended for excavation or limited testing. The term "excavation" in this respect does not imply the complete uncovering of a site, but rather digging only enough of it to obtain a good sample of the materials and information to be found there. While many of the locations are unquestionably of sufficient importance to warrant complete excavation, the needs of the salvage program make it impossible to conduct so extensive an investigation at any one location.

Preliminary appraisal reports have been issued for all the reservoir areas surveyed, with the exception of the three along the Chattahoochee River. The manuscripts of two of those reports have been completed and the third is well underway, so that all of them will be processed early in the coming fiscal year. The preliminary appraisal report for the Big Bend Reservoir area in South Dakota was mime-

ographed and distributed in October 1958. Since the start of the Inter-Agency Archeological Salvage Program, 185 appraisal reports have been issued. In a number of cases the information obtained from several reservoir projects located within a single basin or sub-basin have been combined in one report and for that reason there is a discrepancy between the number of reservoirs surveyed and that of the reports issued.

At the end of the fiscal year, 434 sites in 54 reservoir basins located in 19 different States had been either partially or extensively dug. In some reservoir areas only a single site was excavated, while in others a whole series was studied. At least one example of each type of site recommended by the preliminary surveys had been investigated. Where some of the larger and more complex types of village remains were involved, it was necessary to dig a number of somewhat similar sites in order to obtain full information about that particular phase of aboriginal culture. The sites investigated represent cultural complexes ranging from the early hunting peoples of approximately 10,000 years ago to early historic Indian village remains and frontier trading and army posts of European origin. Reports on the results obtained in some of the excavations have appeared in the Smithsonian Miscellaneous Collections, in Bulletins of the Bureau of American Ethnology, and in various scientific journals. During the year River Basin Surveys Papers Nos. 9 through 14, comprising Bulletin 166 of the Bureau of American Ethnology, were published and distributed. The papers consist of three reports on excavations in the Missouri Basin, one on digging in the Alatoona Reservoir in Georgia, one on investigations in six sites in the Jim Woodruff Reservoir basin in Florida, and one on historic sites in and adjacent to the Jim Woodruff Reservoir area in Florida-Georgia. The Missouri Basin reports were written by Paul L. Cooper, Robert B. Cumming, Jr., and Carlyle S. Smith and Roger T. Grange, Jr. Those pertaining to the Southeast were prepared by William H. Sears, Mark F. Boyd, and Ripley P. Bullen. River Basin Papers Nos. 15-21, which will constitute Bulletin No. 176 of the Bureau of American Ethnology, were sent to the printer in March. That series of papers pertains to studies in historic sites in the Fort Randall, Oahe, and Garrison Reservoir areas in South Dakota and North Dakota. Nine detailed technical reports were completed during the year and are ready for publication when the funds sufficient to cover their cost are available. In addition, the first and second drafts of seven technical reports were finished. The final drafts should be ready early in the next fiscal year.

As of June 30, 1959, the distribution of the reservoir projects that had been surveyed for archeological remains was as follows: Alabama, 4; Arkansas, 1; California, 20; Colorado, 24; Georgia, 8; Idaho,

11; Illinois, 2; Iowa, 3; Kansas, 10; Kentucky, 2; Louisiana, 2; Minnesota, 1; Mississippi, 1; Montana, 15; Nebraska, 28; New Mexico, 1; North Dakota, 13; Ohio, 2; Oklahoma, 7; Oregon, 27; Pennsylvania, 2; South Carolina, 1; South Dakota, 10; Tennessee, 4; Texas, 19; Virginia, 2; Washington, 11; West Virginia, 2; Wyoming, 22.

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

Throughout the year helpful cooperation was received from the National Park Service, the Bureau of Reclamation, Corps of Engineers and other Army personnel, and various State and local institutions. The Corps of Engineers provided transportation and guides for work in one of the reservoir areas and the Commanding Officer at Fort Benning in Georgia assigned certain Army personnel to assist in some of the investigations made in that portion of the Walter F. George Reservoir basin which lies in the Fort Benning Reservation. Helicopters were also furnished on several occasions to enable the archeologists to take aerial photographs of several sites in the reservoir area. In the Missouri Basin temporary headquarters and living accommodations were provided at several projects and storage space was made available so that much of the field equipment could be left at Pierre, S. Dak., during the winter months. The construction agency lent mechanical equipment in several instances to assist in heavy excavation and the backfilling of trenches and test pits. The various party leaders from the River Basin Surveys were given assistance by field personnel of all the agencies and the work was greatly expedited as a result. The National Park Service continued to serve as the liaison between the various agencies in the field as well as in Washington. The estimates and justifications for the funds needed to carry on the salvage program were also prepared by the Park Service. In Georgia the University of Georgia, the Georgia Historical Commission, and various local clubs and groups of citizens were particularly helpful to the parties working along the Chattahoochee River.

The main office in Washington continued general supervision of the program, while the field headquarters and laboratory at Lincoln, Nebr., was responsible for the activities in the Missouri Basin, and in addition provided equipment and office assistance for the parties engaged in the Chattahoochee River project. The materials collected by excavating parties in the Missouri Basin, as well as those from the Chattahoochee Basin, were processed at the Lincoln laboratory.

Washington office.—The main headquarters of the River Basin Surveys at the Bureau of American Ethnology continued under the direction of Dr. Frank H. H. Roberts, Jr. As previously mentioned, Carl F. Miller, archeologist, was detailed to the regular Bureau staff for the period July 3 to December 14, 1958. After his return to the River Basin Surveys staff, Mr. Miller completed the final revision of his report on the "Archeology of the John H. Kerr Reservoir, Southern Virginia and Northern North Carolina." The report includes a summary of the many sites located during the course of the original survey of the area, as well as detailed information on those which were excavated by Mr. Miller. After submitting the John H. Kerr report, Mr. Miller began work on the final report pertaining to the investigations that he made at the Hosterman site (38PO7) in the Oahe Reservoir area, South Dakota, during a previous field season. The report was approximately one-half complete at the end of the year. During the winter and spring months Mr. Miller spoke before several teachers' organizations in the Washington area, addressed a meeting of the Narragansett Archeological Society at Providence, R.I., the Archeological Society of Virginia in Richmond, and the Southern Branch of the Archeological Society of Maryland at Bethesda, Md. Most of his talks pertained to the Russell Cave explorations, although the one given at Bethesda compared the materials from the John H. Kerr Reservoir with those from the Shepard Barracks site in Maryland where excavations were carried on by the Maryland Society. In June, Mr. Miller read proof on an article about Russell Cave, which is to appear in a book on National Parks and Monuments in the United States being issued by the National Geographic Society. In January Mr. Miller received the Franklin L. Burr Award from the National Geographic Society in "recognition of his outstanding contributions to the science of geography and early American history through the archeological investigations of Russell Cave, Alabama." At the end of the fiscal year Mr. Miller was working in the Washington office.

On October 13, 1958, Harold A. Huscher was transferred from the Missouri Basin project to the Chattahoochee River project. He was under the general supervision of the Washington office but continued to work at the headquarters in Lincoln, Nebr., where he

completed reports on the surveys made during the previous year at the Oliver and Columbia Reservoir projects on the Chattahoochee River. He also virtually completed the first draft of his preliminary appraisal of the archeological explorations in the Walter F. George Reservoir area. In early February, Mr. Huscher returned to the Chattahoochee Basin and from then until late June carried on a series of investigations in the Columbia and Walter F. George Reservoir basins. While working in Alabama and Georgia, Mr. Huscher spoke before numerous clubs and local groups, took part in several radio broadcasts devoted to archeological problems along the Chattahoochee River, and appeared on several TV broadcasts. He returned to the field headquarters at Lincoln, Nebr., on June 30.

In February, Robert W. Neuman and George H. Smith were transferred to the Chattahoochee River project and under general direction from the Washington office proceeded to that area. Mr. Neuman, during the period February 9 to June 23, carried on excavations in the vicinity of the Columbia Dam axis in Georgia and did test digging in one large mound on the Alabama side of the river. While in Georgia, Mr. Neuman spoke before various local clubs and groups of interested citizens. He also appeared on a TV interview pertaining to the salvage program and spoke before the Macon, Ga., Archeological Society. He returned to the field headquarters at Lincoln, Nebr., on June 27. Mr. Smith worked at two locations in the Walter F. George Reservoir area, one in Georgia and one in Alabama. He also talked before a number of local organizations. Mr. Smith returned to the field headquarters on June 17.

Alabama-Georgia.—During the period February through June a series of test excavations was carried on at a number of sites in the areas to be flooded by the Columbia Dam and Lock and the Walter F. George Dam and Lock. Robert W. Neuman worked in seven sites on the Georgia side of the Chattahoochee River in the vicinity of the Columbia Dam axis. Six of the sites dated from the Archaic period and extended into Middle Woodland times. The seventh site on the Georgia side represented a historic Creek occupation dating about A.D. 1830. A good collection of materials was obtained from all these sites and the specimens will aid materially in working out the cultural stages in that area. On the Alabama side of the river Mr. Neuman excavated in the remains of a large mound which was being destroyed by the river. Some work had been done there many years ago by Clarence W. Moore, but there was little information pertaining to the general character of the mound. Mr. Neuman obtained information relative to the method of its construction and several stages in its growth. Further work is contemplated at the site.

Harold A. Huscher carried on a series of excavations in four sites on the axis of the Columbia Dam $2\frac{1}{2}$ miles below Columbia, Ala. The area is one of extensive sandy bottoms and, with minor variations, the sites produce Weeden Island pottery types in the surface levels and to a depth of about 2 feet. There is also a scattering of Stallings Island potsherds, steatite fragments, and large heavy-stemmed projectile points down to about $4\frac{1}{2}$ feet below the surface. Some of the flint flakes and points from the deeper levels have been completely altered chemically to a chalky residue. Similar points were found previously on the Macon plateau by Dr. A. R. Kelley and were described by him in Anthropological Paper No. 1, which appeared in Bulletin 119 of the Bureau. Mr. Huscher made maps and detailed excavation plans for these sites.

Construction work was underway on the Walter F. George Dam in early February and Mr. Huscher made a series of 10- by 10-foot test excavations in three sites which were threatened with immediate damage. One of them at the Georgia end of the dam axis yielded a variety of trade goods, including the mechanism of a flintlock. The site probably represents the location of a Creek village of about A.D. 1800. Another site on the Georgia side, a short distance above the dam, and one on the Alabama end of the dam axis, produced plain Early Mississippian pottery. The material from the Alabama site indicated pottery with angled-loop handles similar to the ware that has been called Bibb Plain. The pottery from the Georgia site had flat strap handles with vertical incised decoration. The pottery characteristics are so definite that it is possible to correlate the wares with those from other sites in the general area.

Mr. Huscher later moved upstream and began the investigation of two sites on the Fort Benning Military Reservation. One of them on the Georgia side is an Early Lamar site and seems to contain a single "pure" component. The site had been destroyed to a large extent by Army bulldozers building a road, but trenches in two separate remnants revealed post-hole patterns that apparently represented two rectangular houses. A nearby midden area yielded a good representative sample of pottery types associated with the houses. The second site was on the Alabama side of the river just north of Uchee Creek. It is a Swift Creek-Weeden Island site and has an older underlying level. Sgt. David W. Chase, curator of the Infantry Museum at Fort Benning, Ga., had done some work there, and because of the evidence he had obtained, indicating that it would be a type site for the Swift Creek-Weeden Island phase of Middle Woodland in the area, it was extensively tested by the Huscher party. Beneath the Middle Woodland levels in a portion of the site there is a bed of white sand which has yielded fiber-tempered potsherds of

the Stallings Island type and fragments from steatite vessels. This stratigraphic evidence augments that found in other locations along the river. Sergeant Chase turned over to the River Basin Surveys party extensive notes and collections resulting from his previous work at both sites. He also assisted Mr. Huscher in making detailed plane-table maps of the sites and plans of the excavations.

G. Hubert Smith excavated in two historic sites in the Walter F. George Reservoir Basin. One of them on the Georgia side of the river was the location of the village of Roanoke, a colonial settlement that had originally been occupied by Creek Indians but was subsequently taken over by the whites who lived there from 1831 until the community was destroyed by Indians in May 1836. Because of the long period in which the area was under heavy cultivation, Mr. Smith was unable to determine the settlement pattern or to obtain outlines for any of the village structures. He did, however, obtain an extensive collection of specimens attributable both to the white occupation and that by the Indians. Careful study of the material may provide information that will be useful in dating some of the other late Indian sites along the river. From the Roanoke site Mr. Smith went to one on the Alabama side in Russell County, which was the location of a fort built and occupied by the Spaniards from 1689 to 1691. The fort known as Apalachicola was probably the most northern outpost of the Spanish occupation in the Southeast and was erected for the purpose of stemming the southward expansion of the English. The Spaniards possibly did not occupy the fort continuously, but lived at times in an adjacent Indian village. The fort was destroyed by the Spaniards to prevent its falling into the hands of English traders from the Carolinas who were operating among the Creek Indians. Mr. Smith did not dig in the fort proper but confined his investigations to the area immediately surrounding it in order to delimit the extent of the fortifications and to determine the proximity of Indian occupation. The fort remains will not be subjected to flooding by the Walter F. George Reservoir, but the maximum pool level will not be far distant and may damage the remains to some extent as a result of seepage. Consequently it is thought that a thorough study should be made of the site at a later date. Furthermore, associations between Spanish and Indian objects will provide a helpful checking point in establishing chronology of the area, particularly since the exact dates for the fort are known. After completing the investigations at the two sites, Mr. Smith assisted Mr. Huscher in making detailed plane-table maps and trench plans for both.

In addition to the test excavations described above, Mr. Huscher located and recorded 10 new sites in the Walter F. George and Columbia areas and made collections from 46 sites. At the end of the

season's work along the Chattahoochee, all the records and collections of the three field parties were sent to the laboratory of the River Basin Surveys at Lincoln, Nebr., for processing there and for use in the preparation of reports on the investigations.

The only other work by the River Basin Surveys pertaining to Georgia was that of Carl F. Miller, who completed a report on the test digging that he did during the previous year at the Tugaloo site in the Hartwell Reservoir area. However, the University of Georgia in cooperation with the National Park Service carried on a series of investigations in the Oliver Reservoir Basin and at the Standley Farm site, also known as Stark's Clay Landing, in the Walter F. George Reservoir on the Georgia side of the river. Work was continuing at the latter location at the end of the fiscal year.

Arkansas.—No fieldwork was carried on in Arkansas during the year ended June 30, 1959. However, a detailed technical report, "Archeological Investigations in the Dardanelle Reservoir Area of West-Central Arkansas," was completed by Dr. Warren W. Caldwell. The report consists of 85 typed pages, 2 maps, 8 plates, and 6 text figures. It will be published as a River Basin Surveys paper when printing funds for that purpose are available.

Kansas.—The only work done by the River Basin Surveys pertaining to Kansas during the fiscal year was the completion of a detailed technical report on the excavation of four sites in the Lovewell Reservoir area on White Rock Creek in Jewell County in the north-central part of the State. The report was written by Robert W. Neuman and is entitled, "Archeological Salvage Investigations in the Lovewell Reservoir Area, Kansas." It consists of 84 typed pages, 12 plates, and 3 text figures, and will be published as a River Basin Surveys paper.

The Kansas State Historical Society at Topeka carried on surveys and did some test digging in the Pomona and Melvern Reservoir areas under a cooperative agreement with the National Park Service. The Pomona Dam is to be built on the 110-Mile Creek, and Melvern Dam will be in the Marais de Cygnes River.

Missouri River Basin.—The Missouri Basin project continued to operate from the field headquarters and laboratory at 1517 O Street, Lincoln, Nebr. Dr. Robert L. Stephenson served as chief of the project throughout the year. Activities included work on all four phases of the salvage program: (1) Survey, (2) excavation, (3) analysis, and (4) reporting. Most of the effort during the summer months was directed toward the second phase, with only minor attention to the first phase. The third and fourth phases received the major attention in the winter months. The special chronology program, begun last fiscal year, was continued.

At the beginning of the fiscal year the permanent staff, in addition to the chief, consisted of six archeologists (one of whom was on loan to the National Park Service), one clerk-stenographer, one file clerk, one clerk-typist, one photographer, one illustrator, and four museum aides. Temporary employees included 1 archeologist, 1 physical anthropologist, 2 field assistants, 3 cooks, and 90 crewmen.

During the year, 1 archeologist was transferred to the staff from the Chattahoochee Project on July 21, 1 cook joined the temporary staff on July 9, and 16 temporary crewmen were added in July. During the last week of August and the first week of September, all temporary crewmen and three cooks were terminated, and one cook was transferred from that position to laboratory assistant. The temporary archeologist was terminated on September 12, and the two field assistants were terminated on August 29 and September 5, respectively. The physical anthropologist was terminated on September 2, and one museum aide was transferred from full time to half time on September 15. The archeologist on temporary-detached duty with the National Park Service returned to the permanent staff on October 1. One archeologist was transferred on October 13 to the Chattahoochee Basin project.

On September 23, one archeologist was assigned temporary-detached duty for 8 weeks with the National Park Service to conduct excavations at Fort Laramie National Monument, Wyo. He returned to the Missouri Basin project on November 15. On December 4, one archeologist was assigned temporary-detached duty for 3 weeks with the National Park Service to conduct excavations at George Washington Carver National Monument, Mo. He returned to the Missouri Basin project on December 21. On February 9, two archeologists were transferred for temporary duty with the Chattahoochee Basin Project. They returned to the Missouri Basin project on June 17 and 29, respectively. One museum aide resigned to take other employment on March 20, and one archeologist was permanently transferred to the National Park Service on May 30, to join the staff of the Wetherill Mesa Research project, Mesa Verde National Park, Colo. During June, six temporary crewmen were employed.

At the end of the fiscal year there were five archeologists, in addition to the chief, one administrative assistant, one clerk-stenographer, one file clerk, one clerk-typist, one illustrator, one photographer, and three museum aides on the permanent staff, and one laboratory assistant and six crewmen on the temporary staff.

During the year there were 14 Smithsonian Institution River Basin Surveys field parties at work within the Missouri Basin. Of the 14 Missouri Basin parties, 5 were at work in the Oahe Reservoir area during July and August, and 5 others were at work in the Big Bend

Reservoir during July and August. Two small parties were at work during December and January, respectively, in brief investigations in the Merritt and Big Bend Reservoir areas. One party was at work in the Big Bend Reservoir area and a second (mobile) party was working in the general Missouri Basin area in June.

Other fieldwork in the Missouri Basin during the year included 10 parties from State institutions operating under cooperative agreements with the National Park Service and in cooperation with the Smithsonian Institution in the Inter-Agency Archeological Salvage Program.

At the beginning of the fiscal year, in the Oahe Reservoir area, Dr. Robert L. Stephenson and a crew of 20 men were engaged in excavations at the Sully site (39SL4). This was the third and final season of work at this, the largest of the earth-lodge village sites in the Missouri Basin. The site was situated on the second terrace of the Missouri River, 21 miles above Pierre, in Sully County, S.Dak. The 1958 investigations were concentrated largely in the central and eastern portions of the site. These, with those of the two preceding seasons, provided a reasonably equal sample of features and specimens from all portions of the site. Excavation technique differed somewhat in the 1958 season. During the 1957 season, whole houses were excavated, but the surrounding areas outside were not examined. In 1958 only one house was excavated in this manner. In the other excavation units, only half houses were dug, but the surrounding areas on three sides of each house were also excavated. In this way portions of 19 houses were investigated, with most of the essential structural details obtained from all but two of them. Experience of the previous seasons' work at this site suggested that more could be learned of the total village pattern in this way, and that excavation of complete houses was neither necessary nor economically feasible. Besides the house areas, half of a ceremonial lodge, two large cache-pit areas, a scaffold area, a midden heap, and another portion of the "plaza" were also excavated, and two midden areas were tested. Thus all or parts of 32 of the nearly 400 houses have been excavated, as have been 3 of the 4 ceremonial lodges, a scaffold area, several cache-pit areas, midden heaps, and a "plaza." Numerous tests were made in an effort to locate a fortification ditch or stockade, but none was found.

Emphasis was placed, in the field, upon securing architectural information, and good superposition of varying types of dwelling houses was obtained. Two distinct, circular, dwelling-house types were present, one with a series of widely spaced large wall posts of an early period, and one with a series of small, closely set wall posts of a later period. There was considerable variation within each type. The earlier type had short entry ways, while the later one had medium-



1. Seminole settlement in the Everglades.



2. Digging up edible roots of elephant-ear (*Xanthosoma* sp.), a plant cultivated by the Seminole.



1. Aerial view of a Seminole field in the Everglades.



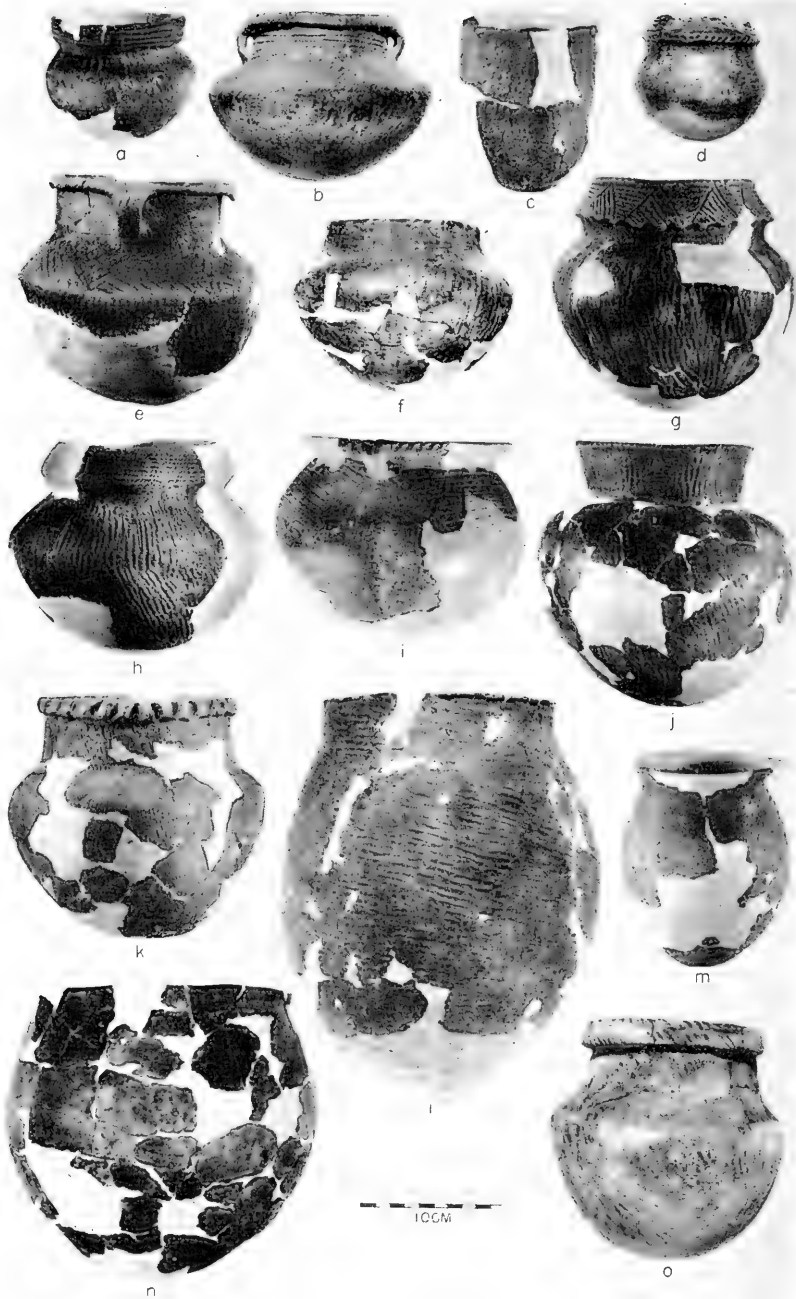
2. Corn growing in a Seminole field in the Big Cypress Swamp.



1. Excavation of Feature 1, a portion of a circular house exposed in slump bank along Missouri River at the Ziltener Site (39SL10) in the Oahe Reservoir area, South Dakota. Most of the house had washed away but the remainder was undisturbed, with a fair floor and post holes dug into soft silt. River Basin Surveys.



2. Crew excavating remains at the Truman Mound Site (39BF224), a group of six burial mounds of the pre-earth-lodge peoples in the Big Bend Reservoir area, South Dakota. River Basin Surveys.



(See legend on opposite page.)

PLATE 4

Representative examples of pottery vessels from various sites in the Missouri Basin.

- (a) From site 25FT17, an Aksarben Aspect site in Medicine Creek Reservoir, Nebraska. (b) From Leavitt Site (39ST215), Oahe Reservoir, South Dakota. (c) From White Swan Mound Site (39CH9), a Woodland Site in Fort Randall Reservoir, South Dakota. (d) From Leavitt Site (39ST215). (e) Stanley Tool Impressed vessel from Phillips Ranch Site (39ST14), Oahe Reservoir. (f) From Leavitt Site (39ST215). (g) Colombe Collared Rim vessel from Phillips Ranch Site (39ST14). (h) Foreman Cord Impressed vessel from Dodd Site (39ST30), Oahe Reservoir. (i) Mitchell Broad Trailed vessel from Dodd Site (39ST30). (j) From Cheyenne River Site (39ST1), Oahe Reservoir. (k) Stanley Braced Rim vessel from Dodd Site (39ST30). (l) Truman Plain Rim vessel from Truman Mounds Site (39BF224), Big Bend Reservoir, South Dakota. (m) From White Swan Mound Site (39CH9). (n) From Site (48FR84), Boysen Reservoir, Wyoming. Only known restored vessel from Wyoming. (o) From Leavitt Site (39ST215).

to-long entryways. The earlier houses were of rather uniform size (about 36 feet in diameter), while the later ones ranged from 19 feet to 47 feet in diameter. A unique feature was the presence of two concentrically superimposed ceremonial lodges, using almost the same floor level. One was 77 feet in diameter, superimposed upon one that was 64 feet in diameter. All the large ceremonial lodges excavated at the Sully site (as well as several of the later dwelling houses) were actually polyhedral rather than round, and had between 9 and 12 sides.

All occupations of this site were relatively late, with both major components (additional minor components have yet to be differentiated) in the circular-house tradition and probably relating to the period between roughly A.D. 1600 and 1750. The pottery sample and other artifact inventory is large and varied, but no assessment of it has been made at this time. This field party disbanded on August 23, after 10 weeks in the field.

The second River Basin Surveys field party in the Oahe Reservoir area consisted of a crew of eight men, under the leadership of William M. Bass III, physical anthropologist. This party devoted the major part of the season to excavations in the burial areas of the Sully site (39SL4). This was a continuation of work begun in 1957 on a somewhat smaller scale. Work was concentrated in three areas (Features 218, 219, and 220) and 161 burials were recovered, bringing the number of burials excavated at the Sully site to 224. Only a preliminary analysis of the skeletal remains has been made. Bodies were interred in shallow oval pits dug into an old surface about 1 foot below the current soil level. Burials were predominantly flexed or semiflexed and oriented with the head toward the west or northwest. A group burial, recovered from Feature 218, appears to be the remnant of a scaffold burial. Many of the graves had a covering of small poles, but few had grave goods included. The grave goods that were recovered included pottery vessels, ornaments, and an occasional cat-linite pipe.

The Bass party, in addition to work at the Sully site, excavated nine rock-cairn burials at the Whistling Hawk site (39SL39), a rather ephemeral site on the same terrace 2 miles east of the Sully site. Burials were found in each cairn, but significant skeletal remains were scanty, as most of the bones were badly deteriorated. Artifacts with these burials were few.

At the end of the field season, the Bass party devoted a short period to the excavation and collection of a group of burials and associated artifacts from a site (39YK202) recently discovered in the course of U.S. Fish and Wildlife Service construction work near the Gavins Point Dam. Only the prompt action and complete cooperation

of the Commission, the local contractor, the Corps of Engineers, members of the Yankton College staff, the National Park Service, and the Smithsonian Institution made this salvage operation successful. The burials proved to be of a group of Woodland people and included an appreciable number of personal ornaments, as well as a good series of skeletal remains. This party disbanded on August 23, after 8 weeks in the field.

The third River Basin Surveys party in the Oahe Reservoir area at the beginning of the year was comprised of a crew of 10 men under the direction of Charles H. McNutt. This party conducted excavations at a series of sites in the Fielder Bottom-Telegraph Flat area near the Sully site. The work was a continuation of excavations begun the season before, designed to sample the smaller sites in the immediate vicinity of the Sully site, in order to round out the story of the prehistoric occupations of this once heavily populated area. At the Sully School site (39SL7), one house was excavated in its entirety, and portions of four more houses were exposed. Three test trenches were cut across the fortification ditch, and a large series of midden tests, cache pits, and subsidiary features were excavated. Because of the two seasons' work there the total artifact sample is extensive. The architectural information recovered is less satisfactory. The gumbo fill present in many of the features made it extremely difficult to determine structural characteristics. Two occupations were present, one represented by rectangular houses and pottery similar to that from the Thomas Riggs site, the other by circular houses and pottery in the La Roche tradition. Only part of the site was fortified. The rectangular-house occupation was confined within the fortification ditch, but the circular-house occupation was found both within and without the ditch. There is additional ceramic evidence that the fortification probably dates from the former, rather than from the latter, occupation.

The Ziltener site (39SL10) was located along a treeless cutbank of the Missouri River bottoms approximately 3 miles southeast of the Sully site. Informants had reported that a number of skulls and artifacts were eroded from the bank from time to time by the annual spring rises in the river. The bank was carefully watched for several seasons by River Basin Surveys parties, but with little success. In 1958 a storage pit and a house profile were visible, and a small cache was found where it had slumped from the cutbank. The remainder of the house and the storage pit were excavated. The house was circular, and the pottery of the La Roche tradition.

The Nolz site (39SL40) was located on a terrace remnant below and somewhat to the southwest of the Sully site. Three very faint house depressions were visible as surface features. Two of these

were trenched and the third was half excavated. Central hearths were found in all cases. Three additional tests were made on the site. Artifact recovery was fair, but architectural data were poorly represented, owing to the shallow depth of fill above house floors and the clayey nature of the soil. The houses were probably circular and the pottery in the La Roche tradition.

The Zimmerman site (39SL41), located on the same terrace as the Nolz site, consisted of a village area marked by about 40 large round-to-oval depressions. One rectangular house was excavated completely, and half the fill of a second was removed. A midden area and 12 cache pits were also excavated. There was no indication of the presence of any other component. Three exploratory trenches were dug, in an effort to find a fortification ditch, but no satisfactory ditch profile was discovered. The total data indicate that this was a single-component site, characterized by long-rectangular houses and Thomas Riggs pottery.

The Glasshoff site (39SL42) was situated on the Zimmerman-Nolz terrace below the west end of the Sully site. According to an informant, the area was once used for cavalry exercises by Fort Sully personnel. In the past, sherds were collected from the surface there, and one test excavation (1953) had provided additional evidence of aboriginal occupation. No well-defined house depressions were apparent, but several surface anomalies were visible. Wherever tested, they proved to be the result of activities attributable to the occupation of Fort Sully in the late 19th century. Trenching during the 1958 season yielded historic specimens, a cache pit, and a part of an aboriginal dwelling. The latter was found on the last day of the field season. Artifact recovery was fair, and although some architectural features were well preserved, few details were discernible. Pottery is simple-stamped and somewhat like the Thomas Riggs materials, but it appears to be a distinctive variant.

Site 39SL27, a large, unnamed site on Telegraph Flat, 1 mile east of the Sully site, has several visible but shallow "house" depressions. Three small pits dug in the centers of depressions yielded neither artifacts nor architectural features. Additional work is needed at this site.

The Whistling Hawk site (39SL39) comprised a large area along the edge of Telegraph Flat terrace, east of 39SL27. A single pit excavated into a deep (house?) depression yielded no artifacts or architecture, although the Bass party excavated rock-cairn burials at the site.

Two sites not situated in Fielder Bottom were also tested. Site 39SL19 was a low-lying area in the Little Bend region, 18 miles upstream from the Sully site. Two small, shallow pits were dug to

examine the fill, and the site was walked carefully. No indication of a village and no cultural material were found on the surface. This area will probably be flooded in 1959 and no further efforts there seem justified. The Pitlick site (39HU16), 8 miles downstream from the Sully site, is the northernmost site in the Peoria Bottom group. It will not be flooded in 1959, but will probably slump badly. Two large trenches and two deep test pits were excavated. One trench cut through the shoulder and floor of a house, the other through a fortification ditch. One of the deep test pits may have cut through a house floor. No artifacts were recovered at the site. This party disbanded on August 23, following 10 weeks in the field. The Stephenson, Bass, and McNutt field parties shared camp facilities near the Sully site in Fielder Bottom.

The fourth River Basin Surveys field party in the Oahe Reservoir area consisted of a crew of nine, directed by Richard P. Wheeler. It investigated a series of sites on the right bank of the Missouri River in the Fort Bennett area, 36 river miles above Pierre, Stanley County, S. Dak. The principal effort was directed toward excavations at the H. P. Thomas site (39ST12). A total of 60 circular earth-lodge depressions is apparent in area 1 of the site, and 21 depressions are suggested in area 2. Three lodges were excavated in area 1 and two in area 2. Overburden was removed from six additional lodges by bulldozer, and four dozer-cut trenches were carried across the moats in each area. Three midden deposits in area 1 were excavated, one containing a fragment of the floor pattern of a house. Three of the suggested five components appear to be assignable to the Snake Butte, Stanley, and Anderson-Monroe Foci, as defined by Lehmer for the Oahe Dam area.

At the Agency Creek site (39ST41), adjacent to site 39ST12, seven small test pits and one bulldozer trench were excavated. Since time did not permit detailed investigation of these sample excavations, little can be said of the cultural implications of the site, although laboratory analyses of the artifacts will prove informative. Additional tests were made at the Lounsbury site (39ST42) and at the Ramsey site (39ST236), the latter situated midway between 39ST41 and 39ST42. At the Lounsbury site, test pits were excavated into the centers of two circular-house depressions, exposing the central hearths. The overburden was bulldozed from the surface of one house, but the structure was not fully excavated. The Ramsey site appears to be a series of middens only, and a stratigraphic cut, 5 feet by 10 feet, provided an abundance of artifacts but no house remains. These test excavations at the Agency Creek, Lounsbury, and Ramsey sites yielded thin, horizontally incised rim sherds and simple-stamped body sherds characteristic of the Bennett Focus as suggested earlier

at the Black Widow (39ST3) and Meyers (39ST10) sites. This party disbanded on August 25 and returned to the headquarters in Lincoln after 10 weeks in the field.

The fifth River Basin Surveys field party in the Oahe Reservoir area began work on July 25. It consisted of Harold A. Huscher and a crew of two men and worked primarily on the left bank of the Missouri River in Stanley County, S. Dak. This survey-mapping-testing crew investigated a series of six sites along Black Widow Ridge, 3 to 6 miles above the H. P. Thomas site, mapping and testing each. They are sites 39ST25, 39ST50, 39ST3 (Black Widow), 39ST49, 39ST203, and 39ST201. The Huscher party mapped all four sites being excavated by the Wheeler party, 39ST12, 39ST41, 39ST42, and 39ST236, and mapped and tested three other sites some 10 miles below the H. P. Thomas site. These are sites 39ST37, 39ST38, and 39ST39. In addition, this party mapped and assisted the McNutt crew in testing the Pitlick site (39HU16) on the left bank of the Missouri River. Huscher was severely injured in a fall from a photographic ladder on August 24, thus terminating the work of this field party after 4 weeks in the field. Following 5½ weeks in the hospital and another month of recuperation, he returned to duty on October 13. The Wheeler and Huscher parties shared a joint field camp near Fort Bennett.

In the Big Bend Reservoir area there were five River Basin Surveys field parties at work at the beginning of the fiscal year. The first consisted of a crew of 12 men under the direction of William N. Irving and included an assistant trained in geology to aid in investigations of stratigraphic terrace sequences relating to the geological-archeological interpretations of the sites and their immediate vicinity. This party concentrated its efforts on the excavation of the early occupations of the Medicine Crow site (39BF2), begun last season, and other preceramic sites in the immediate vicinity. These sites are located near Old Fort Thompson on the left bank of the Missouri River, in or near the construction area of the Big Bend Dam, Buffalo County, S. Dak. At the Medicine Crow site, three major occupation zones, each containing two or more components, are distinguishable on the basis of the vertical distribution of point types within a 3- to 6-foot section of primarily aeolian silt. The basal section of a small fluted point was found in the lowermost occupation zone. From the same zone, however, came points that resemble those of the Frontier Complex, and others suggesting a long temporal range for the basal portion of the deposit.

Additional investigations were made at two sites, 39BF238 and 39BF250, that had not been recorded previously, and at the Aiken site (39BF215). Only at the latter were immediately significant re-

sults obtained. Limited excavations there indicated five occupational layers and two well-defined, buried soils. At least two ceramic horizons are present, in the upper levels, one with simple-stamped or plain pottery, the other with cord-marked body sherds. Several additional occupations, in stratigraphically earlier positions, have yielded neither pottery nor other diagnostic artifacts. The great depth of deposit and the presence of buried soils may make possible a considerable refinement in the stratigraphy of late preceramic remains in the Big Bend Reservoir area. Geological investigations carried on by Alan H. Coogan in the area of the lower portion of this reservoir were intended to obtain information bearing upon chronology and the environmental sequence of the Medicine Crow, Aiken, and other early sites in the area. The possibilities for correlation of terrace, moraine, and other depositional features appear to be excellent. The Irving party disbanded on September 4 and returned to the Lincoln headquarters after 13 weeks in the field.

The second River Basin Surveys party in the field in the Big Bend Reservoir area was a crew of 11 men under the direction of James J. F. Deetz. This party spent the entire season in excavation of the late (village occupation) components (areas B and C) of the Medicine Crow site (39BF2). The work was done in conjunction with that of the Irving party in an effort to provide a comprehensive picture of the site as a whole. In all, 16 houses were completely excavated, and 4 were tested with varying intensity. Included within the houses were 16 cache pits. Eleven cache pits were excavated in the interhouse living areas. A single burial was recovered. Three well-defined components have been established for the ceramic period of this site and a fourth, less adequately outlined component is proposed. The Stanley Component (latest) is characterized by a predominance of Stanley Braced Rim pottery; circular houses, 25 to 30 feet in diameter with hard, light-colored floors; mortar pits; and absence of interior cache pits. Five domestic and four specialized house structures are included in this component. The specialized houses were grouped about a "plaza" and included a ceremonial lodge, 50 feet in diameter, with an altar, plastered floor, and silled entrance. The Fort Thompson Component resembles that at the Oacoma site, but may be somewhat later. Talking Crow ware predominates. Houses range from 35 to 40 feet in diameter, have vaguely defined floors, in-floor caches, and lack mortar pits. Four such structures were excavated during the 1958 season. There were two cases of superimposition, with Stanley houses above Fort Thompson houses. A third, unnamed, component is represented by a series of large bell-shaped cache pits excavated in area C. These affiliate most closely with the Two Teeth site (39BF204) a short distance to the southeast. Talking

Crow Straight Rim pottery predominates. The fourth component, occurring in area A, is represented by a house with an indistinct post pattern buried in Stanley and Fort Thompson refuse. The associated ceramics are varied, and at this time no definite assessment can be made of them.

The investigations in areas A and C at the Medicine Crow site represent the first clear-cut Stanley occupation excavated south of the Oahe Reservoir. It is also important to note that a temporal relationship can now be established between the components involved. European trade materials found in association with Stanley features may be helpful in providing absolute dates for the latest occupation. The Deetz party terminated fieldwork on August 30 after 12 weeks in the field.

The third River Basin Surveys party in the Big Bend Reservoir was comprised of a crew of 10 men, under the leadership of Robert W. Neuman. This party excavated or tested a series of four sites in the vicinity of Old Fort Thompson and three sites on the right bank of the Missouri River, in and adjacent to Good Soldier and Counselor Creeks. All seven sites are within the dam-construction area. The initial effort was devoted to the Akichita site (39BF221) located in the Missouri River bottoms adjacent to Old Fort Thompson. The site had been tested during the 1957 season, but although extensive evidence of occupation was recovered, no house structures were found. A network of five extended test trenches, excavated during the 1958 season, was equally unsuccessful in locating habitations. Cache pits were the only structures uncovered. The artifact collection is extensive, and shows clear relationship to the Anderson-Monroe material from the Dodd site (39ST30) near Pierre, S.Dak. At site 39BF220, situated about 1 mile west of the Akichita site, much of the occupation area has been washed into the river. Two excavation units, each 30 feet by 50 feet, produced only a limited artifact return. However, a number of pottery types were recovered. The inventory suggests that the site was occupied by circular-house people.

The Truman Mound site (39BF224), also in the Old Fort Thompson area, on the first terrace overlooking the river, was revisited for a second season in order to excavate the remaining two of the six mounds originally present there. The mounds, 1 to 2 feet in height, 50 feet in diameter, contained two types of burials: (1) secondary interments in shallow circular pits, (2) primary burials in deep oval pits. Artifact material recovered from the site suggests Woodland affiliation, but the conical-shaped vessels excavated are clearly simple-stamped, rather than the Woodland cord-marked type. In a stratum beneath, and not associated with the mounds, excavations recovered a number of stone artifacts. The most diagnostic type is represented by a tri-

angular point with a concave base. In the same stratum were ovoid knives, crude scrapers, a long-stemmed drill, hand-size cobbles, and fragments of bison bone. No pottery was in association. Site 39BF270, located about 2 miles west of 39BF224, consisted of four low circular mounds, three of which were excavated. The recovered artifacts compare closely with those from the Truman Mound site.

At site 39LM238, on the west side of the Missouri at the mouth of Good Soldier Creek, where the west abutment of the dam is to be built, a large "mound" was extensively cross-trenched and a series of test pits were excavated in an effort to locate village remains. The "mound" proved to be of natural origin (165 feet long, 90 feet wide, 5 feet high) but capped by two occupational deposits separated stratigraphically by a stratum of sterile yellow silt. The upper component contained simple-stamped pottery, triangular points, scattered post molds (many with bone wedges), and a few shallow firepits. The lower component contained cord-paddled pottery, large side-notched points, shallow basin-shaped firepits, and a large rock-filled hearth. A small rock shelter (39LM239), located about a mile and a half upstream from Good Soldier Creek, was briefly tested. It was thought that this site might possibly be the "Truteau Cave," historically known to have been used as winter quarters by the trader Truteau in 1794. Excavation demonstrated the shelter to be sterile of any cultural material. Site 39LM6, a deeply buried, multicomponent village site at the mouth of Counselor Creek, 3 miles upstream from site 39LM238, was visited, and an eroding cache pit excavated. Some additional collecting was done, but no further excavation was attempted. The Neuman party terminated fieldwork on August 22, after 14 weeks in the field. The Neuman, Irving, and Deez parties shared camp facilities near the Brule Landing, 5 miles upstream from Old Fort Thompson.

A fourth River Basin Surveys field party in the Big Bend Reservoir area consisted of nine men, directed by Bernard Golden. This party conducted excavations at the Hickey Brothers site (39LM4), located on the right (west) side of the Missouri River, about 7 miles north of the Lower Brule Agency. The site is situated on the first terrace above the river, just north of the constricted neck of the Little Bend. The occupation area is delineated by a well-preserved fortification ditch. The latter is "coffin shaped" in plan, with bastions at the corners and in the intervening runs of wall. A single corner bastion was excavated, exposing a shallow moat backed by a pendulum loop of stockade posts. The stockade line was further verified along one of the long walls, and a series of 25 test pits was excavated to sample the body of the site. Four of the shallow "house" depressions within the fortification were tested by area excavation and trenching.

Results were limited. A relatively constant stratigraphy was revealed, but no aboriginal habitations were located with certainty. At least one hearth and other evidences of very localized "camp" areas were excavated, but artifacts were remarkably scarce. A limited number of potsherds (Stanley, Thomas Riggs) constitute the most distinctive material. A portion of the site had been disturbed by recent farming activities, but at best it does not seem to have been heavily occupied. This crew terminated fieldwork on August 20, after 10 weeks in the field.

The fifth River Basin Surveys field party in the Big Bend Reservoir area had a crew of 14 men under the leadership of Dr. Warren W. Caldwell. Work of this party consisted of excavations at two sites immediately to the south of the Hickey Brothers site, on the first terrace of the Missouri River. The major portion of the season was devoted to continuing excavations begun in the 1957 season at the Black Partizan site (39LM218), a large multicomponent earth-lodge village, situated one-fourth mile south of the Hickey Brothers site. Four houses within the fortification ditch were exposed. In addition, deep cross sections of the moat were cut at two places, and two extensive midden areas were sampled by trenching. Several differing house patterns were recovered. The most distinctive consisted of a small (18-foot diameter) square(?) house with rounded corners, large intramural cache pits, and a dearth of house posts. Thomas Riggs pottery was characteristic. Two circular houses were exposed, one 35 feet in diameter, the other 29 feet in diameter. The larger, containing many bone and stone-wedged post holes, overlay a large rectangular house. Associated cache pits are probably attributable to the latter structure rather than to the former. Braced rims and typical Thomas Riggs rims are both present. The smaller circular house was characterized by an abnormally large group of in-floor cache pits. The pottery sample is varied and much of it may predate the house.

The deep midden debris overlying much of the site contained pottery rim sherds with horizontal trailed or incised decoration. Beneath the midden, a series of large cache pits produced an abundance of Talking Crow pottery. The fortification ditch varies from 12 to 15 feet in width and from 4 to 6 feet in depth, and contains both water-deposited silt and midden fill. The latter normally contains cord-marked body sherds and a scattering of mammal bone.

At site 39M215, lying between the Black Partizan and the Hickey Brothers sites, only a single house was excavated. Site 39LM215 physically overlaps both of the latter sites. The two houses dug at 39LM218 in 1957 appear to be associated with it. The single structure excavated this year was characterized by Talking Crow

pottery and an abundance of sheet-copper fragments. This party broke camp and returned to the Lincoln headquarters on August 12, after 9 weeks in the field. The Caldwell and Golden parties shared a joint field camp, situated adjacent to the sites under excavation.

The practice of using joint field camps of two or three parties each has, in the past two seasons, proved very economical and efficient. Combining of activities and expenses of several parties and the consequent reduction in total quantity of field equipment, vehicles, number of cooks, and other expenses constitute a major saving. Having several archeologists in a single camp is of great help in discussions pertaining to excavation methods and general archeological interpretations.

During the winter months two very brief Missouri Basin project field parties were at work in the Missouri Basin. William N. Irving visited the Merritt Reservoir area and the nearby vicinity in north-central Nebraska from December 2 through December 7. This one-man party made extensive examinations of a number of the small Sandhills lakes for possible localities in which to collect fossil pollen. This was in connection with building a master pollen profile which will aid in interpreting the archeological sequences at sites in the Big Bend Reservoir and other reservoir areas in the central portion of the Missouri Basin. A second purpose of the trip was to determine whether recent construction activity in the Merritt Reservoir area was endangering any previously unknown archeological remains. The potentialities for collecting fossil pollen looked very favorable, but actual collecting had to await colder weather when the lakes would be frozen over. No new archeological material that would be disturbed by work within the Merritt Reservoir area was noted.

The second wintertime River Basin Surveys field party within the Missouri Basin consisted of William N. Irving and Lee G. Madison, who were in the field from January 19 through the 30th. This party was accompanied by Dr. Paul B. Sears, pollen specialist from Yale University, who kindly volunteered his services in order to assist in this important aspect of the salvage program. The group visited the vicinity of the Big Bend Reservoir area and collected an extensive series of pond-deposit samples for pollen analysis. Dr. Sears has kindly agreed to analyze these samples for fossil pollen, and in fact has already begun such analyses. At least one core sample has provided a long pollen sequence, and others look promising. If a master profile can be established from these and other samples, it will assist greatly in identifying the vegetations and climates of past ages. By superimposing the pollen samples from archeological sites excavated in the Big Bend and other related reservoir areas upon this master pollen profile, climatic and ecological contexts can be determined for

these sites and the age of the sites thus be correlated with the climatic changes. Details of ecology are thereby added to the archeological records salvaged from the reservoir to provide a fuller picture of the prehistory of the area.

The 1959 summer field season in the Missouri Basin began in the Big Bend Reservoir area on June 4 with a single small crew, encamped near the Hickey Brothers site on the right bank of the Missouri River in Lyman County. Dr. Warren W. Caldwell and a crew of six began work on a series of sites at and near the proposed right (west) abutment of the Big Bend Dam, near the mouths of Good Soldier Creek and Counselor Creek. On Good Soldier Creek, site 39LM235 was found to have been largely destroyed by construction during the winter of several small boat-landing ramps, but test pits were excavated in the remaining portion of the site. Very little material was recovered. The nearby site, 39LM236, was found to be completely inundated by an unusually high water level in the Fort Randall Reservoir and no work was possible. At the mouth of Counselor Creek, the Useful Heart site (39LM6) was extensively trenched and full-scale excavation of this earth-lodge village site was in progress at the end of the year.

The only other Missouri Basin project party at work in June was a team of physical anthropologists consisting of William M. Bass, 3d, and two assistants. This team, working out of the Lincoln office, began operations on June 17 at the Department of Anthropology, University of Nebraska, making metric analyses of a large group of human skeletal remains from several reservoir areas in the Missouri Basin, and from other sites in the area. The team spent 5 days on a trip to the University of Oklahoma at Norman to make similar analyses, and at the end of the fiscal year was back in Lincoln studying the skeletal remains from sites in the Oahe Reservoir area. This party was materially assisted by a grant-in-aid to Bass from the University of Pennsylvania, Child Growth and Development Center, through the kindness of Dr. Wilton K. Krogman. This grant provided the salary for Bass and one assistant during June.

Cooperating institutions at work in the Missouri Basin at the beginning of the fiscal year included a party from the University of South Dakota, directed by Eugene B. Fugle, excavating at the Four Bears site (39DW2) in the Oahe Reservoir area; a party from the University of Idaho, directed by Dr. Alfred E. Bowers, excavating for the second season at the Rygh site (39CA4) in the Oahe Reservoir area; a joint party from the University of North Dakota and the State Historical Society of North Dakota, under the direction of Dr. James H. Howard, excavating at the Tony Glas site (32EM3) in the Oahe Reservoir area; a party from the University of Wyoming,

directed by Dr. William Mulloy, excavating at a series of sites in the Glendo Reservoir in Platte County, Wyo.; and a party from the University of Missouri, directed by Carl Chapman, in the Pomme de Terre Reservoir area of west-central Missouri. At the end of the fiscal year cooperating institutions were: A party from the University of Kansas, directed by Dr. Carlyle S. Smith, excavating at the Stricker Village site (39LM1) in the Big Bend Reservoir; a joint party from the University of North Dakota and the State Historical Society of North Dakota, directed by Dr. James H. Howard, excavating at the Huff site (32MO11) in the Oahe Reservoir area; and two parties from the University of Missouri, directed by Carl F. Chapman, excavating at a series of sites in the Pomme de Terre Reservoir and making preliminary surveys in the Kassinger Bluff Reservoir area of west-central Missouri. All these parties were operating through agreements with the National Park Service and were cooperating in the Smithsonian Institution research program.

During the time that the archeologists were not in the field, they were engaged in analyses of their materials and in laboratory and library research. They also prepared manuscripts of technical scientific reports and wrote articles and papers of a more popular nature.

The Missouri Basin Chronology Program, begun by the staff archeologists of the Missouri Basin project in January 1958, continued to function throughout the current year. This is a cooperative program, bringing together the enthusiastic support and wide range of experience of 34 individuals representing 20 research institutions working in the Missouri Basin area. This program, directed toward a more precise understanding of time sequences of the prehistoric cultures represented by the sites being excavated, is already beginning to be useful in more efficient planning of salvage operations. Concrete results are being realized with a minimum expenditure of time and funds. The program includes intensive research in dendrochronology, and in this phase the field crews have collected wood specimens to be used in developing two master charts, one for the lower Big Bend Reservoir area and one for the lower Oahe Reservoir area. Sufficient wood is now on hand to begin preparing the master charts into which archeological wood samples may later be fitted. In addition, plans are in progress for the services of a full-time dendrochronologist, working on other funds, to concentrate his efforts on this problem. Research in radioactive carbon-14 analyses is well underway within the framework of the program, and 11 specimens have been submitted to the University of Michigan Memorial-Phoenix Project Laboratory under the direction of Prof. H. R. Crane. Dates have been returned on all 11, and a second series of specimens is being prepared for submission. Pollen samples have been collected and are being analyzed by Dr. Paul B. Sears of Yale University.

Others have already been analyzed by Mrs. Catherine Clisby of Oberlin College, preparatory to establishing a fossil pollen sequence. Geologic-climatic investigations have been carried out by Alan H. Coogan, who was employed for the purpose by the River Basin Surveys. He worked in collaboration with William N. Irving in the lower Big Bend Reservoir area. Other less specific researches are in progress to bring all possible chronology techniques to bear on this one basic framework for Missouri Basin chronology.

The laboratory and office staff devoted its full time during the year to processing specimen materials for study, photographing specimens, preparing specimen records, and typing and filing of records and manuscript materials. The accomplishments of the laboratory and office staff are listed in the following tables :

TABLE 1.—*Specimens processed July 1, 1958, through June 30, 1959*

Reservoir	Number of sites	Catalog numbers assigned	Number of specimens processed
Big Bend.....	50	9, 254	71, 281
Dardanelle ¹	13	1, 975	4, 461
Fort Randall.....	4	21	512
Glendo.....	2	10	48
Lewis and Clark.....	1	7	158
Oahe.....	25	8, 668	80, 311
Sites not in reservoirs.....	3	48	194
	98	19, 983	156, 965
Collections not assigned site numbers.....	5	17	83
	103	20, 000	157, 048

In the Arkansas Basin.

TABLE 2.—*Record materials processed July 1, 1958, through June 30, 1959*

Reflex copies of records.....	8, 968
Photographic negatives made.....	2, 792
Photographic prints made.....	11, 888
Photographic prints mounted and filed.....	5, 566
Plate layouts made for manuscripts.....	71
Transparencies mounted in glass.....	1, 108
Cartographic tracings and revisions.....	72
Color pictures taken in lab.....	434
Artifacts drawn.....	66
Lettering of plates.....	75
Profiles drawn.....	45

It is of especial interest to note that on January 22 the one-millionth specimen was processed by the Missouri Basin project laboratory. As of June 30, the Missouri Basin project had cataloged, in 13 years of

operation, a grand total of 1,074,418 specimens from 1,795 numbered sites and 54 collections not assigned site numbers, in 92 reservoir areas within the Missouri Basin. During the current fiscal year, 7 pottery vessels, 23 pottery vessel sections, and 1 stoneware bowl were restored, and 154 nonvessel artifacts were repaired. Archeological specimens from 3 sites in 2 reservoirs were transferred to the division of archeology, U.S. National Museum, and human skeletal remains from 26 sites in 8 reservoirs were transferred to the division of physical anthropology, U.S. National Museum. Archeological specimens (mostly trade goods) from three sites in one reservoir were transferred to the Region Two Office, National Park Service, for display at the Jefferson National Westward Expansion Memorial Museum in St. Louis, Mo. The Missouri Basin project received, by transfer, from the University of Kansas, through the courtesy of Dr. Carlyle S. Smith, sample rim sherds of the Campbell Creek Indented type from the Talking Crow site (39BF3), and sample rim sherds of three varieties of the Cadotte Collared type from the Two Teeth site (39BF204). These specimens have been added to the Missouri Basin project comparative collections.

On July 26-27, archeologists of the staff of the Missouri Basin project joined with archeologists of the National Park Service and of State agencies at work within the Missouri Basin in a roundtable field conference in Pierre, S. Dak. This session, called the 15½th Plains Conference, was devoted to basic technical problems arising from the current field activities, and such conferences are to become a regular feature each summer. During the Thanksgiving weekend, members of the staff participated in the 16th Plains Conference for Archeology, held in Lincoln. On April 17, members of the staff participated in the annual meeting of the Nebraska Academy of Sciences, also held in Lincoln. On April 30 and May 1 and 2, members of the staff attended and participated in the annual meeting of the Society for American Archaeology, held in Salt Lake City, Utah.

Dr. Robert L. Stephenson, chief, when not in charge of field parties, devoted most of his time to managing the office and laboratory in Lincoln and preparing plans and budgets for the 1959 summer field season. He spent a portion of his time working on a summary report of the Missouri Basin Salvage Program for the calendar years 1952-58 and on the preparation of a manuscript reporting the "Archeological Investigations in the Whitney Reservoir, Texas." He completely revised and submitted a manuscript, "Excavations at Pueblo Pardo, New Mexico," which he had prepared in collaboration with Joseph H. Toulouse, Jr., in 1941, for publication as a monograph of the School of American Research, Santa Fe, N. Mex. He prepared and submitted for publication by the Alice Ferguson Foundation of

Washington, D.C., a popular manuscript, "Prehistoric Peoples of Accokeek Creek." Throughout the year he served as chairman of the Missouri Basin Chronology Program. A photographic booklet, "The Inter-Agency Archaeological Salvage Program after Twelve Years," prepared by him at the end of last fiscal year, was published in September. In July he served as chairman of the 15½th Plains Conference held in Pierre, S. Dak. During the Thanksgiving weekend he attended and participated in the 16th Plains Conference for Archeology, serving as chairman for the half-day session on "Archeology of the Southern Plains," and presenting a paper on "The Sully Site" at another session. In January he attended and participated in the annual meeting of the Committee for the Recovery of Archaeological Remains, held in Washington, D.C. In April he attended the annual meeting of the Nebraska Academy of Sciences, presenting a paper on "Administration in Anthropology" which was published in abstract in the *Proceedings of the Nebraska Academy of Sciences*. On April 30 and May 1-2, he attended the annual meeting of the Society for American Archaeology and presented two papers, "River Basin Salvage Problems Today" and "The Missouri Basin Chronology Program," both of which were published in abstract in Abstracts of Papers of the 24th Annual Meeting of the Society for American Archaeology. During the year he gave eight talks on various aspects of Missouri Basin Salvage Archeology at five local organizations' regular meetings.

Dr. Warren W. Caldwell, archeologist, during the fall and winter months devoted most of his time to analyses of specimen materials recovered from sites he had excavated in the Dardanelle and Big Bend Reservoirs during the previous year. He completed all plates, figures, and manuscript text for the final report, "Archeological Investigations in the Dardanelle Reservoir of West-Central Arkansas." He prepared a brief technical report on "Firearms and Related Artifacts from Fort Atkinson, Nebraska" and another entitled "Comments on the 'English Pattern' Trade Rifles," both for publication in the *Missouri Archaeologist*. He prepared a manuscript, pictures, and captions for a photographic booklet entitled "Gavins Point Dam and the Lewis and Clark Lake" for publication by the Corps of Engineers, U.S. Department of the Army; and submitted for publication in the *Tree-Ring Journal*, an article entitled "Dendrochronology and the Missouri Basin Chronology Program." He prepared a statement on "Plains Archeology and the Salvage Program" for publication in the Encyclopaedia Britannica Yearbook. In addition, he prepared several mimeographed statements for distribution from the Missouri Basin project office, including "Report No. 3, Missouri Basin Project and Cooperating Institutions," and

"Statement No. 2, The Missouri Basin Chronology Program." His article "The Smithsonian Institution in Arkansas," prepared late last year, was published in the *Ozark Mountaineer* for July 1958. He prepared a book review of "Frontier Steel" by Arthur Rosebush, that was published in *Nebraska History* for March 1959. In July he attended and participated in the 15½th Plains Conference, held in Pierre, S. Dak. In November he attended the 16th Plains Conference for Archeology and served as chairman for the half-day session on "The Chronology Program" and presented a paper on "The Black Partizan Site" at another session. In April he served as the general chairman of the annual meeting of the anthropology section of the Nebraska Academy of Sciences, held in Lincoln, Nebr., and presented a paper entitled "Northwest Coast Archeology: An Interpretation," which was published in abstract in the *Proceedings of the Nebraska Academy of Sciences*. During the year he served as chairman of the dendrochronology section of the Chronology Program and gave a talk to the North Omaha Kiwanis Club on "The Missouri Basin Salvage Program."

Harold A. Huscher in July participated in the 15½th Plains Conference in Pierre, S. Dak., and in November attended the 16th Plains Conference for Archeology, where he served as chairman for the half-day session on "Field Reports" and presented two papers entitled "Mapping in the Fort Bennett Area" and "Chronologies from Ceramic Analysis." His other activities have been reported in a preceding section.

William M. Bass, 3d, temporary physical anthropologist, participated in the 15½th Plains Conference in July and after the completion of fieldwork, left the staff on September 2. During the spring months he devoted much of his own time to detailed metric analyses of the human skeletal remains excavated in the Oahe and other Missouri Basin reservoirs. On June 17 he returned to Lincoln to serve as party chief for the mobile physical anthropology team working in the general Missouri Basin area.

William N. Irving, archeologist, when not in the field directing excavations, was in the Lincoln office analyzing materials he excavated during the previous two summers, particularly in regard to the Medicine Crow site (39BF2) and the Aiken site (39BF215). In July he attended and participated in the 15½th Plains Conference at Pierre, S. Dak. On November 27-28 he attended the 16th Plains Conference for Archeology and presented two papers, "Pre-Ceramic Sites in the Big Bend Reservoir" and "Pre-Ceramic Chronology in the Big Bend Reservoir." In collaboration with Alan H. Coogan, he prepared a manuscript on "Late Pleistocene and Recent Missouri River Terraces in the Big Bend Reservoir, South

Dakota" to be published in the *Proceedings of the Iowa Academy of Sciences*. He was on leave without pay from February 9 to April 24, to complete work on a report on Arctic research previously done for Harvard University. On April 30 and May 1-2, he attended the annual meetings of the Society for American Archaeology. He served throughout the year as chairman of the geologic-climatic section of the Chronology Program. At the end of the year he was in the Lincoln office, continuing work on his report on investigations at the Medicine Crow and related sites.

James J. F. Deetz, temporary archeologist, participated in the 15½th Plains Conference held in July. He completed his fieldwork on September 5 and terminated his employment at that time. He spent a portion of his own time during the winter and spring months analyzing materials from, and preparing a report on, the ceramic components of the Medicine Crow site (39BF2).

Alan H. Coogan, temporary field assistant, participated in the 15½th Plains Conference held in July. He completed his fieldwork and terminated his employment on August 29. In November he participated in the 16th Plains Conference for Archeology held in Lincoln, Nebr., presenting a paper entitled "The Physical Basis for Chronology in the Big Bend Reservoir." During the fall and winter months, on his own time, he prepared the report in collaboration with William N. Irving for publication in the *Proceedings of the Iowa Academy of Sciences*.

Bernard Golden, temporary archeologist, completed his fieldwork and left the project on September 12. During the winter and spring months he devoted a portion of his own time to preparation of the first draft of a report on his 1958 excavations entitled "Excavations at the Hickey Brothers Site (39LM4), Big Bend Reservoir," which he submitted for review early in June. In July he participated in the 15½th Plains Conference held in Pierre.

Charles H. McNutt, archeologist, attended the 15½th Plains Conference in July. When not in the field conducting excavations, he devoted most of his time to analyses of materials he had excavated over the past 2 years and to preparation of reports. He served throughout the year as chairman of the carbon-14 section of the Chronology Program. On temporary-detached duty to the National Park Service from September 23 to November 15, for excavations at Fort Laramie National Monument, he completed a report on that work entitled "Excavations at Old Bedlam, Fort Laramie National Monument, 48G01, Wyoming, 1958." During the Thanksgiving weekend he participated in the 16th Plains Conference for Archeology, held in Lincoln, Nebr., and presented papers reporting on "Excavations in Fielder Bottom Area, Oahe Reservoir," "Exca-

vations at Fort Laramie National Monument," and "Radiocarbon Dating in the Missouri Basin Chronology Program." In April he prepared a paper for the Nebraska Academy of Sciences, entitled "Comments on Two Northern Plains Pottery Wares," published in abstract in the *Proceedings* of the Academy. From April 7 to June 14 he was on leave without pay to complete his doctoral dissertation, which was submitted to the University of Michigan on June 29. On April 30 and May 1-2, he participated in the annual meetings of the Society for American Archaeology, held in Salt Lake City, Utah, and presented a paper entitled "Can Paraffin Be Removed from Charcoal Samples?" in collaboration with Dr. John L. Champe of the University of Nebraska. It was published in abstract in the Abstracts of Papers of the 24th Annual Meeting of the Society for American Archaeology. During the year he also continued work on a manuscript on ceramic taxonomy of the South Dakota area and presented two slide talks to local civic groups concerning River Basin Salvage Archeology. He also wrote an article, "Bibliography of Primary Sources for Radiocarbon Dates," in collaboration with Richard P. Wheeler, which was published in *American Antiquity*, volume 24, No. 3. At the end of the year he was preparing to begin fieldwork in the Oahe Reservoir area early in the next fiscal year.

Robert W. Neuman, archeologist, in July participated in the 15½th Plains Conference held in Pierre. During the time he was not in the field conducting excavations he spent a large portion of his time in analyzing materials and preparing reports of excavations conducted the previous two summers. September 29-October 3 he made a trip in company with Harry E. Weakly, who kindly contributed his time, to the Big Bend and Oahe Reservoir areas to collect dendrochronological specimens. On November 27-28 he participated in the 16th Plains Conference for Archeology, presenting a paper on "Archeological Investigations in the Fort Thompson Area." From December 4 to 21 he was on temporary-detached duty with the National Park Service to conduct excavations at George Washington Carver National Monument. He submitted a final report on that work early in January. He prepared a report on "Representative Quill Flatteners from the Central United States," which was read in absentia at the Nebraska Academy of Sciences meeting in Lincoln on April 17, and which was published in abstract in the *Proceedings* of the Academy. From February 9 to June 29 he was transferred to the River Basin Surveys outside the Missouri Basin for work in the Chattahoochee River Basin. His activities there have been described in previous pages. At the end of the year he was back in the Lincoln office working on a report, nearing completion, on

excavations in a series of mound sites in the Big Bend Reservoir area.

G. Hubert Smith, archeologist, at the beginning of the fiscal year was on temporary-detached duty with the National Park Service, conducting excavations at Fort McHenry National Monument, in Baltimore, Md. He submitted a report on his findings in September. On October 1 he returned to duty with the Missouri Basin project and spent the period from then until February 9 compiling a comprehensive report on several seasons' work at Site 32ML2, Forts Berthold I and II, and Like-a-Fishhook Village. This report will combine the findings of five archeologists during four seasons of work at this site in the Garrison Reservoir of North Dakota. In addition there will be an ethnohistoric account of the site. In February he was transferred to the Chattahoochee Basin project where he remained until June 17, when he again returned to the Missouri Basin project. In November he attended the annual meetings of the American Indian Ethnohistorical Conference and the American Anthropological Association, held in Washington, D.C. At a symposium of the latter group he contributed a paper on "Interpretive Values of Archeological Evidence in Historical Research." During the year he had a previously written article entitled "Great Carrying Place" published in the *Naturalist*, a quarterly publication of the Natural History Society of Minnesota. He prepared reviews of "The Indians of Quetico," by Emerson S. Coatsworth, for publication in the fall 1958 issue of *Ethnohistory*, and of "New Light on Old Fort Snelling," by John M. Callender, for publication in a future issue of *Nebraska History*. He also prepared a brief article describing the work at Fort McHenry and submitted it for publication in the *Maryland Historical Magazine*. At the end of the year he was again at work on the comprehensive report on Site 39ML2, Forts Berthold I and II, and Like-a-Fishhook Village.

Richard P. Wheeler, archeologist, when he was not in the field, devoted his time to analyses of materials and preparation of reports on sites excavated by him in past years. He completed the final draft of his manuscript, "The Stutsman Focus: An Aboriginal Culture Complex in the Jamestown Reservoir Area, North Dakota." He also completed the major portion of a draft of a manuscript entitled "Mounds and Earthworks in the Jamestown Reservoir Area of North Dakota" and of another entitled "Three Stratified Occupation Sites in the Oahe Dam and Reservoir Area, South Dakota." In July he participated in the 15½th Plains Conference held in Pierre, and in November attended the 16th Plains Conference for Archeology, held in Lincoln, presenting papers on "Investigations near Old Fort Bennett, Oahe Reservoir" and "Dendrochronology in the Central North-

ern Plains," the latter in collaboration with Harry E. Weakly. In April he presented a paper at the Nebraska Academy of Sciences meeting entitled "Comments on 'Method and Theory in American Archeology,'" which was published in abstract in the *Proceedings* of the Academy. On April 30 and May 1-2, he participated in the annual meetings of the Society for American Archaeology in Salt Lake City, Utah, and presented a paper entitled "The Middle Prehistoric Period in the Central Plains," which was published in abstract in the Abstracts of Papers of the 24th Annual Meeting of the Society for American Archaeology. During the year he collaborated with Charles H. McNutt, as previously mentioned, in an article that was published in *American Antiquity*. On May 30 he terminated his employment with the Missouri Basin project and transferred to the National Park Service, joining the Wetherill Mesa project at Mesa Verde National Park.

COOPERATING INSTITUTIONS

A number of institutions and agencies cooperated in the Inter-Agency Salvage Program in several areas throughout the United States. In addition to those previously mentioned in the sections on the Missouri Basin and the State of Kansas, there were 19 working under agreements with the National Park Service. The University of Georgia continued its investigations at the Hartwell Reservoir on the Tugaloo River and conducted excavations in the Oliver and Walter F. George projects on the Chattahoochee River. The University of Kentucky made surveys and did some digging in the Barkley Reservoir area on the Cumberland River and the Nolin Reservoir Basin on the Nolin River. The New Jersey Museum did salvage work on Tock's Island, N.J. The University of Michigan carried on investigations along the Saginaw River in Michigan. The State University of Iowa did survey and test digging at the Rathbun project on the Chariton River in Iowa. The University of Oklahoma did some further work at Fort Gibson on the Grand River and at the Oolagah Reservoir on the Verdigris River. The University of Texas continued its operations in the Ferrell's Bridge area on Cypress Creek in eastern Texas and in the Diablo Reservoir region along the Rio Grande. Texas Western University also worked in the Diablo district. The School of American Research continued its studies in the Navaho Reservoir area along the San Juan River in northern New Mexico. The University of Utah and the Museum of Northern Arizona completed surveys in the Glen Canyon Reservoir area on the Upper Colorado River and started a series of excavations in a number of sites. The University of Utah completed its investigation of the Flaming Gorge project, also on the Upper Colorado. The University of Arizona conducted investigations along the Gila River above the Painted Rocks Reservoir area. In

California the University of Southern California completed a series of investigations at the Casitas Reservoir on Coyote Creek. The University of California at Los Angeles excavated a site in the Terminus Reservoir area on the Kaweah River. The University of California at Berkeley completed its excavations in the Trinity Reservoir Basin on the Trinity River, and San Francisco State College made studies at the Whiskeytown project on the Upper Sacramento River. The University of Oregon continued operations in the John Day Reservoir in the Columbia River. The University of Washington completed its investigations in the Priest Rapids Reservoir area, also in the Columbia River, and the State College of Washington continued its excavations in the Ice Harbor Reservoir area on the Snake River. A number of local groups and institutions continued to assist on a voluntary basis. These mainly were in New York State, Ohio, Indiana, Tennessee, and southern California.

ARCHIVES OF ETHNOLOGY

The Bureau archives continued during the year under the custody of Mrs. Margaret C. Blaker. On June 8 Nicholas S. Hopkins entered on duty as a summer intern to assist in arranging and describing manuscript collections, and on June 15 Winfield H. Arneson, summer intern, entered on duty to assist with photographic collections.

The use of the manuscript collections by anthropologists and historical researchers continues to increase. Approximately 329 manuscripts were consulted by 92 visitors to the archives, and an equal number were consulted by the archivist in preparing replies to 87 mail inquiries concerning the nature and extent of manuscript information on specific topics or tribes. There were 22 purchase orders for a total of 2,897 pages of manuscript reproductions. In the course of examination, new and more detailed descriptions of about 50 manuscripts were prepared for the catalog, and a number of descriptive lists of manuscripts were prepared for distribution.

An anonymous English-Arikara vocabulary in a homemade notebook of 48 pages, thought to have been recorded ca. 1869-74 by an associate or acquaintance of Washington Matthews, was donated by Dr. John A. Pope of Washington, D.C.

Scholars, publishers, and the general public have continued to draw heavily on the photographic collections of the Bureau as a source of illustration and documentation. There were a total of 504 written inquiries, purchase orders, and personal inquiries concerning photographs, and 1,208 prints were distributed through purchase, gift, or exchange. As in previous years, a number of lists describing photographs in the Bureau's collection were prepared for distribution.

One hundred such lists relating to specific tribes and subjects are now available.

The Bureau has been fortunate in receiving the cooperation of several collectors of photographs that have ethnological and historical value. Some of the collectors lent their pictures for copying, while others gave their prints to the Bureau, thus insuring their preservation and making them available to students.

An important collection of over 115 negatives of Seminole Indians made by Charles Barney Cory, Sr., in Florida in the period 1877-95 was lent by Mrs. Zelma Carolyn Cory of Homewood, Ill., and Charles Barney Cory of Madison, Ill., through Alan R. Sawyer of the Art Institute of Chicago. Enlarged prints from these negatives are on file for reference at the Bureau. In addition, a group of 28 original and postcard prints by various photographers, collected by Charles Barney Cory in Florida and in the West, and relating to the Seminole, Shoshoni, Bannock, Paiute, Dakota, and other western tribes, was lent by Mr. Sawyer for copying.

A collection of 65 photographs of Seminole Indians, made by William D. Boehmer, Dwight R. Gardin, and others, was lent for copying by William D. Boehmer, educational field agent, Seminole Indian Agency, Okeechobee, Fla.

A series of 21 negatives, prints, and postcard reproductions relating to the Seminole Indians, made and collected by the photographer C. N. Dutton in the first decade of the 20th century, was lent for copying by Louis Capron, West Palm Beach, Fla., together with 4 Seminole photographs made by Capron in the 1930's.

A collection of 115 prints of Indians of the Dakota, Chippewa, Winnebago, Paiute, Crow, Apache, and other tribes, made by commercial photographers in the latter half of the 19th century, was donated by G. Hubert Smith of Lincoln, Nebr. In addition, several early stereographs of Minnesota Indian subjects were lent by him for copying.

A microfilm of the South Dakota Historical Society's collection of about 400 photographic prints relating to Western Indian history and Indian wars, along with a transcript of the accompanying caption material, was made available to the Bureau, through the courtesy of James Tubbesing of Winchester, Va., who made the film. A reference set of enlarged prints has been made of about 130 subjects selected from the series because they supplement or document photographs already in the Bureau's collections.

A series of commercial photographs, including 17 by H. Buehmann, Tucson, Arizona Territory, relating to the Apache Indians, and 9 by J. N. Choate, Carlisle, Pa., showing students at the Indian School at Carlisle, was received by transfer from the Department of Civil History, Smithsonian Institution.

A group of commercial photographs of Indians—including six outdoor scenes made by F. A. Rinehart in 1900, relating to the Crow Indians and showing details of costume and horse gear—was received as a gift from Henry G. K. Tyrell of Baltimore, Md., in memory of his father, Henry Grattan Tyrell.

A reference set of 18 photographs of drawings by Charles-Alexandre Lesueur, showing Indians and archeological sites sketched by Lesueur in the lower Mississippi Valley in the period 1816-37, was purchased from the studio of Victor Genetier in Paris. The original drawings are owned by the Museum of Natural History, Havre, France.

Six portraits of the Creek chief Pleasant Porter, made at various dates from 1872 to 1905 and assembled by Ralph W. Goodwin of Cambridge, Mass., while writing a biography of the chief, were lent by Mr. Goodwin for copying. He also provided biographical and other background information on several photographs of Creek Indians in the Bureau collections.

While examining the collections of Pawnee photographs at the Bureau, Stephen G. Gover of Weatherford, Okla., a member of the Pawnee tribe, supplied notes on a number of the photographs, including pronunciations and translations of personal names. Mr. Gover also lent for copying a photograph of the Pawnee chief, Crooked Hand, and another of Dog Chief, son of Crooked Hand.

With the assistance of Cheyenne informants, Mrs. Margot Liberty of Birney, Mont., provided identifications and biographical notes for a number of portraits of Cheyenne Indians in the Bureau collections. Father Peter Powell of Chicago, Ill., also furnished notes of this kind.

The extensive collection of photographs of North American Indians transferred to the Bureau from the Library of Congress last year has been sorted and arranged by tribe or area, and is now available for reference.

ILLUSTRATIONS

E. G. Schumacher, staff artist, prepared original illustrations and examined and approved or redrew other illustrations for the various Bureau publications that were being edited for printing. Among the subjects worked on during the year were Kansas archeology and archeological investigations in British Guiana, Mohave ethnopsychiatry and suicide, historic sites archeology on the Upper Missouri, and historic trading posts in North and South Dakota. In addition, a variety of scientific and technical art work was completed for other branches of the Institution.

EDITORIAL WORK AND PUBLICATIONS

The Bureau's editorial work continued during the year under the immediate direction of Mrs. Eloise B. Edelen. There were issued one annual report and four bulletins, as follows:

- Seventy-fifth Annual Report of the Bureau of American Ethnology, 1957-1958. ii+36 pp., 5 pls. 1959.
- Bulletin 168. The Native Brotherhoods: Modern intertribal organizations on the Northwest coast, by Philip Drucker. iv+194 pp. 1958.
- Bulletin 169. River Basin Surveys Papers Nos. 9-14, Frank H. H. Roberts, Jr., editor. ix+392 pp., 73 pls., 13 figs., 9 maps. 1958.
- No. 9. Archeological investigations in the Heart Butte Reservoir area, North Dakota, by Paul L. Cooper.
- No. 10. Archeological investigations at the Tuttle Creek Dam, Kansas, by Robert B. Cumming, Jr.
- No. 11. The Spain site (39LM301), a winter village in Fort Randall Reservoir, South Dakota, by Carlyle S. Smith and Roger T. Grange, Jr.
- No. 12. The Wilbanks site (9CK-5), Georgia, by William H. Sears.
- No. 13. Historic sites in and around the Jim Woodruff Reservoir area, Florida-Georgia, by Mark F. Boyd.
- No. 14. Six sites near the Chattahoochee River in the Jim Woodruff Reservoir area, Florida, by Ripley P. Bullen.
- Bulletin 170. Excavations at La Venta, Tabasco, 1955, by Philip Drucker, Robert F. Heizer, and Robert J. Squier. With appendixes by Jonas E. Gullberg, Garniss H. Curtis, and A. Starker Leopold. viii+312 pp., 63 pls., 82 figs. 1959.
- Bulletin 171. The North Alaskan Eskimo: A study in ecology and society, by Robert F. Spencer. vi+490 pp., 9 pls., 2 figs., 4 maps. 1959.

Publications distributed totaled 27,721, as compared with 28,131 for the fiscal year 1958.

COLLECTIONS

The following collections were made by staff members of the Bureau of American Ethnology or of the River Basin Surveys and transferred to the permanent collections of the Department of Anthropology, U.S. National Museum:

FROM BUREAU OF AMERICAN ETHNOLOGY

Acc. No.

224347. Archeological materials collected by Ralph S. Solecki, from Marshall County, W. Va., during December 1948 and January 1949.

FROM RIVER BASIN SURVEYS

222362. Indian skeletal material from the Lake Spring site, Columbia County, Ga., collected by Dr. Joseph R. Caldwell.
224546. Archeological material collected by Waldo R. Wedel, for the R.B.S., B.A.E., from Oahe Reservoir, Stanley County, S. Dak., during 1951.
224549. Samples of rock, brick, burned-earth, etc., collected by Ralph S. Solecki, R.B.S., from Ross County, Ohio, on November 30, 1949.

MISCELLANEOUS

Dr. John P. Harrington, Dr. A. J. Waring, and Dr. M. W. Stirling continued as research associates of the Bureau. Dr. Stirling used the facilities of the Bureau laboratory in the preparation of final reports on collections made in previous years during field trips to Panama and Ecuador.

Dr. Wallace L. Chafe, scientific linguist, joined the staff on April 3, 1959. In addition to the two summer interns mentioned in the report of the archivist, the Bureau was fortunate in having the services of Norma L. Hackelman, another summer intern, who assisted with the preparation and checking of bibliographies to be included in the Bureau's most useful bibliography and information leaflet series. Owing to the limited staff and heavy workload, there were issued only two new bibliographies and one revised list for distribution to the public, as follows:

SIL-50, 2d rev., 9/58. Selected list of portraits of prominent Indians in the collections of the Bureau of American Ethnology. 3 pp.

SIL-174, 12/58. Selected references on the Indians of Southeastern North America. (State index, pp. 12-14; musical recordings, p. 14; museum exhibits, pp. 14-16.) 16 pp.

SIL-197, 11/58. Selected bibliography of maps relating to the American Indian. 4 pp.

There were 2,759 letters of inquiry about American Indians and related problems received in the Director's office alone during the year. Information was furnished by staff members in answer to many of the queries, and to others, information leaflets or other printed items were supplied. In addition to the printed bibliographies and information leaflets described above several such items were compiled on topics of a general or specific nature and typescript copies sent out in answer to the hundreds of requests for this information. Several manuscripts were read and appraised by staff members for colleagues and scientific organizations. Numerous specimens were identified for owners and data supplied on them.

Respectfully submitted.

FRANK H. H. ROBERTS, JR., *Director.*

Dr. LEONARD CARMICHAEL,
Secretary, Smithsonian Institution.

Report on the Astrophysical Observatory

SIR: I have the honor to submit the following report on the operations of the Smithsonian Astrophysical Observatory for the fiscal year ended June 30, 1959:

The Astrophysical Observatory includes two divisions: the Division of Astrophysical Research, for the study of solar and other types of energy impinging on the earth, and the Division of Radiation and Organisms, for the investigation of radiation as it relates directly or indirectly to biological problems. Shops maintained in Washington, for work in metals, woods, and optical electronics, prepare special equipment for both divisions, and a shop in Cambridge provides high-precision mechanical work. The field station at Table Mountain, Calif., carries out solar observations.

DIVISION OF ASTROPHYSICAL RESEARCH

The research carried on at the Observatory during the past year has produced gratifying results in the areas of solar astrophysics, upper atmosphere studies, meteoritical studies, and satellite science. Some long-term objectives have been reached. The resulting gains in knowledge and the development of advanced observational techniques have revealed fresh areas of research and established new goals.

The Observatory has continued to maintain close liaison with Harvard College Observatory, the Massachusetts Institute of Technology, and other research centers. This policy confers mutual benefits.

Solar astrophysics.—At the Table Mountain station Alfred G. Froiland, employing methods recently developed, has made progress in his attempts to determine, from the Smithsonian solar spectrograms, the amount of atmospheric ozone in a vertical path, both in the visible spectral range and in the infrared region. He continues his study of the quantity and quality of haze in the atmosphere. The availability of a datatron at the California Institute of Technology has broadened and simplified the scope of this work. These new techniques are expected to lead to a more accurate and consistent method of measurement. Already, they have provided evidence for the existence of other related effects of energy absorption in the upper atmosphere.

Dr. Max Krook has developed two methods for determining the structure of nongray stellar atmospheres. They provide, for the first

time, rapidly converging procedures for calculating the structure of model atmospheres for hot stars, with given chemical composition, effective temperature, and surface gravity. He has formulated a method for calculating the structure of shock fronts in completely ionized hydrogen and in the presence of magnetic fields. The calculations contribute to our understanding of the fundamental properties of ionized gases. Procedures were devised for translating a microscopically formulated problem of gas dynamics into an approximately equivalent continuum problem. This method applies particularly to cases in which the Knudsen number, K , is not very small. Dr. Krook continues to study various problems in the dynamics of gases and the kinetic theory of gases.

Dr. Charles A. Whitney has begun a study of atmospheric structure and its correlation with solar activity. This work involves empirical analyses of satellite and solar data as they relate to atmospheric physics. Dr. Whitney continued his study of gas dynamics in astrophysical contexts, to obtain a numerical solution of the nonadiabatic equations of motion for the solar atmosphere. The procedure involves integration of the equations of motion for a variety of conditions. This is the first critical investigation of the propagation of nonlinear and nonadiabatic waves in the solar atmosphere. It will provide a basis for the interpretation of high-resolution photographs of the solar disk obtained by balloon-mounted telescopes. A comparison between the adiabatic and nonadiabatic equations will have a direct bearing on the theory of stellar chromospheres. A program to provide a firm basis for the theory of stellar pulsation was initiated by Dr. Whitney in 1955. This fundamental problem of classical astrophysics requires a variety of procedures, primarily theoretical. With the help of Dr. John Cox, the development of machine methods for the solution of pertinent equations has made considerable progress.

Upper atmosphere.—Dr. Jacchia's research on the secular acceleration of artificial satellites enabled him to establish marked transient effects on the acceleration of Satellite 1958 Delta One, which coincided with the great magnetic storms of July and September 1958. Dr. Jacchia's study established that these variations in acceleration were not due to solar electromagnetic radiation but to solar corpuscular radiation. This novel result is of outstanding significance in the field of solar-terrestrial relationships.

Studying the orbital accelerations of Satellites 1958 Beta Two and 1958 Delta Two, Dr. Jacchia found that they show semiregular fluctuations with an average period of 29 days. Further study suggested that a semiperiodic variation in the solar radiation with the synodic period of rotation of the sun, 27 days, seemed a more probable cycle.

Dr. Theodore E. Sterne completed a study of the inferential

methods used in evaluating observational data. He developed new methods, based on celestial mechanics, for inferring the density of the upper atmosphere from the motions of artificial satellites, and derived a value much higher than previous estimates. At an altitude of 220 km the density was found to be about 4.0×10^{-13} gm/cm³, and at 368 km the value was about 1.4×10^{-14} gm/cm. These methods for developing satellite data have particular importance because the satellites provide our only reliable source of information about the upper atmosphere. This knowledge, in turn, will augment our understanding of solar-terrestrial relationships. Dr. Sterne has also studied the theories and the types of reasoning involved in cosmology, to evaluate the probable reliability of our knowledge of the universe and its origin, and to compare the relative merits of various observational approaches.

Dr. J. Allen Hynek and George J. Neilson began a series of balloon experiments in cooperation with Col. David G. Simons of the Aero Medical Field Laboratory at Holloman Air Force Base, the Winzen Laboratories of Minneapolis, and the Massachusetts Institute of Technology Instrumentation Laboratories. This program will determine the feasibility of using a stabilized platform system in balloons designed for high-altitude observations. Two types of experiments are planned: (1) Unmanned balloons will carry a radio-controlled stabilization system for stellar observations made at altitudes up to 50,000 feet. (2) Manned balloons will carry a different type of stabilization system, controlled by an observer and a navigator (U.S. Air Force pilot) riding in the balloon gondola. They will attempt to make stellar observations at altitudes up to 85,000 feet, and, eventually, from beyond the earth's atmosphere. Both stabilization systems have now been developed and built by the Massachusetts Institute of Technology Instrumentation Laboratories. Preliminary tests and preparations have been made. Two observers, Mr. Neilson and William White, have been checked for physical fitness for flights up to 80,000 feet. The first launching of the unmanned balloon has been fixed for the fall of 1959.

The Director and Robert J. Davis completed the design of a telescope for use in space. The instrument will include an optical system, a detecting device, circuits to amplify and modify the output signal of the detecting device, and the auxiliary circuits necessary to protect the instrument from the effects of direct sunlight. Fitted into a socket in a "stable platform" within a satellite, the telescope will obtain important astrophysical data. The chief goals at present include an ultraviolet survey of the sky in three wavelength regions, and spectroscopic studies of particular celestial objects. Completion of the project will require about 3 years.

Meteoritical studies.—Research in meteoritics has provided invaluable information on the relation between meteors and comets, and the origin of comets. The Director's analyses of data, based on his Icy Comet theory, have yielded more information on the nature and origin of comets, and possibly the origin of the solar system. Recent studies of micrometeorites in the earth's atmosphere indicate that heavier elements, of the meteoritic category, condensed early in the original gases responsible for the formation of the cometary system and probably the planets.

An electron probe microanalyzer, designed and developed by Dr. F. Behn Riggs, Jr., with Dr. Andrew R. Lang as consultant, for the study of meteorites, is expected to be in full operation in the fall. Electron probe microanalysis is one of the newest methods for chemical analysis. In addition to its use for point-to-point analysis of the metallic constituents of iron meteorites, the microanalyzer will permit study of the gross distribution of elements across the surface of a sectioned meteorite measuring up to ten inches across. The distribution of elements cannot be measured on such a scale by any other method.

The Director, Dr. Fireman, Dr. Frances W. Wright, Paul W. Hodge, Hai Chin Rhee, Kenneth Covey, and Adolph Esposito continued the program of collection and identification of micrometeoritic dust. Collections of atmospheric particulate matter were made by high-flying jet aircraft. A collector mounted on a B-52 by the Boeing Aircraft Co. and flown by them has provided 19 exposed filters usable for analysis. The filters have been examined optically under a high-powered microscope and particles of various descriptions have been identified and counted. Those particles which might be meteoritic have been listed for analysis; some have been used for chemical analysis; and the rest will be used in a general analysis of contamination problems. The analysis of micrometeoritic dust indicates that these particles are magnetic and have more or less normal densities; tests for copper and nickel by neutron activation revealed that the sensitivity for copper was somewhat better than the value 0.1 percent for 10μ particles. The Massachusetts Institute of Technology reactor and the counting equipment of the Observatory laboratory were used for the experiment. The development of new and improved types of dust collectors for high-altitude aircraft is a continuing part of this program. The most recent development is a cylindrical impactor.

Dr. John Wood has investigated the various types of silicate meteorites, particularly of chondrites. Analysis of thin sections of chondrites in polarized light with the petrographic microscope has shown that the petrographic characteristics of these meteorites do not

appear to support the existence of primary bodies which antedated the parent meteorite planets.

Under the supervision of Dr. Luigi G. Jacchia, the precise reduction and analysis of photographic meteor trails have shown that practically all the visual meteors are cometary in origin; fewer than 1 percent are interstellar in origin, and the contribution from asteroidal sources is probably not much greater.

Under the supervision of the Director, Robert Briggs is studying the distribution of interplanetary dust particles to measure the number of particles in various parts of the solar system.

Dr. Fireman completed measurements of helium 3 in the Grant, N. Mex., meteorite and has determined its original mass (E. L. Fireman, *Planetary and Space Science*, vol. 1, pp 66-70, 1959). The helium 3 contents ranged from 6.5×10^{-6} cm³/g to 5.1×10^{-6} cm³/g. The Grant meteorite apparently was a pear-shaped object in space, with a mass of approximately 880 kg; its loss of mass during its plunge through the earth's atmosphere was approximately 400 kg. Dr. Fireman continued his measurement of the tritium, helium 3, and argon 39 in three stone and seven iron meteorites (E. L. Fireman and J. De Felice, *Astron. Journ.* vol. 64, p. 127, 1959; also *Geochim. et Cosmochim. Acta*, in press). The argon-exposure age of these meteorites ranges from 10^7 years to 6×10^8 years. This exposure age has been interpreted in terms of space erosion (F. L. Whipple and E. L. Fireman, *Nature*, vol. 183, p. 1315, 1959) and leads to the value 1.5×10^{-7} cm/year, for the upper limit of total erosion on an iron surface in space.

Satellite-tracking program.—The network of 12 satellite-tracking stations, under the supervision of Dr. Hynek, has gathered photographic data on the positions of artificial satellites. These data have allowed precision determination of the orbits of satellites and have thus provided geophysical and geodetic information. Seven objects were tracked. A total of 2,902 successful observations and more than 6,000 photographs were obtained. Engineering studies were begun to improve both the Baker-Nunn camera and the timing system, to refine the photography of orbiting objects. The stations were manned by 38 observers.

The Baker-Nunn camera has produced results of inestimable scientific value. The cameras are able to photograph stars to magnitude 12.0 with an effective exposure time of 1 second. Tracking accuracy ranges between 1 percent and 5 percent. The ultimate limiting magnitude, established principally by the time required to record appreciable skyfog, is about 16.0. The Baker-Nunn cameras secured photographs of the Vanguard experimental sphere, 1958 Beta Two, at ranges beyond 2,400 miles. These cameras also obtained photographs of the carrier

rocket of the Vanguard sphere, 1958 Beta One. This tracking system has demonstrated its ability to acquire as many as three photographs of satellites per day over a long period of time, in spite of bad weather and mechanical breakdowns. This rate of photography exceeds the original expectation by about 50 percent.

The Moonwatch program, under the supervision of Leon Campbell, Jr., depends on 218 teams comprising 5,000 volunteer observers, in the United States and abroad. Worldwide interest in the program continues, as evidenced by requests for affiliation from groups in North and South America, Africa, England, Spain, and the Middle East. Since the program began, Moonwatch has communicated 9,825 observations to the Cambridge headquarters. Arthur S. Leonard, leader of the Sacramento, Calif., team obtained improved values for the orbital elements of Satellite 1958 Beta One, which was believed "lost." These values led to the recovery of the satellite, which was then photographed by the Smithsonian camera stations.

These unprecedented accomplishments of the satellite-tracking programs prompted the executive director of the International Geophysical Year to congratulate the Director of the Observatory and his staff, on behalf of the U.S. National Committee and the Earth Satellite Panel.

The computation and analysis of optical observations continued under the supervision of Richard Adams as chief and Dr. Whitney as scientific supervisor. Refinements of techniques and programing methods have yielded gratifying results.

The Cunningham integration methods for the machine programing of satellite orbits, together with Dr. Don A. Lautman's equations for the osculating elements, have greatly facilitated the handling of satellite data and the graphing of perturbations of the orbital elements. A limited variety of orbits can be studied at present; for an orbit similar to that of Satellite 1957 Alpha the methods show separately the perturbational effects of drag and of the earth's oblateness.

Drs. Jacchia and Kozai derived new values for the second and fourth order coefficients of the earth's gravitational potential.

Dr. George Veis has initiated a differential corrections program which is being used to revise the orbits of Satellite 1958 Alpha and to obtain accurate elements for all satellites, in particular for 1959 Alpha One and 1959 Beta One. This program has also produced an ephemeris for 1958 Delta Two, during the period September 1958 to May 1959.

Jack Slowey has developed a program which makes it possible for the Baker-Nunn cameras to photograph satellites successfully over a long arc. The preliminary results have yielded much valuable information, and the Slowey Long-Arc Ephemeris will greatly increase

the flexibility and area of accomplishment of the camera stations.

Dr. Yoshihide Kozai has developed a theory of orbit perturbations including effects due to the sun and the moon. The use of this theory has yielded three coefficients of the earth's gravitational potential.

Dr. Sterne advanced a general, analytical theory of the motions of satellites, which makes allowance for air resistance and the earth's equatorial bulge, leading to improved understanding of the shape of the earth.

Dr. Whitney, in cooperation with the Army Ballistic Missile Agency, is working on a program to derive the orientation of satellites from observations of the strength of radio emission. His study of the periodic effects of atmospheric drag on a satellite orbit is of basic importance to the tracking program.

Dr. Veis is preparing a star catalog in the form of punched cards. This catalog will have particular value in photo reduction.

George G. Barton and Richard S. Aikens are developing a program of electronic image conversion whereby artificial earth satellites may be tracked by photoelectric methods. This program will facilitate visual observation of orbiting objects.

The number of observations processed by the Computation and Analysis Center totals 43,752; predictions sent to optical tracking stations number 12,825.

A program has begun for the reduction of photographic observations of satellites by the tracking stations. Under the supervision of Dr. Karoly Lassovszky, two methods are employed: (1) The astrometric method allows the computation of the exact orbits of the satellites and the derivation of important data relating to the distribution of mass inside the earth, the form of the earth, the true value of distances on the surface of the earth, and the variation in density in the atmosphere. (2) The photometric analysis method makes it possible to study the tumbling of the satellites, the secular changes of brightness of satellites, and the deterioration of their surfaces by meteoritic pitting and cosmic rays.

Two types of measuring engines have been evaluated: the Van Biesbroeck goniometer and the two-screw Mann engine. The system best suited to our needs has proved to be the Mann engine. A work rate study has shown that it will be necessary to operate at least five Mann engines for 8 hours a day, in order to reduce the most significant data flowing in from the camera tracking stations. A staff of 30 to 50 persons will be required to operate these five measuring systems.

To date, of the 5,981 films received, 62 percent were successful. Examination of the successful films reveals that 36 percent are measurable. About 500 precisely determined positions are ready for publication, although the precise time data have yet to be obtained

in some cases. The determination of the phototime expressed in terms of atomic time is now in progress.

For a program involving the measurement of the earth's albedo, observations have been made of the brightness of the earthshine on the dark part of the moon's crescent disk. These data will make it possible to evaluate the percent of clear and of cloudy parts of the atmosphere which contribute to earthshine.

Under the supervision of Charles A. Peterson, the Communications Center's activity has increased proportionately with the number of objects launched. An average of 539,057 words per month is cleared through the center; most of these words (groups of five numerals or letters) represent satellite information received or sent throughout the world.

PUBLICATIONS

Numbers 1 to 5 of volume 3, Smithsonian Contributions to Astrophysics, were published during the year. The following papers by staff members of the Astrophysical Observatory appeared in various journals:

- DAVIS, R. J., McCROSKY, R. E., WHIPPLE, F. L., and WHITNEY, C. A. A plan for operating an astronomical telescope in an earth satellite. *Astron. Journ.*, vol. 64, p. 50, 1959.
- DAVIS, R. J., WHIPPLE, F. L., and WHITNEY, C. A. An astronomical telescope in space. *Astronaut. Sci. Rev.*, vol. 1, p. 9 et seq., 1959.
- FIREMAN, E. L. The distribution of helium-3 in the Grant meteorite and a determination of the original mass. *Planetary and Space Sci.*, vol. 1, pp. 66-70, 1959.
- FIREMAN, E. L., and DE FELICE, J. Argon-39 and tritium in meteorites. *Astron. Journ.*, vol. 64, p. 127, 1959.
- HAWKINS, G. S., and WHIPPLE, F. L. The width of meteor trails. *Astron. Journ.*, vol. 63, pp. 283-291, 1958.
- HENIZE, K. G. A new planetary nebula NGC 6164-65 (Cederblad 135a, b). *Astron. Journ.*, vol. 64, pp. 51-52, 1959.
- HYNEK, J. A., HENIZE, K. G., and WHIPPLE, F. L. Report on the precision optical tracking program for artificial earth satellites. *Astron. Journ.*, vol. 64, p. 52, 1959.
- JACCHIA, L. G. The final moments of Sputnik II. *Sky and Telescope*, vol. 17, pp. 561-562, 1958.
- . Two atmospheric effects in the orbital acceleration of artificial satellites. *Nature*, vol. 183, pp. 526-527, 1959.
- . Corpuscular radiation and the acceleration of artificial satellites. *Nature*, vol. 183, p. 1662, 1959.
- KROOK, M. Structure of stellar atmospheres II. *Astrophys. Journ.*, vol. 129, pp. 724-733, 1959.
- . Structure of shock fronts in ionized gases. *Ann. Phys.*, vol. 6, pp. 188-207, 1959.
- KROOK, M., and PECKER, J. C. Sur le calcul de modèles d'atmosphère en équilibre radiatif (cas non-gris). *Comptes Rendus Acad. Sci. Paris*, vol. 247, pp. 1177-1179, 1958.

- RINEHART, J. S. Meteorites, satellites, and ceramics. *Bull. Amer. Ceramic Soc.*, vol. 37, pp. 461-467, 1958.
- . Impact effects and tektites. *Geochim. et Cosmochim. Acta*, vol. 14, pp. 287-290, 1958.
- SCHILLING, G. F., and STERNE, T. E. Densities and temperatures of the upper atmosphere inferred from satellite observations. *Journ. Geophys. Res.*, vol. 64, pp. 1-4, 1959.
- SCHILLING, G. F., and WHITNEY, C. A. Derivation and analysis of atmospheric density from observations of Satellite 1958 Epsilon. *Planetary and Space Sci.*, vol. 1, pp. 136-145, 1959.
- STERNE, T. E. The gravitational orbit of a satellite of an oblate planet. *Astron. Journ.*, vol. 63, pp. 29-40, 1958.
- . Density of the upper atmosphere. *Science*, vol. 128, p. 420, 1958.
- . The effect of the rotation of a planetary atmosphere upon the orbit of a close satellite. *Astron. Journ.*, vol. 64, p. 64, 1959.
- . Note on R. R. Newton's paper, "Motion of a Satellite Around an Unsymmetrical Central Body." *Journ. Appl. Phys.*, vol. 30, p. 270, 1959.
- STERNE, T. E., and DIETER, N. The constancy of the solar constant. *Smithsonian Contr. Astrophys.*, vol. 3, pp. 9-21, 1958.
- WHIPPLE, F. L. The coming exploration of space. *Saturday Evening Post*, August 16, 1958.
- . Optical tracking of artificial satellites. *Science*, vol. 128, pp. 124-129, 1958.
- . Notes on comets, meteors, and planetary evolution. *Publ. Astron. Soc. Pacific*, vol. 70, pp. 485-488, 1958.
- . Man into space. In "Vistas in Astronautics," vol. 2, pp. 145-147, Pergamon Press, 1959.
- . On the lunar dust layer. In "Vistas in Astronautics," vol. 2, pp. 267-272, Pergamon Press, 1959.
- WHIPPLE, F. L., and FIREMAN, E. L. Calculation of erosion in space from the cosmic-ray exposure age of meteorites. *Nature*, vol. 183, p. 1315, 1959.
- WHIPPLE, F. L., and HAWKINS, G. S. Meteors. In *Handbuch der Physik*, vol. 52, pp. 519-564. Springer-Verlag, 1959.
- WHIPPLE, F. L., and HYNEK, J. A. The IGY satellite tracking program as a source of geodetic information. *Ann. Geophys.*, vol. 14, pp. 326-328, 1958.
- . The IGY optical satellite tracking program as a source of geodetic information. *Bull. Geod.*, No. 49, pp. 50-52, 1958.

The Special Reports of the Astrophysical Observatory continue to present the results of analyses of satellite data carried out by various staff members. The demand has grown so that at present more than 1,500 individual scientists and research institutions regularly receive them. Special Reports Nos. 14-27, issued during the year, contain the following papers:

- ADAMS, R. M., BRIGGS, R. E., and UPTON, E. K. L. Positions of Satellite 1957 Beta One during the first 100 revolutions. *Spec. Rep. No. 16*, pp. 1-22, July 25, 1958.
- ALBERT, R. G., and ADAMS, R. M. Catalogue of satellite observations for January and February, 1959. *Spec. Rep. No. 24*, pp. 1-47, Apr. 9, 1959.
- . Catalogue of satellite observations for March and April 1959. *Spec. Rep. No. 26*, pp. 1-51, May 21, 1959.

- BRIGGS, R. E., and SLOWEY, J. W. An iterative method of orbit determination from three observations of a nearby satellite. Spec. Rep. No. 27, pp. 1-8, June 30, 1959.
- BULLIS, E. P. Moonwatch catalogue, October, November, and December, 1958. Spec. Rep. No. 21, pp. 13-36, Feb. 27, 1959.
- BULLIS, E. P., and CAMPBELL, L., JR. Moonwatch catalogue, May through June, 1958. Spec. Rep. No. 14, pp. 1-21, July 15, 1958.
- . Moonwatch catalogue, July and August, 1958. Spec. Rep. No. 18, pp. 23-44, Oct. 4, 1958.
- . Moonwatch catalogue, September 1958. Spec. Rep. No. 20, pp. 19-46, Jan. 5, 1959.
- CLARKE, J. B. Technical parameters of Satellites 1958 Delta and 1958 Epsilon. Spec. Rep. No. 18, pp. 3-4, Oct. 4, 1958.
- DAVIS, R. J. Timing satellite observations. Spec. Rep. No. 14, pp. 26-31, July 15, 1958.
- . Progress report on the planning of an artificial satellite containing an astronomical telescope. Spec. Rep. No. 20, pp. 9-12, Jan. 5, 1959.
- HAWKINS, G. S. A satellite meteor trap. Spec. Rep. No. 19, pp. 6-8, Dec. 6, 1958.
- HENIZE, K. G. Status of the photographic satellite tracking system. Spec. Rep. No. 14, pp. 22-25, July 15, 1958.
- JACCHIA, L. G. The descent of Satellite 1957 Beta One. Spec. Rep. No. 15, pp. 1-13, July 20, 1958.
- . The earth's gravitational potential as derived from Satellites 1957 Beta One and 1958 Beta Two. Spec. Rep. No. 19, pp. 1-5, Dec. 6, 1958.
- . An empirical formula for satellite ephemerides near the end of their lifetime. Spec. Rep. No. 20, pp. 1-4, Jan. 5, 1959.
- . The diurnal effect in the orbital acceleration of Satellite 1957 Beta One. Spec. Rep. No. 20, pp. 5-8, Jan. 5, 1959.
- JACCHIA, L. G., and BRIGGS, R. E. Orbital acceleration of Satellite 1958 Beta Two. Spec. Rep. No. 18, pp. 9-12, Oct. 4, 1958.
- KOZAI, Y. The earth's gravitational potential derived from the motion of Satellite 1958 Beta Two. Spec. Rep. No. 22, pp. 1-6, Mar. 20, 1959.
- . On the effects of the sun and the moon upon the motion of a close earth satellite. Spec. Rep. No. 22, pp. 7-10, Mar. 20, 1959.
- LEONARD, A. S. Determination of the orbit of Satellite 1958 Beta One. Spec. Rep. No. 27, pp. 9-15, June 30, 1959.
- MCCROSKY, R. E. A suggested rocket experiment for determination of atmospheric densities and winds at extreme heights. Spec. Rep. No. 20, pp. 13-16, Jan. 5, 1959.
- PETERSON, C. M. Communications center of the optical satellite tracking program. Spec. Rep. No. 18, pp. 5-8, Oct. 4, 1958.
- SCHILLING, G. F., and WHITNEY, C. A. Atmospheric densities from Explorer IV. Spec. Rep. No. 18, pp. 13-22, Oct. 4, 1958.
- SCHILLING, G. F., WHITNEY, C. A., and FOLKART, B. M. Preliminary note on the mass-area ratios of Satellites 1958 Delta One and 1958 Delta Two. Spec. Rep. No. 14, pp. 32-34, July 15, 1958.
- TESKE, R. G. Positions of Satellite 1958 Alpha during the first 1,400 revolutions. Spec. Rep. No. 17, pp. 1-173, Sept. 5, 1958.
- VEIS, G. The orbit of Satellite 1958 Zeta. Spec. Rep. No. 23, pp. 1-80, Mar. 30, 1959.

- WHITNEY, C. A. The structure of the high atmosphere. I. Linear models. Spec. Rep. No. 21, pp. 1-12, Feb. 27, 1959.
- . The structure of the high atmosphere. II. A conduction model. Spec. Rep. No. 25, pp. 1-6, Apr. 20, 1959.
- WHITNEY, C. A., and VEIS, G. A flashing satellite for geodetic studies. Spec. Rep. No. 19, pp. 9-19, Dec. 6, 1958.

OTHER ACTIVITIES

The Director, Dr. Jacchia, and Dr. Hynek attended meetings and participated in discussions of the 10th General Assembly of the International Astronomical Union in Moscow, August 1958. They visited various scientific institutions in the USSR. The Director presided at a symposium on astronomy from balloons, rockets, and satellites.

The Director, Dr. Jacchia, and Dr. Hynek participated in the discussions of the Fifth Congress of the Comité Special de l'Année Géophysique Internationale (CSAGI) in Moscow. Dr. Jacchia presented his study of the descent of Satellite 1957 Beta One, and served on the subcommittees for Rockets and Satellites and for Ionospheric Research.

The Director attended the Ninth Congress of the International Astronautical Federation for 1958, in Amsterdam.

Dr. Riggs attended the meeting of the Meteoritical Society held at Winslow, Ariz., and at the nearby Barringer Crater.

Mr. Davis participated in the meetings of the Optical Society of America, October 1958.

Dr. Gerhard F. Schilling participated in the Conferences on Satellite Launching at the National Academy of Sciences and at the Pentagon, October 1958.

A Conference on Contemporary Geodesy was held in December 1958 under the sponsorship of the American Geophysical Union in cooperation with the Smithsonian Astrophysical Observatory and Harvard College Observatory. The Director and various members of the staff participated in the discussions.

Dr. Fireman gave a lecture, "Sampling the Solar System for Isotopes," in February 1959, at the American Museum of Natural History, New York.

Dr. Whitney presented papers, by invitation, to the American Meteorological Society, in Chicago, Ill.; to the American Rocket Society, in Cambridge, Mass.; and at a symposium held by the Rand Corporation, Santa Monica, Calif., in the spring of 1959.

The Director took part in a Space Symposium sponsored by the National Aeronautics and Space Administration, and the American Physical Society in April 1959.

Dr. Fireman attended a Conference on Meteors at the Karlinka Institute, Stockholm, Sweden, June 1959.

Dr. Whitney participated in the discussions of the International Conference of Information Processing of the UNESCO, in Paris. He also presented a paper at the Ninth International Colloquium of the Institut d'Astrophysique, in Liège, Belgium, June 1959.

Dr. Hynek and Mr. Neilson made preparations for carrying out the Smithsonian Astrophysical Observatory's expedition to Spain, to observe the occultation of the star Regulus by the planet Venus.

Members of the staff attended meetings and presented papers before the American Astronomical Society, the American Physical Society, the American Geophysical Union, the National Telemetering Conference, the American Meteorological Society, the Department of Defense, the International Association of Geodesy, the American Astronautical Society, the American Society of Photogrammetry, the Mellon Institute, and the American Philosophical Society.

Every member of the scientific staff has given lectures at schools, colleges, civic groups, and military organization assemblies on the subject of satellites and space science.

A conference of the chiefs of satellite tracking stations was held on June 15-29, 1959, at the training station in Las Cruces, N. Mex., at the Smithsonian Institution in Washington, D.C., and at the Observatory in Cambridge. This conference, which provided the first opportunity for the chief observers to discuss particular problems related to the operation of tracking stations, proved of great benefit to all who attended.

The Director was elected to the National Academy of Sciences in April 1959. He served as consultant to the U.S. Office of Naval Research, to the U.S. Air Weather Service on problems related to the space age, and to the National Aeronautics and Space Administration. He is chairman of the Technical Panel on Rocketry and member of the Technical Panel of the Earth Satellite Program of the International Geophysical Year; chairman of the Panel on the Atmosphere of the Scientific Advisory Board of the U.S. Air Force; president of Commission 22, Meteors, Zodiacal Light, and Analogous Problems, of the International Astronomical Union; member of the U.S. Rocket and Satellite Research Panel; member of the Committee on Meteorology of the National Academy of Sciences, National Research Council; member of Upper Atmosphere Committee in the Meteorology Section of the American Geophysical Union; member of the Committee on Cosmic and Terrestrial Relationships of the American Geophysical Union; member of the Committee on Atmospheric Sciences of the National Academy of Sciences, National Research Council; member of the Panel on Chemistry of Space and Exploration of Moon and Planets of the National Academy of Sciences, National Research Council Committee on Bio-Astronautics; member of Space

Sciences Working Group on Orbiting Astronomical Observatories, National Aeronautics and Space Administration; and member of Physics of the Atmosphere and Space Committee, American Rocket Society.

The Director is general editor of the Smithsonian Contributions to Astrophysics; and of the international publication Planetary and Space Physics.

CHANGES IN STAFF

Dr. John S. Rinehart accepted a professorship at the Colorado School of Mines, Golden, Colo. He left the Observatory during the summer of 1958.

Dr. Gerhard F. Schilling resigned from the Observatory upon his appointment as Chief, Astronomy and Astrophysics, National Aeronautics and Space Administration, March 1959.

Richard M. Adams, who had been on leave from Texas A. & M. College, resumed his duties there in June 1959.

As of June 30, 1959, there were 179 persons employed at the Observatory.

BUILDING AND EQUIPMENT

The Astrophysical Observatory occupies space in five separate buildings. Plans for the erection of a new building on the grounds of the Harvard College Observatory have been approved; construction is expected to begin during the fall of 1959.

DIVISION OF RADIATION AND ORGANISMS

The Division has been engaged in research into the biochemistry and biophysics of the photomorphogenic mechanism in plants as controlled by radiant energy. In general, the red portion of the spectrum induces growth reactions that can be nullified by subsequent exposure to the far-red part of the spectrum.

Normal green sunflower seedlings produce large quantities of chlorophyll when grown in red or blue light, while, under the same conditions, mutant yellow or white seedlings lose their ability to synthesize protochlorophyll and chlorophyll. Although some chlorophyll is formed initially in these mutants, it is destroyed under continued exposure to light. Investigation of the photomorphogenic mechanism as measured by hypocotyl inhibition indicated that the response was the same in yellow mutants and normal green seedlings, but 50 percent greater in the white mutants. The inference is that the yellow pigments may be active in a protective function.

Studies are continuing on the biochemical changes that occur during the development of the chloroplasts of higher plants. It has been shown in our laboratory that excised leaves of dark-grown seedlings, when incubated on water and in the dark for 18 hours, lose one-half

of their protochlorophyllide synthesizing ability. Adding certain carbohydrates at optimal concentration or leaving one cotyledon attached prevented the loss of synthesizing ability. When sucrose was supplied as a substrate, the determination of carbohydrates within the leaves revealed a marked increase in reducing sugars and starch, indicating a rapid utilization of the products of phosphorolysis of sucrose.

Determination of the specificity of carbohydrates causing a stimulation of pigment synthesis and of their rates of metabolic utilization revealed that, of a dozen or more sugars varying from 3 to 18 carbon atoms, glucose at a concentration of 0.20 to 0.25 mole was most effective. This was found both through direct measurement of protochlorophyllide synthesis and by manometric measurements of respiration on tissues supplied with various carbohydrates. Technics are being developed for the isolation of proplastids and the measurement of their subsequent photomorphogenic development into mature chloroplasts.

During the course of our investigation of light-induced developmental changes in plants, one of our reported observations was that the lag phase in chlorophyll synthesis in etiolated bean leaf tissue could be eliminated by pretreating the leaves with low irradiances of monochromatic red or blue energy. The study of the lag phase of chlorophyll synthesis has been continued, and it has been demonstrated that X-irradiation of 5-10 kiloroentgens can increase the lag phase in etiolated bean leaves. Subsequent exposure to 10 minutes of white light initiated recovery of the chlorophyll synthesizing mechanism. Experiments are in progress to ascertain whether the recovery is a red- or blue-sensitive reaction and whether nonionizing radiation can counteract the effect of ionizing radiation in chlorophyll synthesis.

Radiant energy in the spectral region of 710 to 820 $m\mu$ significantly increases the frequency of chromosomal aberrations when used as a supplement to X-irradiation. Biochemical studies are being pursued to investigate the mechanism of the effect of far-red (710-820 $m\mu$) on the rejoining of chromosomes.

Three new members of the research staff of the Division are: Dr. Edward C. Sisler, biochemist; Dr. Walter A. Shropshire, Jr., biophysicist; and Dr. Maurice M. Margulies, biochemist. Dr. Sisler comes to the Smithsonian Institution from Brookhaven National Laboratory where he was engaged in photosynthesis studies. Dr. Shropshire returns to the Division from the California Institute of Technology, where he worked on action and transmission spectra. Dr. Margulies was formerly at Johns Hopkins University, where he was investigating photosynthesis and the biochemistry of microorganisms.

In November 1958, the Research Corporation of New York granted funds to the Division for the installation of a radioisotopes laboratory and for construction of greenhouse facilities and control rooms. The installation of the radioisotopes laboratory is well underway, and it should be in operation in the near future. The greenhouse is expected to be completed by the fall of 1959.

PUBLICATIONS

- MOH C. C., and WITHROW, R. B. Nonionizing radiant energy as an agent in altering the incidence of X-ray-induced chromatid aberrations. II. Reversal of the far-red potentiating effect in *Vicia* by red radiant energy. *Radiation Res.*, vol. 10, pp. 13-19, 1959.
- SHROPSHIRE, WALTER A., JR., and WITHROW, ROBERT B. Action spectrum of phototropic tip-curvature of *Avena*. *Plant Physiol.*, vol. 33, pp. 360-365, 1958.
- WITHROW, ROBERT B., and KLEIN, W. H. Action spectra and kinetics of photomorphogenesis. *Atti del 2° Congresso Internazionale di Fotobiologia*. Edizioni Minerva Medica, pp. 443-451. Torino, Italia (1958).

Respectfully submitted.

F. L. WHIPPLE, *Director.*

Dr. LEONARD CARMICHAEL,
Secretary, Smithsonian Institution.

Report on the National Collection of Fine Arts

SIR: I have the honor to submit the following report on the activities of the National Collection of Fine Arts for the fiscal year ended June 30, 1959:

SMITHSONIAN ART COMMISSION

The 36th annual meeting of the Smithsonian Art Commission was held in the Regents Room of the Smithsonian Building on Tuesday, December 2, 1958. Members present were Paul Manship, chairman; Robert Woods Bliss, vice chairman; Leonard Carmichael, secretary; Gilmore D. Clarke, David E. Finley, Walter Hancock, Bartlett Hayes, Henry P. McIlhenny, Ogden M. Pleissner, Charles Sawyer, Stow Wengenroth, and Andrew Wyeth. Thomas M. Beggs, Director, National Collection of Fine Arts, was also present.

A resolution on the death of George Hewitt Myers, a member of the Commission from 1944 until his death on December 23, 1957, was unanimously adopted.

Dr. Finley, chairman, reported for the executive committee that, as a result of balloting by mail, the Commission recommended Wilmarth S. Lewis to fill the vacancy caused by the death of George Hewitt Myers.

The Commission recommended reappointment of Gilmore D. Clarke, Stow Wengenroth, and Andrew Wyeth for the usual 4-year period.

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

The following were reelected members of the executive committee for the ensuing year: David E. Finley, chairman; Robert Woods Bliss, Gilmore D. Clarke, and Archibald G. Wenley, with Paul Manship and Leonard Carmichael, *ex officio*.

A motion was passed that the Regents of the Smithsonian Institution be asked to appoint a committee to advise in the development of plans for adapting the Civil Service Commission Building, formerly the Old Patent Office Building, to the needs of a National Portrait Gallery, and to prepare legislation concerning such.

It was further resolved that the chairman of the Smithsonian Art Commission shall appoint from its membership a subcommittee, includ-

ing three artist members, two museum director members, and the Director of the National Collection of Fine Arts, to advise in the development of plans for the housing of the National Collection of Fine Arts in the Old Patent Office Building.

Mr. Beggs pointed out that during the past year preservation activities, temporary and traveling exhibitions, and information services have greatly increased, with no concomitant additions to the administrative staff.

The Commission recommended acceptance of the following objects:

Bronze, Dr. John Dewey, by Alexander Portnoff (1887-1949), for the National Portrait Gallery. Gift of Mrs. Alexander Portnoff.

Bronze plaque, Paul Wayland Bartlett, N.A. (1865-1925), by John Flanagan, N.A. (1865-1952). Gift of Mrs. Armistead Peter, Jr.

Eighteen bronzes and four medallions by Paul Wayland Bartlett, N.A. (1865-1925). Gift of Mrs. Armistead Peter, Jr.

Bronzes: Walter Griffin (1861-1935); Lafayette; Head of a Girl; Seated Torso; Standing Torso; Male Figure From Fountain; Male Figure From Fountain; Poetry; Philosophy; Rabbit; Rabbit; Eagle; Baby Robin; Cat; Pup; Goat; Lion; Two Teams of Horses. *Medallions:* Walt Whitman (1819-92); Woman Knitting; Georges Corneau; Primavera.

Oil, Fisherboys at Provincetown, by Charles Webster Hawthorne, N.A. (1872-1930). Gift of Walter Bachrach.

Oil, House in the Valley of Wyoming, by Henry Boese (1824-?). Gift of Cornelia Hill.

Oil, Paul Wayland Bartlett, N.A. (1865-1925), by Charles Sprague Pearce, A.N.A. (1851-1914), for the National Portrait Gallery. Gift of Mrs. Armistead Peter, Jr.

Three watercolors, Mammoth Hot Springs, Yellowstone; Canyon of the Yellowstone; and River-Pinnacle, by Thomas Moran, N.A. (1837-1926). Gift of Mrs. Armistead Peter, Jr.

Watercolor on ivory, A. Laurason, by Jean Francois Vallee (fl. 1785-1815). Gift of Miss Mary Taylor through Mrs. Helen T. Steinbarger.

THE CATHERINE WALDEN MYER FUND

The following miniature, watercolor on ivory, was acquired from the fund established through the bequest of the late Catherine Walden Myer:

113. Miriam Etting Myers (1787-1808), by Benjamin Trott (c. 1770-c. 1841), from Mrs. Lesley Ashburner, Washington, D.C.

WITHDRAWALS BY OWNERS

Two miniatures, watercolor on ivory, Martha "Patty" Custis and John Parke Custis, by Charles Willson Peale (1741-1827), lent January 29, 1934, were withdrawn for exhibition purposes by Mrs. W. Hunter deButts and Mrs. H. E. Ely, Jr., on April 26, 1959.

LOANS RETURNED

Two oils, High Cliff, Coast of Maine, by Winslow Homer, and Moonlight, by Albert P. Ryder, lent September 25, 1957, to the Car-

negie Institute, Pittsburgh, for inclusion in its traveling exhibition of American Classics of the 19th century, were returned July 2 and 3, 1958, respectively.

Oil, Street Shrine, by Jerome Myers, lent November 27, 1957, to the Municipal Court for the District of Columbia, was recalled July 3, 1958, for inclusion in the Ranger Centennial Exhibition.

Oil, Man in White, by Cecilia Beaux, lent February 28, 1958, to the White House, was recalled July 3, 1958, for inclusion in the Ranger Centennial Exhibition.

Oil, Fifth Lake, by Edgar Payne, lent December 30, 1957, to the Office of the Vice President was recalled July 8, 1958, for inclusion in the Ranger Centennial Exhibition.

Three oils, The Figurine, by William Paxton; New Year's Shooter, by George Luks; and Self Portrait, by Will H. Low, lent March 15, 1955, October 18, 1956, and February 14, 1957, respectively, to the Department of Justice, were recalled July 10, 1958, for inclusion in the Ranger Centennial Exhibition.

Two oils, Tohickon, by Daniel Garber, and The Rapids, by W. Elmer Schofield, lent August 23, 1955, to the Department of Defense were recalled July 15, 1958, for inclusion in the Ranger Centennial Exhibition.

Oil, Heavy Sea, by Paul Dougherty, lent January 20, 1958, to the White House, was recalled July 21, 1958, for inclusion in the Ranger Centennial Exhibition.

Two sculptures, Manifest Destiny and Grizzly Bear, by Edward Kemeys, lent February 14, 1957, to the Department of Justice, were returned September 26, 1958.

Oil, George Washington, attributed to William Winstanley, lent May 13, 1955, to the Department of State, was recalled October 14, 1958, for inclusion in the exhibition "Profiles of the Times of James Monroe," October 26 to November 23, 1958.

Oil, The Island, by Edward W. Redfield, lent January 3, 1957, to the Corcoran Gallery of Art for their 25th Biennial Exhibition of Contemporary American Oil Paintings and circulated by the American Federation of Arts, was returned October 16, 1958.

Oil, Beach of Bass Rocks, Gloucester, Massachusetts, by Frank Knox Morton Rehn, lent November 6, 1957, to the office of Representative Richard Wigglesworth, was returned December 8, 1958.

Oil, Laguna, New Mexico, by Albert Lorey Groll, lent April 15, 1954, to the U.S. Court of Military Appeals, was returned March 11, 1959.

Two oils, Flume, Opalescent River, by Alexander Wyant, lent January 30, 1958, to the U.S. Court of Military Appeals, and Round Hill Road, by John Henry Twachtman, lent November 7, 1957, to the Municipal Court of Appeals, were recalled April 7, 1959, for the

exhibition "Turn-of-the-Century Paintings from the William T. Evans Collection," April 23 to June 1, 1959.

Oil, *The Bathers*, by Robert Reid, lent November 7, 1957, to the Municipal Court of Appeals, was returned April 7, 1959.

Three oils, *South Strand*, by Emil Carlsen, lent September 21, 1956, to the Bureau of the Budget; *End of Winter*, by John Henry Twachtman, lent January 22, 1957, to the Department of State; and *Idle Hours*, by Harry Mowbray, lent November 6, 1956, to the Interstate Commerce Commission, were recalled April 8, 1959, for the exhibition "Turn-of-the-Century Paintings from the William T. Evans Collection."

ART WORKS LENT

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

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

February 13, 1959----- *Abraham Lincoln*, by George Story.

To the Carnegie Institute, Pittsburgh, Pa., for their International Retrospective Exhibition, December 4, 1958, through February 8, 1959:

September 15, 1958----- *Moonlight*, by Albert P. Ryder. (Returned February 13, 1959.)

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

March 20, 1959----- *My Old Mill*, Holmescroft, near Rockville, by William H. Holmes (watercolor).

A Maryland Wheat Field, by William H. Holmes (watercolor).

Over the Maryland Fields, by William H. Holmes (watercolor).

The Normal Rock Creek about 1910, by William H. Holmes (watercolor).

To the Cosmos Club, Washington, D.C.:

October 29, 1958----- *Major John Wesley Powell*, by Henry Ulke. (Returned November 4, 1958.)

November 14, 1958----- *Major John Wesley Powell*, by Edmund Clarence Messer. (Returned December 8, 1958.)

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

July 15, 1958----- *Sunset, Navarro Ridge, California Coast*, by Ralph A. Blakelock. (Returned August 13, 1958.)

August 13, 1958----- *In the Orchard*, by Edmund C. Tarbell.

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

May 5, 1959----- *Lauhala*, by Huc M. Luquiens (drypoint).

Derelict, by Beatrice S. Levy (aquatint).

Winter Moonlight, by George Jo Mess (aquatint).

In the Assiniboine Country, by R. H. Palenske (drypoint).

A Mallard Marsh, by Roland Clark (drypoint).

Spring Blossoms, Magnolia, by Bertha E. Jaques (drypoint).
 Anemones, by Bertha E. Jaques (drypoint).
 Canada Thistle, by Bertha E. Jaques (etching.)
 Madonna Lilies, by Bertha E. Jaques (drypoint).

To the Department of History, U.S. National Museum, for an exhibition of the Cyrus W. Field Collection commemorating the centennial anniversary of the laying of the Atlantic Cable:

October 8, 1958----- First messages sent over the Atlantic Cable (original message from Queen Victoria and copy of President Buchanan's reply). (Returned October 31, 1958.)

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

July 10, 1958----- Mrs. Joseph B. Collins, by G. P. A. Healy.
 Coal Barge, Capri, 1880, by William H. Holmes (watercolor).
 Miss Mildred Lee, by S. Seymour Thomas.

To the Knoedler Galleries, New York City, for an exhibition of the works of Raphaelle Peale, March 2 through 31, 1959, following the exhibition at the Milwaukee Art Center:

February 1959----- Robert Oliphant, by Raphaelle Peale (miniature, watercolor on ivory).
 Rubens Peale, by Raphaelle Peale (miniature, watercolor on ivory).
 (Both returned April 20, 1959.)

To the Lincoln Sesquicentennial Commission, Washington, D.C.:

February 11, 1959----- Abraham Lincoln, by George Story. (Returned February 13, 1959.)

To the Metropolitan Museum of Art, New York City, for an exhibition of the works of Winslow Homer, January 27 through March 8, 1959, following the exhibition at the National Gallery of Art:

January 15, 1959----- The Visit of the Mistress, by Winslow Homer.
 High Cliff, Coast of Maine, by Winslow Homer.
 (Both returned April 3, 1959.)

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

June 16, 1959----- Westward the Course of Empire Takes Its Way, by Emanuel Leutze. (Recalled July 13, 1959, to be sent to the American National Exhibition in Moscow.)

To the Milwaukee Art Center, Milwaukee, Wis., for an exhibition of works by Raphaelle Peale, January 15 through February 15, 1959:

December 24, 1958----- Robert Oliphant, by Raphaelle Peale (miniature, watercolor on ivory).
 Rubens Peale, by Raphaelle Peale (miniature, watercolor on ivory).
 (Both forwarded to Knoedler Galleries for an exhibition March 2 through 31, 1959.)

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

July 3, 1958----- Twilight After Rain, by Norwood Hodge MacGilvary.

To the National Gallery of Art, Washington, D.C., for an exhibition of the works of Winslow Homer, November 23, 1958, to January 4, 1959:

- July 16, 1958----- The Visit of the Mistress, by Winslow Homer.
High Cliff, Coast of Maine, by Winslow Homer.
(Both forwarded to the Metropolitan Museum of Art January 15, 1959, for exhibition.)

Senate Office Building, Washington, D.C.:

- March 11, 1959----- Laguna, New Mexico, by Albert Lorey Groll.

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

- October 14, 1958----- Housatonic Valley, by Alexander Wyant.
December 31, 1958----- The Grindstone, by Charles W. Dahlgreen
(etching).
Horse and Wagon, Noon, by George Fawcett
(etching).
The Tramp, by Sears Gallagher (etching).
Sycamores by the River, by Alfred Hutty
(etching).
Fiesole from San Francisco, by Ernest Roth
(etching).
Locating the Blind, by Lee Sturges (etching).
Winter Cornfield, by Lee Sturges (etching).
The New Outfit, by Walter C. Yeomans' (etching).

- June 3, 1959----- Autumn at Arkville, by Alexander Wyant.

- June 25, 1959----- End of Winter, by John H. Twachtman.

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

- March 3, 1959----- Portrait of a Lady, by Anders Zorn.

To the U.S. Information Agency, Washington, D.C., for the American National Exhibition in Moscow, July 25 through September 25, 1959:

- June 15, 1959----- High Cliff, Coast of Maine, by Winslow Homer.

To the Veterans' Administration, Washington, D.C.:

- December 16, 1958----- Schoolgirl, by Mlle. Marie Louise-Catherine
Breslau (charcoal drawing).
Nurse and Patient, by Jules Cayron (crayon
drawing).
"Ostend," by Arsene Chabanian (watercolor).
Before the Crucifix, by Louis Adolphe
Dechenaud (crayon drawing).
Homeless Victim of War, by Hubert-Denis
Etcheverry (crayon drawing).
"Saint Cloud, 4 Juin, 1906," by Francois Fla-
meng (watercolor).
Wounded Soldier, by Henri Gervex (pastel).
Peasant Girl, by P-Franc Lamy (watercolor).
Church Interior, by Maurice Lobre (charcoal
drawing).
"Primavera," by Edgard Henri Marie Maxence
(red chalk drawing).
"Les Poilus." "Quand je pense que j'aspirais
à la vie au grand air," by Louis Abel Tru-
chet (charcoal drawing).
"Pour que la liberté continue d'éclairer le
monde," by Henri Zo (charcoal drawing).

- February 16, 1959----- The First Sharps Rifle (Homer D. Jennings, St. Cloud, Florida), by Walter Beck (pastel).
 The Signal, After the Battle of Big Bethel (John Tregaskis), by Walter Beck (pastel).
 Fisher of the Fifth New York Volunteer Infantry, Duryee Zouaves, by Walter Beck (pastel).
 Drummer Boy of the Fighting Fifth after Gaines Mills (Robert F. Daly, New York City), by Walter Beck (pastel).
 The Lone Tree, by Arthur W. Hall (etching).
 Fry Street and the Old Polish Church, by Morris Henry Hobbs (etching).
 Mackerel, by Sears Gallagher (etching).
 Swift Current Falls, by Eugene Glaman (etching).
 Davy Jones' Locker, by Margaret Ann Gaug (etching).
 Homeward Bound, by Sears Gallagher (etching).
 The Port of Calvi, Corsica, by Philip H. Giddens (etching).
 Little Mexico, by Louis Oscar Griffith (etching).
 Top of Brooklyn Arch, by Allen Lewis (etching).
 Port of the Passing Ship, by Allen Philbrick (etching).
 The Great Tapestry Hall, Hampton Court Palace, by Leon R. Pescheret (etching).
 Middle Temple Hall, London, by Leon R. Pescheret (etching).
 Avenue of Flags, by Leon R. Pescheret (etching).
 Miao Feng T'a (near the Jade Fountain Pagoda), by Hans Luthmann (etching).
 Village Street, Bedford, Massachusetts, by Chester Leich (etching).
 Tree, Manhattan, by Martin Lewis (etching).
 Salem's Old Wharves, Massachusetts, by Philip Little (etching).
 Arch, Roman Forum, by Bertha E. Jaques (etching).
 Boat Shop, Venice, by Bertha E. Jaques (etching).
 Cheviot Sheep, Hampstead Heath, London, by Bertha E. Jaques (etching).
 Sphinx, Thames, London, by Bertha E. Jaques (etching).
 German Building, Chicago, by Bertha E. Jaques (etching).
 Seiners, Chioggia, by Bertha E. Jaques (etching).
 The Temple, by Bertha E. Jaques (etching).
 Artichoke, by Bertha E. Jaques (etching).

To the Office of Vice President Nixon, Washington, D.C.:

July 8, 1958----- Niagara, by George Inness. (Returned April 7, 1959.)

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

July 11, 1958----- Portrait of J. J. Shannon, R.A., by Orlando Rouland.

July 21, 1958----- Southwesterly Gale, St. Ives, by Frederick Judd Waugh.

(Recalled April 8, 1959, for the exhibition, "Turn-of-the-Century Paintings From the William T. Evans Collection.")

August 19, 1958----- Lower Ausable Pond, by Homer Dodge Martin. (Returned October 27, 1958.)

December 17, 1958----- Male Wood Duck on Shallow Water, by Richard Meryman.

The Island, by Edward Willis Redfield.

Beach of Bass Rocks, Gloucester, Massachusetts, by Frank Knox Morton Rehn.

January 23, 1959----- Herbert Hoover, by Edmund Charles Tarbell.

March 6, 1959----- Westward the Course of Empire Takes Its Way, by Emanuel Leutze.

(Returned March 13, 1959.)

April 10, 1959----- Outskirts of the Woods, by David Cox.

(Returned June 25, 1959.)

June 9, 1959----- Southwesterly Gale, St. Ives, by Frederick Judd Waugh.

June 25, 1959----- Sun and Storm, by Paul Dougherty.

SMITHSONIAN LENDING COLLECTION

Three oils, Little Paulus, Little Rosa, and Watching, by S. Seymour Thomas (1868-1956), gift of Mrs. Jean Haskell, were added December 2, 1958.

Bronze, Sun Dance, by Paul Wayland Bartlett, N.A. (1865-1925), gift of Mrs. Armistead Peter, Jr., was added December 2, 1958.

Fourteen paintings by Alice Pike Barney, lent November 2, 1955, to the Bio-Sciences Information Exchange were returned January 23, 1959, during a period of redecoration and re-lent, with Child with Fruit, March 18, 1959:

Minnete and Minet (pastel).	Fantasy (pastel).
The Visitor (pastel).	Gladys (pastel).
Endymion.	Hippolyte Thom (pastel).
The Dimple.	Laura in Hat (pastel).
Little Girl (pastel).	Natalie in Greens (pastel).
Hail Fellow, Well Met (pastel).	Peggy (pastel).
An Oriental (pastel).	Romance (pastel).

The following paintings were lent for varying periods:

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

December 17, 1958----- Ships at Anchor, Cherbourg No. 1, by Edwin Scott.

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

March 3, 1959----- Shapes of Fear, by Maynard Dixon.

THE HENRY WARD RANGER FUND

The following paintings, purchased previously but not assigned, have been allocated to the institutions indicated:

<i>Title and artist</i>	<i>Assignment</i>
194. Circus Friends (watercolor), by A. Henry Nordhausen (1901-).	University of South Carolina, Columbia, S.C.
195. That Lonesome Road (watercolor), by Roy M. Mason (1886-).	San Joaquin Pioneer and Historical Society, Stockton, Calif.
205. Benares on the Ganges, by Maurice Sterne, N.A. (1877-1957).	Phillips Gallery, Washington, D.C.
206. Sea and Wharf at Provincetown, by Eric Isenburger, N.A. (1902-).	M. H. De Young Museum, San Francisco, Calif.
209. Everyday Is Washday (watercolor), by Frederic Whitaker, N.A. (1891-).	Henry Art Gallery, University of Washington, Seattle, Wash.
210. Philadelphia (watercolor), by Hugh Gumpel (1926-).	Art Institute of Zanesville, Zanesville, Ohio.

No. 25, Sleep, by Leon Kroll, N.A. (1884-), purchased by the Council of the National Academy of Design December 4, 1922, was reassigned by the Academy to the Fitchburg Art Museum, Fitchburg, Mass., on February 20, 1959.

According to a provision in the Ranger bequest, that paintings purchased by the Council of the National Academy of Design from the fund provided by the Henry Ward Ranger Bequest, and assigned to American art institutions, may be claimed during the 5-year period beginning 10 years after the death of the artist represented, the following painting was recalled for action of the Smithsonian Art Commission at its meeting December 2, 1958:

No. 68, Mlle. Maria Safonoff, by Irving R. Wiles, N.A. (1861-1948), returned to the Mount Holyoke College, Mount Holyoke, Mass., where it was originally assigned in 1928.

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

<i>Title and artist</i>	<i>Assignment</i>
212. Boardwalk, by Carl Setterberg (1897-).	Columbus Museum of Arts & Crafts, Columbus, Ga.
213. The Critic (Kermit Lansner), by Aaron Shikler (1922-).	(Assignment pending.)
214. Yesterday and Before and Before, by Loring W. Coleman (1918-).	(Assignment pending.)
215. Night Road, Sheffield, by Joseph Barber (1915-).	Hollins College, Hollins, Va.
216. Autumn Landscape, by Robert Vickrey (1926-).	Pratt Institute, Brooklyn, N.Y.
217. The Painter, Shelley Fink, by David Levine (1926-).	(Assignment pending.)

<i>Title and artist</i>	<i>Assignment</i>
218. Practice, by Iver Rose (1899-).	E. B. Crocker Art Gallery, Sacramento, Calif.
219. Shopping District, by Sol Wilson (1896-).	Mary Washington College, University of Virginia, Fredericksburg, Va.
220. At Foot of Mount Teton (watercolor), by Chen Chi, A.N.A. (1912-).	Queens College Art Association, Flushing, N.Y.
221. Port City, by John Guerin (1889-).	J. B. Speed Art Museum, Louisville, Ky.
222. Harvest Time, Extremadura (watercolor), by Eileen Monaghan Whitaker, A.N.A. (1911-).	University of Massachusetts, Amherst, Mass.
223. Still Life (watercolor), by Avel de Knight (1923-).	Walker Art Center, Minneapolis, Minn.
224. Houses in Shade (watercolor), by Edwin L. Dahlberg (1901-).	Wesleyan University, Middletown, Conn.
225. Men and Mist (watercolor), by Irving Shapiro (-).	University of Vermont, Burlington, Vt.

SMITHSONIAN TRAVELING EXHIBITION SERVICE

In addition to 71 exhibits held over from previous years as listed below, 29 new shows were introduced. The total of 100 were circulated to 240 museums, one having been prepared for the U.S. Information Service's use abroad.

1954-1955: Japanese Woodcuts I; Design in Holland; and Carl Bodmer Paints the Indian Frontier.

1955-1956: Sargent Watercolors; Architectural Photography; Contemporary Finnish Architecture; European Glass Design; Two Finnish Craftsmen; Japan I by Werner Bischof; This is the American Earth; and Chinese Ivories from the Collection of Sir Victor Sassoon.

1956-1957: A Frenchman in America, Charles-Alexandre Lesueur; Paintings by Tessai; American Printmakers; George Bellows Prints and Drawings; Contemporary German Prints; Japanese Fish Prints; Architectural Photography II; German Architecture Today; Landscape Architecture Today; American Craftsmen, 1957; Recent Work by Harry Bertola; Good Design in Switzerland; German Art Books; A World of Children's Books; Six Japanese Painters; Early American Woodcarving; Punch and Judy; Japan II by Werner Bischof; The World of Edward Weston; Young Germans Behind the Camera; and Swedish Rock Carvings.

1957-1958: American Primitive Paintings; Paintings by Jan Cox; Indian Paintings from Rajasthan; Mexican Work by Cock van Gent; Second Pacific Coast Biennial; The American City in the 19th Century; Recent American Prints; Early Prints and Drawings of California; Japanese Woodblock Prints; Theatrical Posters of the Gay Nineties; Birds by Emerson Tuttle; 100 Years of American Architecture; A Century of New England Architecture; Contemporary Portuguese Architecture; National Ceramic Exhibition, Sixth Miami Annual; Fulbright Designers; Nylon Rug Designs; Religious Banners; Twelve Scandinavian Designers; Swedish Textiles Today; Art Books from Italy; Books for Young Scientists; Burmese Embroideries; The Way of Chinese Landscape Painting; Japanese Dolls; Thai Painting; Paintings by Jamini Roy; The Anatomy of Nature; Photographs of Angkor Wat; Image of America; Pup, Cub and Kitten;

Photographs of Sarawak; Glimpses of Switzerland; Argentine Children as Illustrators; Art in Opera I—Tosca; Art in Opera II—Carmen; As I See Myself; The Four Seasons; and Children's Paintings from Morocco.

The exhibition American Folk Art was prepared for the use of the U.S. Information Agency in the Brussels Universal and International Exhibition.

UNITED STATES

Paintings and Drawings

<i>Title</i>	<i>Source</i>
Young British Painters-----	Arts Club of Chicago; Gimpel Fils, London; artists.
Dutch Master Drawings-----	Rijksmuseum, Amsterdam; Netherlands Embassy; museums and private lenders.
Fulbright Painters I-----	Institute of International Education; Senator J. William Fulbright; Lloyd Goodrich and artists.
Fulbright Painters II-----	
German Artists of Today-----	Dr. Kurt Martin; Kleemann Gallery; German Embassy.
Northwest Painters of Today--	Seattle Art Museum; Dr. Richard Fuller; artists.
Recent Work by Peter Takal--	Cleveland Museum of Art, Miss Leona E. Prasse; artists and collectors.
Transferences -----	Michael Chase, Zwemmer Gallery, London.

Graphic Arts

Advertising in 19th Century America.	Prints and Photographs Division of the Library of Congress.
The Engravings of Pieter Brueghel the Elder.	Mr. and Mrs. Jake Zeitlin, Los Angeles, Calif.
Three Danish Printmakers-----	Venice Biennale, 1958; Danish Embassy, Washington, D.C.; artists.
Great European Printmakers---	Munson-Williams-Proctor Institute, Utica, N.Y.
Charles Fenderich—Lithographer of American Statesmen.	Prints and Photographs Division of the Library of Congress.
Drawings from Latin America.	Visual Arts Section, Pan American Union, Washington, D.C.; artists; collectors.
Contemporary Religious Prints from the Sloniker Collection.	Mr. and Mrs. W. Ross Sloniker; Cincinnati Art Museum, Cincinnati, Ohio.
Religious Subjects in Modern Graphic Arts.	Pennell Collection, Library of Congress.
UNESCO Watercolor Reproductions.	UNESCO, Paris, France.

Design

British Artists-Craftsmen-----	British Artists-Craftsmen, Ltd.; artists.
Contemporary Finnish Rugs---	Bigelow-Sanford Carpet Co., Inc.; "Ornamo," the Finnish Crafts Guild; weavers.
Contemporary French Tapes-tries.	Association des Peintres-Cortonniers de Tapisseries, Paris; l'Association Française d'Action Artistique; French Ambassador; artists.
Contemporary Indian Crafts---	Bengal Home Industries Association, Calcutta, India.

Oriental Art

Stone Rubbings from Angkor Cultural Center of Angkor; Weyhe Gallery.
Wat.

Folk Art

Shaker Craftsmanship----- Index of American Design, National Gallery
of Art.

Photography

The Unguarded Moment, Pho- Peter Hunter, George Eastman House; Time
tographs by Erich Salomon. and Life Building, New York; Library of
Congress.

Children's Exhibitions

Children's Paintings from Yorkville Youth Council, Inc., N.Y.; Shankers
Southeast Asia. Weekly.

Drawings by European Chil- Dr. Joy B. Roy, collector.
dren.

Children's Paintings from In- Shankers Weekly; Fine Arts Commission's
dia. People to People Program.

A Child Looks at the Museum-- Junior School, Art Institute of Chicago.

Swiss Children's Paintings---- Mrs. Dorothy Snow, Boston Museum of Fine
Arts.

INFORMATION SERVICE AND STAFF ACTIVITIES

In addition to the many requests for information received by mail and telephone, inquiries made in person at the office numbered 2,016. In all, 199 works of art were submitted for examination and identification.

Special catalogs with introductions and biographical notes by the Director were published for the following three exhibitions: Profiles of the Time of James Monroe; Henry Ward Ranger Centennial Exhibition; and Turn-of-the-Century Paintings from the William T. Evans Collection. He also published a vignette, Francis Davis Millet, in the *Cosmos Club Bulletin* for May 1959.

Special catalogs were published for the following traveling exhibitions: American Primitive Paintings; British Artist-Craftsmen; Dutch Master Drawings; Contemporary French Tapestries; Fulbright Painters; Recent Work by Peter Takal; and UNESCO Water Color Reproductions. Special acknowledgments for two of these were written by Mrs. Annemarie H. Pope and Mrs. Jo Ann Sukel Lewis.

Mr. Beggs was one of the three jurors for the national newspaper cartoon contest on the subject of "Human Betterment," Birmingham, Ala., on January 16, 1959, and he judged the regional exhibition of the National League of American Pen Women on April 27, 1959. On September 1, 1958, he participated in a symposium, "The Study of Art as the Study of Man," at the American Psychological Association

meetings, and on May 10, 1959, in a television show, "The 25th Hour," concerning the history of miniatures, showing examples from the National Collection of Fine Arts permanent collection. He served on the Committee on Liturgical Arts of the Rock Spring Congregational Church, Arlington, Va., contributing three talks on the fine arts in a series of 12. He spoke on "Henry Ward Ranger, Painter and Benefactor," at the Art League of Manatee County, Bradenton, Fla., February 24, 1959. He became a member of the Committee for the Preservation of American Art, New York City, which awarded three heroic sculptures by Karl Bitter (1867-1915) to the city of Indianapolis in a national competition, and served for the third year on the Cultural Presentations Committee, Operations Coordinating Board, which advises the Department of State in the selection of artists for its oversea program.

On June 1-3, 1959, Mr. Beggs attended meetings of the International Institute for Conservation and the opening of the American Association of Museums meetings in Pittsburgh.

Mrs. Pope gave a talk on May 8 at the University of Virginia in Charlottesville on the Traveling Exhibition Service program. She attended openings of the Dutch Master Drawings in Washington, New York, Cleveland, and Chicago, and the meetings of the American Association of Museums in Pittsburgh. Miss Acton represented the Smithsonian Traveling Exhibition Service in a panel discussion at the meetings of the Southeast Museums Conference at Winston-Salem, N.C., between October 15 and 18, 1958.

The staff participated in the organization of three important special commemorative exhibitions in cooperation with other institutions. At the request of the James Monroe Memorial Foundation, a bicentennial exhibition was shown in the rotunda of the Natural History Building, a special brochure and catalog being published. An exhibition requested on behalf of the Lincoln Sesquicentennial Commission was organized, with the assistance of the Lincoln Museum, and shown at the Washington Cathedral. It was also exhibited in New York at the Sheraton Park Hotel in connection with the Independence Stamp Show. In cooperation with the National Academy of Design, a Henry Ward Ranger Centennial exhibition was shown in New York City during the fall, and circulated in part from January through June.

Rowland Lyon served as juror for the following four shows: Today's Artists in Charles County (Maryland); Westmoreland Hills Art Fair; Miniature Painters, Sculptors and Gravers Society of Washington, D.C.; and the Arts Club Outdoor Art Fair.

Twenty-seven paintings in oil on canvas from the permanent collections were cleaned and revarnished, 1 was relined, and 58 picture frames were repaired and refinished with the assistance of Buildings

Management Service. One painting, James W. Melville, by S. de Ivanowitz, was relined to repair a 16-inch tear in the canvas, for the U.S. National Museum.

Three paintings, Italian Landscape, Sunset Glow, by Tom Jones; Lord Roth, by Sir Joshua Reynolds; and Fishing Boats Beating Up to Windward, by Edward Moran, were renovated by Henri G. Courtais, who also restored The Cottage Door, by Thomas Gainsborough.

An oil, Major John Wesley Powell, by Edmund C. Messer, was renovated by Francis Sullivan.

Janice Hines relined two oil paintings, Major John Wesley Powell, by Henry Ulke, and House in the Valley of Wyoming, by Boese, and renovated the following from the William T. Evans Collection: The Blacksmith, by James Carroll Beckwith; The Black Orchid, by Frederick Stuart Church; The Spouting Whale, by William Morris Hunt; Algerian Water Carrier, by William Sartain; Water Lilies, by Walter Shirlaw; The Boy with the Arrow, by Douglas Volk; Mrs. William T. Evans and Son John, by Henry Oliver Walker; and A Gentlewoman, by J. Alden Weir.

Joseph Ternbach renovated the following 12 objects from the Gellatly collection: Incense burner, enameled and chased copper, 15th century (234.1); Byzantine necklace of gold medallions with inlaid depictions of Christ and Apostles (247.1); Champeve limoges plaque, the Crucifixion, French, 13th century (250.1); copper chasse, French, 13th century (251.1); Champeve limoges crucifix, French, 13th century (252.1); Champeve crozier, the Annunciation, French, 13th century (254.1); Russian ikon, Our Lady of Vladimir, (488.1); Pyxis with enamel decoration, 13th century (602.1); silver filigreed phoenix, Chinese (271.1); silver filigreed crown, ornamented with gems and symbols, Chinese (272.1); silver and enamel peacock (621.1); Chinese glass bowl (580).

Donald Hitchcock, Dumbarton Oaks Research Library, translated the Church Russian inscriptions on the silver-gilt ikon, Our Lady of Vladimir, in the Gellatly collection.

The entrance to the Benjamin H. Warder home, received from the Cooperating Committee on Architecture in May 1923, was dismantled, crated, and stored at Suitland on May 15, 1959.

An oil, John Tyler, by G. P. A. Healy, was copied by C. Gregory Stapko in a studio furnished to the National Collection of Fine Arts for that purpose through the courtesy of the National Gallery of Art.

SPECIAL EXHIBITIONS

Seventeen special exhibitions were held during the year:

August 27 through September 26, 1958.—Third Biennial Exhibition of Creative Crafts sponsored by the Ceramic Guild of Bethesda, Cherry Tree Textile Design-

ers, Clay Pigeons Ceramic Workshop, Designer-Weavers, the Potomac Craftsmen, and the Kiln Club of Washington, consisting of 142 items. Craft demonstrations were given. A catalog was privately printed.

October 12 through November 2, 1958.—Sculptures, Oils, Watercolors, and Drawings by Charles M. Russell, sponsored by the Montana State Society of Washington, D.C., consisting of 205 items. An illustrated catalog was privately printed.

October 26 through November 23, 1958.—Profiles of the Time of James Monroe, under the auspices of the James Monroe Memorial Foundation, consisting of 178 objects including paintings, sculpture, silhouettes, and memorabilia, was held in the rotunda. A catalog was printed.

December 3, 1958, through January 4, 1959.—The 21st Anniversary of the Metropolitan Art Exhibition, sponsored by the American Art League, consisting of 63 paintings and 12 sculptures, was held in the rotunda.

December 3, 1958, through January 4, 1959.—Henry Ward Ranger Centennial Exhibition consisting of 30 paintings from the National Collection of Fine Arts permanent collection that had been exhibited at the National Academy of Design, September 25 through October 12, 1958, in its commemoration of this artist's birth, was held in the rotunda. A catalog was printed.

Following the National Collection of Fine Arts showing, these 30 paintings were circulated from January through June 1959 to the following museums: Mint Museum of Art, Charlotte, N.C.; Art League of Manatee County, Bradenton, Fla.; Jacksonville Art Museum, Jacksonville, Fla.; Gibbes Art Gallery, Charleston, S.C.; and North Carolina Museum of Art, Raleigh, N.C.

January 10 through February 1, 1959.—British Artist-Craftsmen, sponsored by the Ambassador of Great Britain and Lady Caccia, and later circulated by the Smithsonian Traveling Exhibition Service, consisting of 178 objects, altar sculpture, stained glass, ceramics, glass, silver, etc. The Rose Book was lent by the Churchill family for special showing during this exhibition. A catalog was privately printed.

February 7 through 27, 1959.—The 66th Annual Exhibition of the Society of Washington Artists, consisting of 66 paintings and 18 sculptures. A catalog was privately printed.

February 28 through March 22, 1959.—Fulbright Painters and Designers, under the sponsorship of the Honorable J. W. Fulbright, Senator from Arkansas (circulated by the Smithsonian Traveling Exhibition Service), consisting of 60 paintings and approximately 200 objects, including furniture, textiles, silver, ceramics, stained glass, etc. A catalog was privately printed.

March 29 through April 26, 1959.—Contemporary Glass and Textiles by Lucrecia Moyano de Muniz, sponsored by the Ambassador of Argentina, Dr. César Barros Hurtado, consisting of 49 glass objects and 12 rugs.

March 29 through April 26, 1959.—Photographs of Argentina by Gustavo Thorlichen, sponsored by the Ambassador of Argentina, Dr. César Barros Hurtado, consisting of 58 prints.

April 19 through May 3, 1959.—Stone Rubbings from Angkor Wat (circulated by the Smithsonian Traveling Exhibition Service), consisting of 23 rubbings made from the 12th-century sandstone reliefs.

April 19 through May 3, 1959.—Photographs of Angkor Wat (circulated by the Smithsonian Traveling Exhibition Service), consisting of 100 photographs stressing architecture of monuments built by Khmer King, Suryavarman II.

April 23 through June 1, 1959.—Turn-of-the-Century Paintings from the William T. Evans Collection, consisting of 57 paintings exhibited for the 50th Anniversary American Federation of Arts Convention, was held in the first-floor galleries. A catalog was printed.

May 3 through 21, 1959.—The 26th Annual Exhibition of the Miniature Painters, Sculptors, and Gravers Society of Washington, D.C., consisting of 191 items. A catalog was privately printed.

May 3 through 21, 1959.—The 63d Annual National Exhibition of the Washington Water Color Club, consisting of 117 paintings. A catalog was privately printed.

June 2 through 9, 1959.—Children's Paintings from Morocco, a selection from the paintings owned by the Moroccan Embassy, consisting of 79 works.

June 14 through July 5, 1959.—Eighth Interservice Photography Contest, consisting of 75 photographs by members of the Armed Forces.

Respectfully submitted.

THOMAS M. BEGGS, *Director.*

Dr. LEONARD CARMICHAEL,
Secretary, Smithsonian Institution.

Report on the Freer Gallery of Art

SIR: I have the honor to submit the 39th annual report on the Freer Gallery of Art, for the year ended June 30, 1959.

THE COLLECTIONS

Twenty-seven objects were added to the collections by purchase as follows:

GLASS

- 58.16. Syrian, early 14th century. Footed bowl with cover; gilding with red outlines and richly enameled with red, blue, green, white, and yellow colors forming floral and animal designs; much of it in Chinese style. Height 0.311 x diameter 0.210. (Illustrated.)

LACQUER

- 59.5. Indian, Deccani school, mid-17th century. Signed by Raḥīm Dekkānī; penbox (*qalamdān*) with figural scenes of the life of princes on both sides of the cover; arabesque and floral designs on brick-red outer side walls; gold floral pattern on the greenish-brown bottom and undecorated black interior; two metal chains at sides, and clasp. 0.282 x 0.053 x 0.049.

METALWORK

- 58.15. Indian, Mughal, 17th century (1605-27). Dagger with name of Jahāngir on upper chape. Steel blade with central ridge. Ivory flange inlaid with black mastic and gold wire (the hilt flange of walrus ivory is fixed to steel tang by pins ending in two silver rosettes); tang sheathed with gold and studded with 16 larger and 34 smaller jewels; guard and two chapes either in silver or niello or in reverse (chapes are now detachable); one larger, six smaller stones, and some gold inlay lost, one ivory corner chipped. Length (overall) 0.295 x width of guard 0.210.
- 58.6. Persian, Seljuq period, 11th century. Gold bracelet; quatrefoil hinge decoration composed of 4 large and 12 small domes with granulation work, and four inlaid turquoises. Diameter 0.106; weight 73.6 grams.
- 58.7. Persian, Sasanian period. Silver gilt plate; spherical, footless, with spread-eagle design in low, chased relief; framing wreath, double walls; part of gilt worn off; patination. 0.044 x 0.282.
- 58.14. Persian, Seljuq period, 11th-12th century. Gold bracelet, oval shaped; three rows of conical projections (66 in all), framed by two rows of smaller cones (172 in all); at the top side opening (closed by pin) 4 pairs of confronted dove figures partly executed with filigree, stand on 2 x 11 strands of twisted wire. Maximum diameter (overall) 0.097 x width 0.050; weight 354.5 grams.

PAINTING

- 58.8. Chinese, Ch'ing dynasty. Two mynah birds on a branch; a squirrel leaping for a wild grapevine; ink and light color on paper; by Hua Yen (1682-1758); artist's inscription and two of his seals on painting. 0.603 x 1.345.
- 58.9. Chinese, Ch'ing dynasty. Landscape, "A Morning View of the Yao Peak," by Chiang Shih-chieh (1647-1709); two inscriptions by the artist and nine of his seals on the painting; one collector's seal. 0.540 x 0.242.
- 58.10. Chinese, Ch'ing dynasty, 17th century. Landscape in ink and color on paper; by Hsiao Yün-ts'ung; inscription by the artist, signed and dated (1658); one seal of the artist. 0.410 x 0.957.
- 59.1- 59.4. Indian, Sultanate period, middle or second half of 15th century. Set of four miniatures from a manuscript of Amīr Khusraw Dihlavi's *Khamse*; *nasta'liq* writing in four columns; painting in colors on paper. Average: 0.110 x 0.210.
- 58.4- 58.5. Japanese, Ashikaga period, Idealistic Chinese school. A pair of 6-fold screens painted in ink and color on paper; mountain landscape by Sesshu (1420-1506). Average: 1.610 x 3.512. (58.5 illustrated.)
- 58.11. Japanese, Kamakura period, Yamatoe school. "Yuzu Nembutsu Engi," dated 1329; in ink and color on paper. 0.290 x 14.163.
- 58.12. Japanese, Decorative school, 17th century. Wistaria and other flowers; by Roshū; ink and color on paper. 1.259 x 0.520.
- 58.17- 58.19. Japanese, Ashikaga period, Yamatoe school, 15th century. Set of three; landscape-Kumano Mandara; ink, color, and gold on silk. Average: 1.165 x 0.593.
- 59.8. Japanese, Momoyama, Ukiyoe school, mid-17th century. Scenes in Kyoto, "Gion Festival"; 6-fold screen; ink, color, and gold leaf on paper. 3.480 x 1.505.

POTTERY

- 58.13. Chinese, T'ang dynasty, *San-ts'ai* ware. Bowl with plain rim; clay: buff stoneware; transparent glaze, streaked with brownish-yellow and green; finely crackled; iridescent inside bottom. 0.047 x 0.103.
- 59.6. Chinese, Sung dynasty, *ting* ware. Vase of truncated bottle shape with flat base, rounded shoulders, short neck, and flaring lip; clay: fine-grained white stoneware; glaze: transparent, glossy; decoration: peony scrolls in brown slip with incised details. 0.163 x 0.166. (Illustrated.)
- 59.7. Chinese, Sung dynasty, celadon, Li-shui type. Covered vase with flaring foot ring; two loop handles; flaring mouth and vertical lip; clay: light-gray porcellaneous stoneware, fired reddish brown; glaze: transparent olive-green with fine crackle; decoration: incised on body, carved on cover. 0.370 (with cover) x 0.165.
- 59.9. Chinese, Ming dynasty, Hsüan-te period. Bowl, deep with thick walls and flat, low foot ring; clay: fine white porcelain; glaze: transparent, faintly bluish inside and flocculent blue outside, none on base; decoration: incised in the paste outside are waves, dragons, and lotus panels; 6-character mark of the period inside bottom. 0.125 x 0.264.
- 58.3. Japanese, Edo period, Kakiemon, early 18th century. Octagonal dish; clay: fine white porcelain; glaze: transparent, very slightly mat; decoration: two large fish in underglaze blue among water weeds in overglaze enamels. 0.050 x 0.333.

59.10 Japanese, Edo period, Nabeshima. Shallow dish with high, thin foot ring; clay: fine white porcelain; glaze: transparent; decoration: in under-glaze blue outside and in, the latter combined with overglaze enamels. 0.037 x 0.150.

REPAIRS TO THE COLLECTIONS

Twenty-nine Chinese, Japanese, and Persian objects were restored, repaired, or remounted by T. Sugiura. In addition, he repaired 13 books for the library.

CHANGES IN EXHIBITIONS

Changes in exhibitions amounted to 445 as follows:

American art:		Paintings -----	60
Drawings -----	29	Stone sculpture -----	10
Etchings -----	20	Japanese art: Paintings --	4
Lithographs -----	18	Korean art:	
Chinese art:		Bronze -----	6
Bronze -----	34	Jade -----	7
Ivory -----	8	Metalwork -----	6
Lacquer -----	4	Pottery -----	65
Christian art:		Near Eastern art:	
Crystal -----	1	Bookbindings -----	10
Glass -----	3	Manuscripts -----	28
Gold -----	9	Metalwork -----	30
Paintings -----	8	Paintings -----	44
Stone sculpture -----	1	Pottery -----	18
Indian art:		Stone sculpture -----	2
Bronze -----	2	Wood sculpture -----	2
Manuscripts -----	12	Tibetan art: Paintings --	4

LIBRARY

Among the 1,005 acquisitions for the library of the Freer Gallery, there were 533 welcome gifts from individuals and exchanges from other institutions. Outstanding in the purchases were: *Dai kan wa jiten* (Great Chinese-Japanese dictionary), 10 of the 13 volumes have been received; *Sekai toji zenshu* (Catalogue of the world's ceramics) in 16 volumes, Tokyo, Kawade Shobo, 1955-58; *Sekai kokogaku taikei* (Archaeology of the world), to be complete in 16 volumes, Tokyo, Heibonsha, 1958-; Pearson, *Index Islamicus*, 1906-1955, Cambridge, Heffer & Sons, 1958; Kern Institute, *Annual bibliography of Indian archaeology, vol. 16 (1948-1953)*, Leiden, Brill, 1958; Gulik, R. H. van, *Chinese pictorial art as viewed by the connoisseur*, Roma, 1958; Nishimura Tei, *Namban art, Christian art in Japan, 1549-1639*, Tokyo, 1959.

The library receives publications from mainland China and exchanges publications with the Hermitage Museum, Leningrad.

In all, 454 scholars and students other than the Gallery staff read and studied in the library. Twenty interested persons saw the Washington Manuscripts from the vault and studied the facsimiles.

In the reshelving of the library a rare book division was established. This includes these books which are outstanding examples of Japanese rare books: *Sanjūrok-kasen* (The thirty-six immortals of Japanese poetry), [n.p., Suminokura Soan, n.d.]. Each page contains a portrait with the name of the poet and his or her poem. These poets were selected by the poet Fujiwara no Kinto, with illustrations considered to be by Tosa Mitsushige. This is a perfect copy, probably in its original condition. Its slightly tinted papers of yellowish and brownish shades are interleaved with white papers. The sheets are not numbered and there is no other inscription except the names of the poets and their poems. The writings are judged to be in the style of Kōetsu's calligraphy. The second book is a collection: *Utai-bon* (one hundred *utai* for the Nō plays of Kanze school), first edition. Calligraphy by Honami Kōetsu with the 36 designs said to be by Sōtatsu, brother-in-law of Kōetsu. These are Saga-bon (books printed in Saga) under the patronage of Suminokura Soan, a very wealthy businessman and an ardent pupil of Kōetsu in calligraphy. The paper was probably prepared by "paper maker Kyōji," who lived with Kōetsu at his villa Takagamine. The papermill was situated by the river Kamiyagawa, which flows near Kōetsu's own villa at Takagamine. The books are printed from movable type on both sides of the paper. The sheets are folded once in the center, sewed with red silk, and bound two quires to a volume. The paper is white and colored, heavy, coated with clay, and printed with floral designs in mica. The covers are various-colored papers of the same quality, with dark-tan labels. 100 volumes in 6 lacquer boxes after Kōetsu's designs. Dr. Yukio Yashiro of Japan, an authority on these books, says the calligraphy on the boxes is not Kōetsu's. These volumes are extremely rare in Japan.

The year's record of cataloging included a total of 1,422 entries of which 666 analytics were made, 425 titles of books and pamphlets were cataloged, and 53 titles were recataloged and reclassified. Of the total of 4,970 cards necessary for the above work, only 610 were available as printed cards from the Library of Congress.

PUBLICATIONS

Two publications were issued by the Gallery as follows:

- The Freer Gallery of Art. 16 pp., 8 pls., 2 floor plans, 1 plan of court planting. Rev. ed. 1958. (Smithsonian Inst. Publ. 4185.)
- Fong, Wên. The lohans and a bridge to heaven. Occas. Pap., vol. 3, No. 1, 64 pp., 18 pls., 1 fig., 1958. (Smithsonian Inst. Publ. 4305.)

Papers by staff members appeared in outside publications as follows:

- CAHILL, JAMES F. Review of "The Arts of the Ming Dynasty." Catalog of an exhibition organized by the Arts Council of Great Britain and the Oriental Ceramic Society. *The Journal of Asian Studies*, Ann Arbor, vol. 18, No. 2, pp. 289-290, February 1959.
- . Foreword for the exhibition of paintings by Chi Chuan Wang held March 10-April 4, 1959, at Mi Chou Gallery, New York City.
- . Ch'ien Hsüan and his figure paintings. *Archives of the Chinese Art Society of America*, vol. 12, pp. 10-29, 1958.
- ETTINGHAUSEN, RICHARD. An exhibition of the ancient arts of Muslim countries in Lahore. *West Pakistan*, vol. 1, No. 8, April 1958.
- . Comments on the nature of Islamic art and its symbols. In *The Pakistan Quarterly*, vol. 8, No. 1, pp. 39-40, 64, Spring 1958.
- . 'Abbāsidi-la pittura murale la miniature le arte decorative. *Enciclopedia Universale dell'Arte*, vol. 1, col. 10-18. Roma, Istituto per la Collaborazione Culturale, 1959.
- . 'Abdu's-Šamad. In *Enciclopedia Universale dell'Arte*, vol. 1, col. 18-21. Roma, Istituto per la Collaborazione Culturale, 1959.
- . Review of "Der Orientalische Knüpftpeppich, Versuch einer Darstellung seiner Geschichte," by K. Erdmann. *Oriens*, vol. 2, pp. 257-264, 1958.
- . Review of "Islamic Woodcarvers and their Works," by L. A. Mayer, for *The Muslim World*, Hartford (Conn.) Seminary Foundation, January 1959, p. 60.
- GETTENS, RUTHERFORD J. The identification of pigments and inerts on paintings and other museum objects. *Application of Science in Examination of Works of Art*, Sept. 15-18, 1958, pp. 31-49.
- . Examining tables in use at the Freer Gallery of Art. *Studies in Conservation*, vol. 4, pp. 23-27, illus., February 1959.
- POPE, JOHN ALEXANDER. Two Chinese porcelains in the Umezawa Collection. *Yamato Bunka No. 28*, pp. 1-12, December 1958.
- . Chinese characters in Brunei and Sarawak ceramics. *The Sarawak Museum Journal*, vol. 3, No. 11 (new series), pp. 267-272, 1958.
- STERN, HAROLD P. Ukiyoe paintings; selected problems. University of Michigan, 1958.
- WEST, ELISABETH HEBARD. A ring-mount for micro-cross-sections of paint and other materials. In *Studies in Conservation*, vol. 4, pp. 27-31, illus., February 1959.

PHOTOGRAPHIC LABORATORY AND SALES DESK

The photographic laboratory made 6,960 items during the year, as follows: 4,072 prints, 606 negatives, 1,894 color slides, 405 black-and-white slides, and 83 color film sheets. In all, 2,463 slides were lent during the year. At the sales desk 23,921 items were sold, comprising 2,098 publications and 21,823 reproductions (including postcards, slides, photographs, reproductions in the round, etc.).

BUILDING AND GROUNDS

The exterior walls of the building appear to be in good condition, but the roof has begun to show signs of wear. The exterior doors at

the north and south entrances were refinished to an antique bronze, and a brass handrail was installed at the north entrance. Window sills throughout the building have been painted, and painting of structural steel and metalwork in the attic was begun.

Four bookcases were completed for the library and one for the office of the Assistant Director, and work on exhibition cases for the galleries continued. A radial saw was installed in the cabinet shop, and a cabinet for a print dryer for the photographic laboratory and light-proof equipment for the technical laboratory were constructed. Gallery benches were redesigned and upholstered.

All trees, plants, and shrubs appear to be doing very well. The Meyer zoysia grass is making an excellent showing, except for two small plots on the south side that are in complete shade for the winter season. Experiments are being made to correct this situation. Vinca and Gomphrena planted around the fountain for the present season are doing very well.

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 119,333. The highest monthly attendance was in August, 14,891, and the lowest was in December, 4,018.

There were 2,508 visitors to the office for the following purposes:

For general information.....	1, 012
To submit objects for examination.....	470
To see staff members.....	193
To take photographs in court or exhibition galleries.....	127
To study in library.....	454
To see building and installations.....	37
To examine or borrow slides.....	41
To sketch in galleries.....	3
To see objects in storage:	
American art.....	23
Christian art (Washington MSS.).....	46
Far Eastern jade, lacquer, wood, ivory, etc.....	20
Far Eastern metalwork.....	28
Far Eastern paintings.....	183
Far Eastern pottery.....	35
Near Eastern bookbindings, glass, etc.....	7
Near Eastern metalwork.....	17
Near Eastern paintings.....	26
Near Eastern pottery.....	10

AUDITORIUM

The series of illustrated lectures was continued as follows:

1958

October 7.

Dr. Richard Ettinghausen, Curator of Near Eastern Art, Freer Gallery of Art. "Paintings of the Sultans and Emperors of India." Attendance, 296.

1958

- November 4. Basil Gray, Keeper of Oriental Antiquities, British Museum, London, England. "Five Hundred Years of Chinese Wall Painting at Tun-huang." Attendance, 293.

1959

- January 6. Dr. Wên Fong, Princeton University. "How to Look at Chinese Paintings." Attendance, 298.
- February 10. Miss Elizabeth Lyons, Queens College, New York City. "Temple Paintings of Thailand." Attendance, 234.
- March 10. Harold P. Stern, Associate Curator of Japanese Art, Freer Gallery of Art. "Popular Paintings of Tokugawa, Japan." Attendance, 157.
- April 7. Dr. John A. Pope, Assistant Director, Freer Gallery of Art. "Hinduism and Buddhism at Angkor." Attendance, 326.

Outside organizations used the auditorium as follows:

1958

- August 13. Ikebana International held a meeting during which Miss Seikoh Ogawa gave a demonstration and illustrated lecture on "Japanese Flower Arrangement." Attendance, 428.
- September 23-26. The U.S. Department of Agriculture, Marketing Workshop, held meetings with attendance as follows: 82, 96, 83, and 127; total, 388.

1959

- January 8-9. The U.S. Department of Agriculture, Federal Extension Service, held meetings with attendance as follows: 96 and 81; total, 177.
- January 13-20. The U.S. Department of Agriculture held all-day meetings of Administrative Conference (Telephone) with attendance as follows: 121 and 124; total, 245.
- January 27. The U.S. Department of Agriculture, Under Secretary's Office, held a meeting of the Farmers' Union. Attendance, 156.
- February 2. The District of Columbia Psychological Association held an evening meeting. Attendance, 62.
- February 19. The U.S. Department of Health, Education, and Welfare, Food and Drug Administration, held a seminar on "Metabolic Fate of Drugs in Different Species." Attendance, 167.
- April 2. The U.S. Department of Agriculture, Foreign Agricultural Service, showed a movie on Africa. Attendance, 153.
- April 14-
June 29. Twelve rehearsals were held by a group from the Smithsonian Institution for a musical program of 15th-century music using antique musical instruments.
- May 6. The U.S. Department of Health, Education, and Welfare, Food and Drug Administration, held an all-day meeting. Attendance, 82.
- May 20. The Smithsonian Institution sponsored an illustrated lecture by H. Alan Lloyd on "Pre-Renaissance Clocks and Their Influence." Attendance, 92.
- June 2. The Museum Store Managers held a meeting; cochairmen were Mrs. Elizabeth Ostertag, National Gallery of Art, and Mrs. Lnor O. West, Freer Gallery of Art. A talk on "Copyright" was given by Richard MacCarteney, Copyright Division, Library of Congress. Attendance, 35.
- June 18. The U.S. Department of Agriculture, Food Extension Service, and The 4-H Club held a meeting. Attendance, 112.

1959

- June 24. American Library Association, Art Section, Chairman, Mrs. Bertha Usilton, librarian, Freer Gallery of Art, held a meeting. A talk was given on "A New Program in the Documentation of Art." Attendance, 220.
- June 30. The Smithsonian Institution, Division of Cultural History, presented "A Program of 15th-Century Music." Attendance, 361.

On October 8, 1958, the Gallery was open in the evening and docent service was given by Dr. James Cahill and Rutherford J. Gettens to a group of nine members of the Executive Committee, International Union of Pure and Applied Chemistry; Dr. Edward Wichers headed this distinguished group.

STAFF ACTIVITIES

The work of the staff members has been devoted to the study of new accessions, of objects contemplated for purchase, and of objects submitted for examination, as well as to individual research projects in the fields represented by the collections of Chinese, Japanese, Persian, Arabic, and Indian materials. Reports, oral and written, and exclusive of those made by the technical laboratory (listed below) were made on 8,637 objects as follows: For private individuals, 4,785; for dealers, 1,619; for other museums, 2,233. In all, 834 photographs were examined, and 1,151 Oriental language inscriptions were translated for outside individuals and institutions. By request, 20 groups totaling 430 persons met in the exhibition galleries for docent service by the staff members.

Five groups totaling 101 persons were given docent service by staff members in the storage rooms.

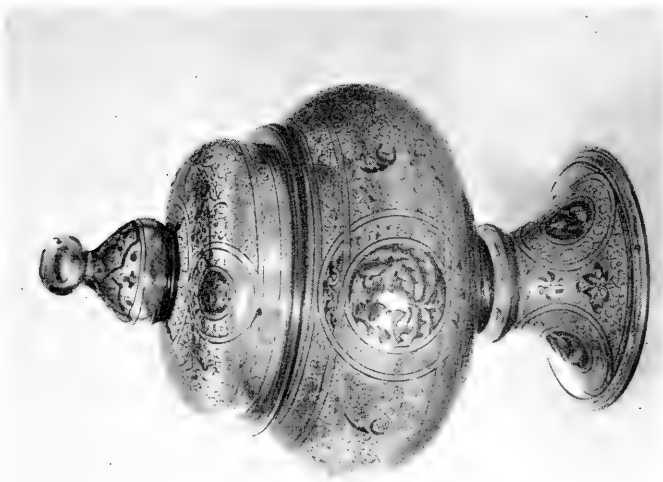
Among the visitors were 87 distinguished foreign scholars or persons holding official positions in their own countries who came here under the auspices of the State Department to study museum administration and practices in this country.

During the year the technical laboratory carried on the following activities:

Freer Gallery objects examined.....	115
Microchemically	2
Microscopically	36
Ultraviolet	30
X-ray diffraction.....	31
Chemical analysis.....	27
Treated, cleaned, or repaired.....	37
Outside objects examined.....	107
Microchemically	23
Microscopically	45
Ultraviolet	41
X-ray diffraction.....	4
Treated, cleaned, or repaired.....	6

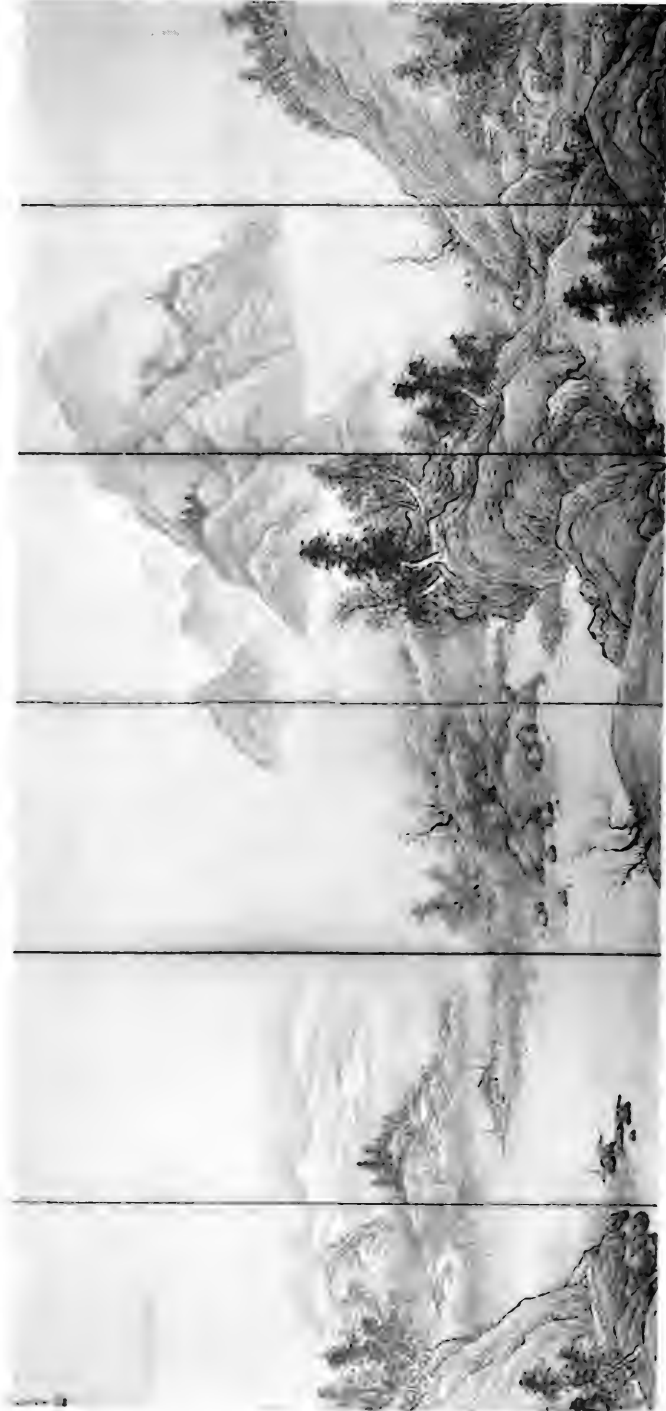


59.6



58.16

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



585

Recent addition to the collections of the Freer Gallery of Art

The following projects were undertaken by the laboratory during the year:

1. During February and March Mr. Gettens spent 2 weeks, and Miss West 6 weeks, working as guests in the Chemistry Department, Brookhaven National Laboratory, Upton, Long Island, N.Y. The project of spectrochemical analysis of some 30 inscribed ceremonial bronzes from the Freer collection, which was begun last year, was brought nearly to completion.

2. Chemical analysis of the same series of bronzes by conventional wet methods was completed.

3. Examination of some 550 jade objects in the Freer collection, which included X-ray diffraction analysis of 150 jades, was completed.

4. Mr. Gettens took over editorship of Abstracts of the Technical Literature and Archaeology and the Fine Arts, published by the International Institute for Conservation of Museum Objects, London, England.

5. The systematic collection of data on the technology of ancient copper and bronze in the Far East was continued.

6. Studies on the corrosion products of ancient metal objects were continued.

During the year, 4 written reports were made and 128 verbal reports given on objects examined in the technical laboratory.

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

1958

- | | |
|---------------|---|
| July 1. | Dr. Cahill, to the Society for Asian Art, San Francisco, Calif., "Painting Albums in China and Japan." Attendance, 100. |
| September 1. | Dr. Pope, at a session of the Division of Esthetics, Symposium of the American Psychological Association, Statler Hotel, Washington, D.C., "The Freer Gallery of Art." Attendance, 150. |
| September 3. | Dr. Cahill, at the Fourth Conference on Chinese Thought, Aspen, Colo., "Confucian Elements in Chinese Painting Theory." Attendance, 16. (Not illustrated.) |
| September 15. | Mr. Gettens, at the Seminar on Applications of Science in Examination of Works of Art, Museum of Fine Arts, Boston, Mass., "Identification of Pigments." Attendance, 73. |
| November 3. | Dr. Ettinghausen, at the Walters Art Gallery, Baltimore, Md., "Islam." Attendance, 183. |
| December 11. | Dr. Cahill, at the University of Chicago, Chicago, Ill., "Two Concepts of Painting in China." Attendance, 50. |
| December 12. | Dr. Cahill, at the University of Chicago, Chicago, Ill., "The Theory of Literati Painting." Attendance, 60. |
| December 14. | Mr. Stern, at the California Palace of the Legion of Honor, San Francisco, Calif., "The Korean Exhibition." Attendance, 100. |

1959

- January 15. Dr. Ettinghausen, at the annual Regents' dinner, Smithsonian Institution, "Objects Dealing with Christmas Themes in the Freer Gallery Collections." Attendance 34.
- January 16. Mr. Stern, to the Japan-American Society, Georgetown Presbyterian Church, Washington, D.C., "Hokusai." Attendance, 30.
- January 29. Dr. Cahill, to the College Art Association, Cleveland, Ohio, "Criteria of Evaluation in Chinese Criticism of Painting." Attendance, 60.
- January 30. Dr. Pope, at the Antiques Forum, Williamsburg, Va., "Chinese Export Porcelain in Perspective." Attendance, 395.
- February 3. Mr. Stern, at the Los Angeles County Museum, Los Angeles, Calif., "The Korean Exhibition." Attendance, 350.
- February 9. Mr. Stern, to the Society for Asian Arts, San Francisco, Calif., "Hokusai." Attendance, 150.
- March 17. Dr. Cahill, at the Fogg Art Museum, Cambridge, Mass., "Two Concepts of Painting in China." Attendance, 60.
- March 18. Dr. Cahill, at the Fogg Art Museum, Cambridge, Mass., "The Theory of Literati Painting." Attendance, 60.
- March 19. Dr. Cahill, at Harvard University, Cambridge, Mass., "Yüan Dynasty Painting." Attendance, 12.
- April 9. Dr. Pope, to the American Oriental Society, University of Michigan, Ann Arbor, Mich., "Notes on Saga of Porcelain: How Old Is Koimari?" Attendance, 100.
- April 10. Dr. Ettinghausen, to the American Oriental Society, University of Michigan, Ann Arbor, Mich., "Miniatures Related to the 'Demotte' *Shāh-nāme*." Attendance, 75.
- April 16. Mr. Stern, at Yale University, New Haven, Conn. "Hokusai the Painter." Attendance, 110.
- April 30. Mr. Stern, to the Japan Society, New York City, "Japanese Art, Visual Aspects." Attendance, 60.
- May 7. Dr. Pope, at the University of Virginia, Charlottesville, Va., "Temples of Angkor." Attendance, 175.
- May 23. Mr. Gettens, to the Eastern New York American Chemical Society, Top of the World Inn, Lake George, N.Y., "Adventures in Archaeological Chemistry." Attendance, 50.

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

1958

- June 20-
August 11. Dr. Pope, in Europe, examined objects in museums and private collections as follows: London: British Museum, Percival David Foundation, Victoria and Albert Museum, and six private collections; Amsterdam: Museum for Asiatic Art and one private collection; The Hague: One private collection; Brussels: Musée du Cinquantenaire and Stoclet Collection; Athens: Benaki Museum; Rome: Istituto Italiano per il Medio ed Estremo Oriente; Venice: Oriental Museum; Lugano: Dubosc Collection and Vanotti Collection.

1958

- July 1-3. Mr. Stern, in New York City with Dr. George Switzer of the U. S. National Museum, examined the Vetlesen jade collection, and arranged for transportation as a gift to the Smithsonian Institution.
- July 7. Mr. Gettens, with Dr. Harold Plenderleith of the British Museum, London, England, visited the Mellon Institute, Pittsburgh, Pa., where Dr. Robert Feller showed them installations.
- July 17-18. Mr. Gettens, with Dr. Harold Plenderleith, attended the Seminar on Museum Science at the Winterthur Museum, Winterthur, Del.
- September 3-11. Dr. Cahill, in Aspen, Colo., attended the "Conference on Chinese Thought."
- September 11. Mr. Wenley, in Ann Arbor, Mich., conferred with the Freer Fund Committee, head of the art department, and editors at the University of Michigan.
- September 12. Dr. Ettinghausen, in Baltimore, Md., examined Near Eastern manuscripts and miniatures in the Baltimore Museum of Art.
- September 12. Dr. Cahill, in Chicago, Ill., examined Chinese paintings at the Art Institute of Chicago.
- September 13-15. Dr. Cahill, in New York City, examined objects at dealers.
- September 15. Dr. Pope, in Baltimore, Md., examined one Japanese sculpture in the Baltimore Museum of Art.
- September 15-17. Mr. Stern, in Ann Arbor, Mich., consulted with Doctoral Committee at the University of Michigan.
- September 15-18. Mr. Gettens, in Boston, Mass., attended a Seminar on Application of Science in Examination of Works of Art at the Museum of Fine Arts; participated in the ceremonies to honor Edward Waldo Forbes, director emeritus of the Fogg Art Museum, on his 85th birthday.
- October 11-22. Dr. Ettinghausen, in Cleveland, Ohio, examined Rajasthani miniatures belonging to G. K. Kanoria, Calcutta, India, exhibited in the Cleveland Museum of Art; examined Mughal, Rajasthani, and Pahari miniatures in a private collection; examined and photographed 4 Mughal miniatures in the Cleveland Museum of Art; in Ann Arbor, Mich., examined 40 pieces of pottery in the Museum of Art, University of Michigan; examined 1 Persian manuscript and photographed 3 Persian miniatures in a private collection; in Detroit, Mich., examined 1 Indian miniature and 1 Egyptian ceremonial mace in the Detroit Institute of Art.
- October 22. Mr. Gettens and Miss Elisabeth H. West, in Upton, Long Island, N.Y., visited Brookhaven National Laboratory where technical matters were discussed with Dr. E. V. Sayre, and other members of the Chemistry Department.
- October 23-25. Dr. Pope, in New York City, examined 30 objects at dealers. Attended a meeting of the American Council of Learned Societies, Committee on Asia.
- October 23-25. Mr. Gettens, in Brooklyn, N.Y., attended a "Conference on Conservation" at the Brooklyn Museum. Served as a member of the ad hoc committee on Resolutions for Exploratory Conference on Conservation.

1958

- November 1. Mrs. Usilton and Mrs. Hogenson, in Baltimore, Md., attended an all-day meeting of Regional Catalogers of Maryland, Virginia, and District of Columbia at the Peabody Institute.
- November 3-4. Dr. Ettinghausen, in Baltimore, Md., examined 1 Christian-Arab dagger, 1 Turkish box, 1 Moroccan dagger, 4 Indian manuscripts, and 10 Indian miniatures in the Walters Art Gallery; did research work in their library.
- November 8-11. Mr. Stern, in New York City, examined 141 objects at dealers. Looked at the collections of the Museum of Modern Art; examined 30 pieces of Japanese porcelain and 1 Japanese painting at the Metropolitan Museum of Art.
- November 20-26. Dr. Cahill, in New York City, examined 30 Chinese paintings in private collections, and 88 objects at dealers.
- December 8-10. Dr. Cahill, in Boston and Cambridge, Mass., examined 86 Chinese paintings in the Museum of Fine Arts, and 24 Chinese paintings at the Fogg Art Museum.

1959

- February 1-24. Mr. Stern, in Los Angeles, Calif., examined 50 Far Eastern objects in the Los Angeles County Museum, and 62 objects in private collections; in San Diego, examined 60 Japanese objects in the Museum of Art; in Santa Barbara, examined 145 Chinese and Japanese objects in the Museum of Art, and 215 Far Eastern objects in private collections; in San Francisco, examined 40 Indian paintings at the De Young Memorial Museum, 406 objects belonging to various dealers, and 457 Far Eastern objects in private collections. In Kansas City, examined 207 Far Eastern objects in the William Rockhill Nelson Gallery of Art, and 35 Indian bronzes in a private collection. In Chicago, examined 43 Far Eastern objects in the Art Institute of Chicago, and 25 Japanese paintings in private collections.
- February 11. Dr. Ettinghausen, in Baltimore, Md., examined objects in the Walters Art Gallery.
- February 16-26. Mr. Gettens, in Upton, Long Island, N.Y., continued the spectrographic analysis of Chinese bronzes begun last year at the Brookhaven National Laboratory.
- February 16-27. Miss Elisabeth H. West, in Upton, Long Island, N.Y., continued the spectrographic analysis of Chinese bronzes begun last year at the Brookhaven National Laboratory.
- February 18-20. Dr. Ettinghausen, in New York City, examined objects at dealers.
- March 17-22. Dr. Cahill, in Cambridge, Mass., examined 12 Far Eastern paintings at the Fogg Art Museum, and 41 paintings in private collections; in Boston, examined 17 paintings at the Museum of Fine Arts.
- April 8-12. Dr. Pope, in Ann Arbor, Mich., attended a meeting of the American Oriental Society; examined 100 objects in the University Museum of Anthropology.
- April 8-14. Dr. Ettinghausen, in Ann Arbor, Mich., attended a meeting of the American Oriental Society; examined 155 Persian objects and 20 transparencies of Persian miniatures at a special exhibition in the Museum of the Near East.

1959

- April 15-17. Mr. Stern, in New Haven, Conn., examined 40 Japanese prints and 50 Japanese paintings at the Yale University Art Museum; in New York City, examined 160 objects belonging to dealers.
- April 24-29. Dr. Pope, in New York City, attended meetings of the American Council of Learned Societies, Joint Committee on the Award of Fellowships; examined 136 Far Eastern objects belonging to dealers.
- April 30-May 1. Mr. Stern, in New York City, examined 35 objects belonging to dealers.
- May 8. Dr. Pope, in Charlottesville, Va., examined 4 Chinese paintings and 15 pieces of Chinese pottery in a private collection.
- May 12-18. Dr. Pope, in New York City, attended meetings of the American Council of Learned Societies, Committee on Asia; examined a number of objects in the Metropolitan Museum of Art; in Boston, Mass., presided at meetings of the Far Eastern Ceramic Group at the Museum of Fine Arts.
- May 23-30. Mr. Stern, in Cambridge, Mass., conferred with Robert Treat Paine, Jr., at the Fogg Art Museum, and Prof. James N. Plumer of the University of Michigan; in New York City, examined 170 objects belonging to dealers, and 52 objects in two museums.
- May 23. Mr. Gettens, in Lake George, N.Y., attended meetings of the Eastern New York American Chemical Society.
- June 1-4. Mr. Gettens, in Pittsburgh, Pa., attended meetings of the American Association of Museums. He presided as chairman of the Temporary Committee of the International Institute for the Conservation of Museum Objects, at a meeting for the purpose of forming the American Group.

Mr. Gettens left for Europe on June 14, 1959, to attend meetings of the International Council of Museums in Copenhagen and Stockholm, and en route, to consult with colleagues and visit collections in Scotland, England, and Belgium.

As in former years, members of the staff undertook a wide variety of peripheral duties outside the Gallery, served on committees, held honorary posts, and received recognitions.

On June 9, 1959, the Gallery cooperated with the Dumbarton Oaks Research Library and Collection, Trustees for Harvard University, in sponsoring a performance of *Gagaku*, the musicians and dancers of the Imperial Japanese Household. This ancient company made its first journey outside of Japan, thanks to the interest and influence of Secretary General Dag Hammarskjold, to perform before the United Nations in New York. A 2-week schedule followed under the auspices of the New York City Ballet Company; and it was the generosity of the latter organization that made possible the single appearance in Washington. Over 500 invited guests attended the production in the gardens of Dumbarton Oaks.

The Freer Gallery of Art again participated in the Wellesley-Vassar Washington Summer Intern Program designed for students interested in obtaining rounded experience in the general operation and purposes of a gallery, and in broadening familiarity with the field of art in general. Miss Nancy Orbison, Vassar College, Poughkeepsie, N.Y., served as our volunteer for this program during the summer of 1959.

Respectfully submitted.

A. G. WENLEY, *Director.*

Dr. LEONARD CARMICHAEL,
Secretary, Smithsonian Institution.

Report on the National Air Museum

SIR: I have the honor to submit the following report on the activities of the National Air Museum for the fiscal year ended June 30, 1959:

On September 6, 1958, President Eisenhower signed the bill (S. 1958), originally introduced by Senator Clinton P. Anderson and passed by the 85th Congress, authorizing and directing the Regents of the Smithsonian Institution to prepare plans, including drawings and specifications, for the construction of a suitable building for a National Air Museum to be located on the site bounded by Fourth and Seventh Streets SW., Independence Avenue, and Jefferson Drive. Thus, with the passage of this act (Public Law 85-935), another step forward has been taken toward the provision of adequate housing for the National Air Museum. The architectural firm of Harbeson, Hough, Livingston & Larson, of Philadelphia, Pa., is making preliminary studies and an estimate of planning costs for the building.

A number of significant accessions were received. Among these were the first recovered nose cone from outer space, a replica of the Jupiter C rocket and satellite Explorer I, a recovered data capsule from outer space, some original documents of the early experiments in rocketry by Dr. Robert H. Goddard, and a Curtiss-Wright Jr. airplane.

Considerable progress was made in the improvement and preparation of storage and restoration facilities.

Plans for a new exhibit in the Aircraft Building were approved, and construction will begin this fall. It is expected that the new exhibit will be opened in the spring of 1960.

Information service in the form of technical, historical, and biographical information pertaining to the development of aviation, furnished to Government agencies, schools, research workers, authors, students, and the public, increased in scope and in volume during the year. Many useful acquisitions to the Museum's library, reference, and photographic files were received.

New staff members reporting for duty include Kenneth E. Newland, curator; Robert Meyer, junior curator; and Robert Wood, museum aide.

Walter M. Male, associate curator, has been assigned to Suitland, Md., as operations manager in charge of the Museum's restoration program.

ADVISORY BOARD

Although no meetings of the Advisory Board were held during the year, the members have been consulted from time to time on important museum activities. One member of the Board, Grover C. Loening, gave the Lester D. Gardner Lecture in Washington, under the sponsorship of the National Air Museum.

SPECIAL EVENTS

Several notable presentation ceremonies were held during the year. Outstanding was the presentation of the Jupiter C rocket and Explorer I satellite by Secretary of the Army Wilber M. Brucker, on January 31, 1959, the anniversary date of the placing of the first American satellite into orbit. Other special ceremonies included the presentation of a recovered data capsule by Gen. Bernard Schriever, U.S. Air Force; a working model of the Vanguard satellite, presented by Dr. John P. Hagen of NASA; and the first recovered nose cone, presented by Secretary of the Army Wilber M. Brucker. In each instance Dr. Carmichael accepted the gift for the Museum with appropriate remarks.

The Director attended the World Congress of Flight at Las Vegas, Nev., April 12-18, and from there proceeded to the National Aviation Educational Council held at Riverside, Calif., April 19-20, 1959.

The head curator and historian, Paul E. Garber, represented the Museum at a number of events identified with aviation history. These included the Vanguard satellite anniversary banquet; the annual meeting of the American Helicopter Society; the National Rocket Club annual banquet; the annual meeting of the Early Birds; and the National Postage Stamp Show. He delivered 13 lectures during the year and conducted 6 special tours of the Museum for groups of military visitors. He also participated in a number of television and radio programs during the year and paid visits to Hammondsport, New York, and St. Louis on Museum business.

Both the Director and head curator were appointed by the National Aeronautic Association as members of the committee to select the annual recipient of the National Frank G. Brewer Award for Aviation Education.

IMPROVEMENTS IN EXHIBITS

The aircraft, engines, and other aviation equipment scheduled for display in the new exhibit for the Aircraft Building are being cleaned, repaired, and made ready for exhibition.

A general cleaning and renovation of exhibits and some minor repairs were undertaken.

REPAIR, PRESERVATION, AND RESTORATION

A small office has been provided at the Suitland storage facility, and a paint and spray booth is under construction. A fabric department and document room are in process of planning. Additional machine tools and equipment have been acquired. Most of the aircraft and engines in the Aircraft Building have been moved to Suitland and are undergoing cleaning, repair, and preparation for storage or exhibition.

In anticipation of the restoration program which lies ahead in preparation for the new building, the Director has visited many aircraft factories and has received assurances of cooperation from the manufacturers by way of providing us with technical data, lending mechanics to assist in restoration and to advise on methods of display.

ASSISTANCE TO GOVERNMENT DEPARTMENTS

The National Air Museum has served many Government departments during the year. Among these were the Department of Justice in connection with patent litigation, the Voice of America, the Department of the Air Force, and the Department of the Navy.

PUBLIC INFORMATION SERVICES

Providing information to the public continues as a very active and growing function of the Museum. For example, telephone calls during the year requesting historical, technical, or biographical information on the development of aviation numbered more than 700 from Government agencies and more than 1,400 from other sources. Correspondence is averaging around 100 letters a week. Approximately 19,000 leaflets were distributed during the year, in addition to some 1,100 photographs and drawings.

The Museum continues to serve aircraft manufacturers, airlines, publishers, authors, schools and colleges, and many individual students, teachers, and research workers.

REFERENCE MATERIAL AND ACKNOWLEDGMENTS

Many useful and valuable additions to the reference files, photographic files, and library of the Museum were received during the year. These records and documents are helpful to the Museum staff in providing information service, authenticating data, and for research.

The cooperation of the following persons and organizations in providing this material is sincerely appreciated:

AIR FORCE, DEPARTMENT OF THE, AIR FORCE MUSEUM, Wright-Patterson Air Force Base, Ohio: Negatives of flight of Col. Charles A. Lindbergh and Anne Morrow Lindbergh in the Lockheed Sirius seaplane *Tingmissartog*, 1929. AIR UNIVERSITY, Maxwell Field, Ala.: Pamphlets of USAF Historical Studies No. 98.

- ARMY, DEPARTMENT OF THE, INFORMATION OFFICE, U.S. MILITARY ACADEMY, West Point, N.Y.: Photograph "Cenotaph at Post Cemetery," dedicated to Lt. Thomas Selfridge. PUBLIC INFORMATION OFFICE, MILITARY DISTRICT OF WASHINGTON, Gravelly Point, Va.: Pictorial record and articles relating to Wright-Selfridge flight. OFFICE OF THE CHIEF OF INFORMATION, Washington, D.C.: Tape recording of the presentation ceremony of the Explorer I. Photograph of Explorer I.
- ARTISTS AND WRITERS PRESS, INC., New York, N.Y. (Caroline Ungemah): The Story of Flight—A Giant Golden Book.
- BAUSCH & LOMB OPTICAL Co., Rochester, N.Y.: Copies of booklet "Reprint of First Exhibition of the Aeronautic Society of New York," at Morris Park, New York City, November 3, 1908.
- BEECH AIRCRAFT CORP., Wichita, Kans.: A collection of photographs and 3-view drawings of Beech aircraft.
- BOEING AIRPLANE Co., Washington, D.C.: Photographs of Boeing 707 jetplane.
- BRICK, MRS. KAY, Norwood, N.J.: Official programs of the Women's Transcontinental Races.
- BRONSON, C. L. Lookout Mountain, Tenn.: Photographs of Glenn H. Curtiss and Curtiss airplanes.
- BROWN, MAJ. KIMBROUGH S., USAF, Bedford, Mass.: A copy of his recent book "Von Richthofen and the Flying Circus."
- BURKE, JUSTIN J., Dubuque, Iowa: Notarized statement and supporting documents relating to and describing the first installation of navigation lights on military airplanes, Ellington Field, Tex., 1918.
- CAFFREY, FRANCIS J., Liverpool, N.Y.: A collection of pamphlets and material pertaining to aircraft and flight operations.
- CANADAIR LIMITED, Montreal, Canada: A collection of photographs and descriptive literature on Canadian aircraft.
- CASEY, LOUIS S., Washington, D.C.: A collection of handbooks pertaining to Consolidated PBV-5, Pratt and Whitney Twin Wasp C series, and Twin Wasp C3 series.
- CESSNA AIRCRAFT Co., Wichita, Kans.: A collection of photographs and a genealogy chart of Cessna aircraft. Photograph of Clyde V. Cessna and Dwayne L. Wallace, 1954. Three-view drawings of Cessna aircraft as follows: 305 A, B, and C; 321; 140A; 170A; 120; 140; H-001; DC-6; CW-6; C-106A; FC-1; C-165; T-37; LC-126; 170; 172; 175; 180; 182; 310 B and C; T-50; Monoplane; Gobel Special; and Glider.
- COHEN, COMDR. ALBERT M., USNR, Retired, Wynnewood, Pa.: A collection of photographs re: Brest, France, and vicinity, U.S. Navy Aviation Section, WWI.
- COOKE, DAVID C., Valley Stream, N.Y.: A copy of his book "Bomber Planes That Made History."
- CORNISH, J. J., 3d, Mississippi State University, State College, Miss.: A copy of his article "The Flight of Seeds."
- DEARBORN HISTORICAL MUSEUM, Dearborn, Mich.: Booklet entitled "Tin Goose."
- DEUTSCHES MUSEUM, Munchen, Germany: Fabric section duplicating the color scheme from the Fokker D-VII in possession of Deutsches Museum.
- EASTERN AIRLINES, New York, N.Y.: Photostats from Fokker Catalog re: Fokker Universal and Super Universal aircraft.
- EMMONS, CONANT, Washington, D.C.: Four glass negatives of Wright Type "A" airplane at Fort Myer, 1909.
- ESSO EXPORT CORP., New York, N.Y.: A collection of magazines (bound volumes): Flight, The Aeroplane, and Aviation Week.
- ESSO STANDARD OIL Co., W. H. KEPPEL, New York, N.Y.: A collection of reference material on Curtiss H-16 flying boat.

- FERRY SERVICE, INC., Pontiac, Mich.: Drawings of Stinson aircraft models with the exception of models 108 and L-5.
- FRANKLIN INSTITUTE, Philadelphia, Pa.: Blueprints of Wilford Gyroseaplane.
- FROYD, MRS. SHIRLEY B., Pasadena, Calif.: Newspaper and magazine clippings on aviation, period 1925-27.
- GOODWIN, GARLAND O., San Diego, Calif.: Drawing of Montgomery glider of 1883.
- GRIFFENHAGEN, GEORGE, Smithsonian Institution, Washington, D.C.: A collection of timetables for various airlines.
- GRUMMAN AIRCRAFT ENGINEERING CORP., Bethpage, N.Y.: A collection of specifications, brochures, and photographs of Grumman "Gulfstream" aircraft. Pilots' handbooks for Model F3F, and Erection and Maintenance manual for the F3F-1 aircraft.
- HALSEY, MISS MARION S., Washington, D.C.: Two aircraft identification booklets.
- HERRICK, MRS. GIRARD P., New York, N.Y.: A collection of materials of the late Girard P. Herrick, *Records of Invention*; reference books; "Story of the Helicopter"; and engineers' handbooks.
- HILL, JAMES N. B., Boston, Mass.: Booklet entitled "Kites and Experiments in Aerial Photographs."
- HIXSON & JORGENSEN, INC., Los Angeles, Calif.: Lithographs, Leach "Heritage of the Air" series, copy proofs 1 through 5.
- HUTCHINSON, ROLAND V., Birmingham, Mich.: A collection of photographs of first DH-4 brought to the United States from England. Donated to NAM via A. V. Verville.
- JET PIONEERS ASSOCIATION, c/o GENERAL ELECTRIC Co., West Lynn, Mass.: Leather-bound looseleaf binder containing photographs of the Jet Pioneers of U.S.A.
- KALLIE, OTTO, New York, N.Y.: Roll of poster paper 30 feet in length on which is recorded by Kronfeld his important glider flights.
- LEE, FRED B., c/o OLLIN MATHIESON CHEMICAL CORP., Washington, D.C.: Three books, Aeronautical Annual for 1895, 1896, and 1897. Three separate volumes.
- LOCKHEED AIRCRAFT CORP., Burbank, Calif.: A collection of photographs and 3-view drawings of Lockheed Sirius, reference and historical information on the aircraft.
- MASUNAGE, KANOSUKE, USHIO SHOBO PUBLISHING Co., Tokyo, Japan: A collection of photographs of Japanese and captured American aircraft: Army type 99 trainer, type 98 light bomber, Navy type 96 carrier fighter, Douglas DC-5, Boeing B-17E, Douglas A-20A, and Brewster F2A-2 "Buffalo."
- MCCOY, JOHN T., New York, N.Y.: Two paintings (reproductions), The Wright Brothers at Fort Myer, Va., July 30, 1909; and Eugene Ely taking off from the U.S.S. *Pennsylvania*, January 18, 1911.
- MCDONNELL AIRCRAFT CORP., St. Louis, Mo.: Two photocopies of 3-view drawing of McDonnell FH-1 Phantom.
- MIKESH, CAPT. ROBERT C., APO 994, San Francisco, Calif.: Color film of kite festival held in Japan.
- MILLER, REAR ADM. H. B., USN, Retired, New York, N.Y.: Collection of photographs of operational use of Curtiss F9C-2.
- MUNSON, H. A., Charlottesville, Va.: Booklet entitled "Santos-Dumont, Father of Aviation."
- NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS, LANGLEY FIELD LABORATORY, Va.: Reference material.
- NATIONAL BROADCASTING Co., New York, N.Y.: Transcript of Paul E. Garber's talk on his recollections of the Postal Aviation Service.
- NAVY, DEPARTMENT OF THE, BUREAU OF AERONAUTICS, Washington, D.C.: A collection of photographs of historic aircraft and aviation personages. Verville

- Aircraft Co.'s brochures on the Verville Air Coach and Verville Sports Training Plane. Drawings of HS2L and JN4D aircraft. Drawings of US-D4, Army Curtiss Racer, 1922, Navy Curtiss Seaplane Racer R2C-2, and PW-1.
- NELSON, CHARLES P., Lynn, Mass.: Typed copy of story of cruise of the ZR-1 *Shenandoah* from Lakehurst, N.J., to St. Louis, Mo., and return.
- PAN AMERICAN WORLD AIRWAYS SYSTEM, New York, N.Y.: Photostats of Lindbergh's survey report (Lockheed Sirius), background information on survey for Pan American. Photographs of Lindbergh's arrival at Belem.
- PUTNAM'S, G. P., SONS, New York, N.Y.: Book entitled "Fighting Planes That Made History," by David Cooke.
- ROYAL CANADIAN AIR FORCE, S/L R. Wood, Trenton, Ontario, Canada: Plans of aircraft (3 sets of 8 plans) of RCAF types Fairchild 71, A. W. Atlas, DeHavilland-60, Vickers Bedette, Curtiss Canuck, Curtiss HS2L, Avro 504K, and A. W. Siskin.
- SCHWEIZER AIRCRAFT CORP., Elmira, N.Y.: A collection of photographs and 3-view drawings of Schweizer 2-22C, 1-23G, and 1-30 experimental light plane.
- SIKORSKY AIRCRAFT Co., Stratford, Conn.: A collection of photographs and specifications on Sikorsky S-38, S-39, S-40, S-51, S-52, S-55, S-56, S-58, S-62, and H-18. Drawings and photographs of PS-3 (S-38). Photographs of Sikorsky HSS-2 Amphibious Helicopter.
- SUBMARINE LIBRARY, Groton, Conn.: A collection of drawings and photographs of Loening amphibians.
- THOMPSON, MRS. R., Huntington, Long Island, N.Y.: Photographs and magazine article, "Cross Country Flight of 'Yankee Doodle,'" by Harry J. Tucker, and "Wings for Our Business." Two 8- by 10-inch photographs of Lockheed Vega *Yankee Doodle*.
- THOMPSON PRODUCTS, INC., Cleveland, Ohio: Lithographs of Hubbell paintings. Various sets representing events or periods in aviation history.
- VICTORIA and ALBERT MUSEUM, South Kensington, London, England: January 1959 issue of Journal of the Royal Society of Arts.
- WEAVER, CAPT. T. C., Fairborn, Ohio: A collection of photographs of racing aircraft.

ACCESSIONS

Additions to the National aeronautical collections received and recorded during the fiscal year 1959 totaled 341 specimens in 56 separate accessions from 38 sources.

Those from Government departments are entered as transfers; others were received as gifts except as noted.

AIR FORCE, DEPARTMENT OF THE, Washington, D.C.: The "Pioneer-I" exhibit consisting of a scale model of a Douglas Thor ballistic missile and related electrical and mechanical display units, illustrating the first attempts made in August and October 1958 to place a man-made object in an orbit around the moon. Although not successful, useful information was obtained about the radiation belt surrounding the earth. (NAM 1023.) The "Data-Sphere," an instrumented capsule containing a tape recorder and other apparatus for receiving and preserving data during the launching, climb, and descent of a Thor ballistic missile. This one is the first of the series to be recovered. (NAM 1043.) AIR FORCE MUSEUM, Wright-Patterson Air Force Base, Ohio: A German Nagler-Rolz helicopter, type NR-54 V2. An early example of a one-man helicopter, it was developed during World War II. On each of its two rotor blades an 8-hp. Argus engine with a 23-inch wooden propeller is mounted, about midway, to revolve the rotor. (NAM 1019.) A group of 11

- scale models, 1:48 size, of Beechcraft, Boeing, Curtiss, North American, and Stearman airplanes used by the U.S. Air Force or its predecessor units. (NAM 1029.) The DM-1 delta-winged glider designed by Alexander Lippisch in Germany during World War II as a primary step in the development of a supersonic airplane. This is one of the first configurations of the delta wing. (NAM 1041.)
- ARMY, DEPARTMENT OF THE, Washington, D.C.: Nose cone of the Jupiter "C" missile. The first object recovered after returning from outer space. This cone was featured in a television broadcast by President Eisenhower on November 7, 1957. (NAM 1020.) The Jupiter "C" missile, a duplicate of the vehicle produced by the Chrysler Corp. which on January 31, 1958, launched the Explorer I. This was America's first satellite to be propelled into orbit. This vehicle was presented to the Museum on the first anniversary of that historic occasion. (NAM 1031.)
- BEECH AIRCRAFT CORP., Wichita Kans.: Scale models, 1:16 size, of two airplanes developed by Walter Beech and his associates, the Travelair biplane of 1926 (NAM 1013) and the Travelair Mystery S of 1929 (NAM 1003).
- BLACK, MRS. PALMA, Bakersville, Calif.: A piece of the gas cell fabric of the U.S. naval airship *Shenandoah*, 1925. (NAM 1009.)
- BRITISH OVERSEAS AIRWAYS CORP., London, England: A scale model, 1:72 size, of the original Comet-I jet airliner which inaugurated jet-engined civil transport service in 1952. (NAM 1035.)
- CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena, Calif.: A WAC Corporal missile and base. This is a short-range ballistic missile, built by the Firestone Tire & Rubber Co. and in current use by the U.S. Army. (NAM 1006.)
- CESSNA AIRCRAFT Co., Wichita, Kans.: A scale model, 1:40 size, of the Cessna T-37 2-place, twin-jet airplane now in service with the U.S. Air Force for primary training. (NAM 1002.)
- CHANCE VOUGHT AIRCRAFT, INC., Dallas, Tex.: A scale model, 1:16 size, of the U.S. Navy carrier-based F8U-1 "Crusader." This type of airplane, with a speed of more than 1,000 m.p.h., was the subject for the Robert J. Collier Trophy award in 1957 and earned for the Chance Vought corporation the Navy Bureau of Aeronautics' first Certificate of Merit. (NAM 1037.)
- CIGAL, ALDO L., Southwick, Mass.: A 1:16 size model of the Pratt & Whitney J57 jet engine (loan). (NAM 1025.)
- CONVAIR, Division of GENERAL DYNAMICS CORP., San Diego, Calif.: A scale model, 1:48 size, of the Consolidated-Vultee "Convair-liner" 240, the first post-World War II commercial transport developed by this corporation, 1947. It is a twin-engined, medium-range, 40-passenger transport. Also a 1:16 size model of the Convair XFY-1 "Pogo Stick," an experimental vertically rising delta-wing fighter developed for the U.S. Navy. It made its first free vertical takeoff and landing on August 2, 1954, and 3 months later made the conversion from vertical to horizontal flight and back to vertical for a tail-first landing. The original XFY-1 is being reserved for the National Air Museum by the Department of the Navy. (NAM 1004.)
- DAVIES, THE HONORABLE JOSEPH (deceased), Washington, D.C.: An autographed photograph of Brig. Gen. William Mitchell as a captain in the U.S. Army, 1915. (NAM 999.)
- DOLAN, COL. CARL H., Greenwich, Conn.: A collection of objects associated with the aeronautical interests and career of this member of the Early Birds and the Lafayette Escadrille. Included are military maps, instruments, and mementos of the renowned American ace Maj. Raoul Lufbery. (NAM 1027.)
- DOOLITTLE, GEN. JAMES H., San Francisco, Calif.: A uniform worn during World War II by the donor. (NAM 1044.)

- GILPATRIC, MRS. M. S., New York, N.Y.: A trophy cup presented to her son, Guy Gilpatric, in 1912 for establishing an American 2-man altitude record of 4,665 feet. This was made in a Deperdussin monoplane at Dominguez Field, Los Angeles, when he was 16 years old. (NAM 1034.)
- GODDARD, MRS. ROBERT H., Worcester, Mass.: A set of 20 volumes of typed transcriptions and photographs recording the pioneer research in rocketry by Dr. Robert H. Goddard for the period 1921-41. (NAM 1000.) A selection of personal memorabilia of Dr. Goddard, including his purse, two penknives, his watch, fraternity pin, and the original manuscript of his work "Methods of Reaching High Altitudes." (NAM 1008.) A group of seven notebooks in which Dr. Goddard entered results of his experiments. (NAM 1021.) The academic hood received by Dr. Goddard with his degree of doctor of science from Clark University, June 2, 1945. (NAM 1024.) Equipment used by Dr. Goddard in his research, including laboratory apparatus and parts of his liquid-fueled rockets. (NAM 1033.) An oil painting of Dr. Goddard pictured at the moment when his 1926 rocket was fired. The artist, Robert Fawcett, was commissioned for this painting by the John Hancock Mutual Life Insurance Co. (NAM 1052.)
- GREGORY, MRS. LOUIS FRANKLIN, Shelby, Miss.: Photograph of the Sikorsky XR-4 helicopter with Orville Wright, Igor Sikorsky, and Gen. F. Gregory, autographed by these men. (NAM 1045.)
- HANSON, RICHARD, Washington, D.C.: A German World War I airspeed indicator. (NAM 1028.)
- HUBBELL, CHARLES, Cleveland, Ohio: A scale model, 1:16 size, of the Wright Co. "Baby Grand" Gordon Bennett Race airplane of 1910 (purchase). (NAM 1050.)
- KELLY, HOWARD A., JR., Baltimore, Md.: Gloves worn by Hubert Latham while flying over Baltimore in an Antoinette airplane, November 7, 1910, and a note written by this famous French pilot. (NAM 1014.)
- KELSEY, WALTER, Tarrytown, N.Y.: A clock and three instrument panel instruction plates from a SPAD XIII airplane of World War I. (NAM 1005.)
- LAHM, GEN. FRANK P., USAF, Retired, Huron, Ohio: A medal honoring General Lahm, sculptured by C. L. Schmitz for the Medal of the Month founded by Miss Felicity Buranelli. (NAM 1001.)
- MARTIN, MISS DELLA, Los Angeles, Calif.: The personal memorabilia of Glenn L. Martin, consisting of scale models and paintings of Martin aircraft, trophies, medals and awards, certificates of membership, photographs, and drawings. (NAM 1046.)
- MAYTAG, ROBERT E., Newton, Iowa: A Curtiss-Wright Junior airplane, a 2-place high-wing monoplane, with a pusher engine, popular as a personal aircraft during the 1930's. (NAM 1042.)
- NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS, Langley Field, Va.: A supersonic high-speed propeller designed for use on the McDonnell F-88 aircraft. (NAM 1010.) (See also NAM 1054.)
- NAVY, DEPARTMENT OF THE, Washington, D.C.: A catapult model, type XC-57, showing the mechanism, above and below deck, for operating the steam-powered catapults currently used for launching airplanes from carriers. (NAM 1007.) Scale models of a ZPN airship, HUP-2 helicopter, and HSL-1 helicopter. (NAM 1011.) A selection of aerodynamic models of aircraft and missiles showing recent developments tested at the David Taylor Model Basin. (NAM 1030.) A Sparrow-II guided missile. (NAM 1041.) A radio removed from the wreck of the U.S. naval airship *Shenandoah*, 1925. (NAM 1047.) An interplane strut from the NC-4 flying boat which made the first flight across the Atlantic Ocean, Rockaway, Long Island, to Plymouth, Eng-

- land, with intermediate stops, via the Azores, May 8-31, 1919. (NAM 1048.) A wing rib of the type used in this aircraft. (NAM 1049.) NAVAL RESEARCH LABORATORY (with the NATIONAL AERONAUTICS AND SPACE AGENCY), Washington, D.C.: An operable replica of the Vanguard-I satellite embodying a light-activated sound-producing mechanism. This was presented on March 17, 1959, the first anniversary of the launching of this satellite, which, it is predicted, will remain in orbit for 200 years or more. (NAM 1054.)
- NEVIN, ROBERT S., Denver, Colo.: A scale model, 1:16 size, of the Wright Co. HS airplane, 1915 (purchase). (NAM 1053.)
- NEWCOMB, CHARLES, Trappe, Md.: A scale model, 1:16 size, of the Wright Co. "D" airplanes, 1912 (purchase.) (NAM 1017.)
- NORTH AMERICAN AVIATION, INC., Columbus, Ohio: A scale model, 1:16 size, of the U.S. Navy A3J Vigilante, in current use as a carrier-based fighter-reconnaissance airplane. (NAM 1038.)
- SEFTON, THOMAS W., San Diego, Calif.: An aircraft radio antenna fairlead of the type used with radio equipment in U.S. Navy aircraft during World War II. (NAM 1018.)
- SHIPTON, DAVID H., Delavan, Ill.: A scale model, 1:48 size, of the Curtiss-Wright "Condor" 18-passenger, twin-engined biplane transport of 1934. (NAM 1026.)
- SIMMONS, MRS. O. G., and daughters, Arlington, Va.: A trophy cup commemorating the first airmail flight in the State of New Jersey, made by O. G. Simmons in a Wright type B twin-float seaplane flying between Amboy and South Amboy, July 4, 1912. (NAM 1039.)
- SMITHSONIAN INSTITUTION, NATIONAL AIR MUSEUM, Washington, D.C.: A plaster copy of the original sculpture of the Aero Club of America gold medal. Cast made in the Museum shop by Joseph A. Atchinson from original lent by Robert L. Perry whose grandfather, A. Holland Forbes, was president in 1910 of that club, founded in 1905 (purchase). (NAM 1032.) U.S. NATIONAL MUSEUM, DIVISION OF MILITARY HISTORY, Washington, D.C.: Two aviator helmets with inserted radio earphones, used in World War I. (NAM 1051.)
- TRACY, DANIEL, Lakewood, Ohio: A scale model, 1:16 size, of the Verville-Sperry Racer, winner of the Pulitzer Trophy, 1924 (purchase). (NAM 1016.)
- UNITED AIRCRAFT CORP., SIKORSKY DIVISION, Stratford, Conn.: Scale models, 1:50 size, of the S-58 and H-37 helicopters. (NAM 1015.)
- WHEELER, LESLIE, Binghamton, N.Y.: A model airplane engine of the Rogers type, 1932-33. (NAM 1036.)
- WILSON, THE HONORABLE ROBERT, San Diego, Calif.: The original holograph manuscript of "Soaring Flight," by John J. Montgomery, noted pioneer of gliding in America; written about 1895 (loan). (NAM 1012.)
- WINZEN RESEARCH, INC., Minneapolis, Minn.: A certificate awarded by the Federation Aeronautique Internationale to Maj. David G. Simons for establishing a world altitude record of 30,942 meters (nearly 102,000 feet) with a balloon made by the donors. The ascent was made over Minnesota in connection with the U.S. Air Force Aero-Medical Field Laboratory's high-altitude research program, identified by code name "Manhigh-II." The aeronaut was aloft for 32 hours. (NAM 1022.)

Respectfully submitted.

PHILIP S. HOPKINS, *Director.*

DR. LEONARD CARMICHAEL,

Secretary, Smithsonian Institution.

Report on the National Zoological Park

SIR: I have the honor to submit the following report on the activities of the National Zoological Park for the fiscal year ended June 30, 1959:

EXHIBITS

Following the plan announced last year, the National Zoological Park made good progress this year toward its goal of emphasizing the exhibition of North American animals and acquired several species native to this continent that had not been seen in the collection for many years.

The most publicized event of the year was the transportation of a herd of 14 reindeer and 1 caribou from Kotzebue, north of the Arctic Circle, to Washington, D.C. The animals, comprising a gift from the new State of Alaska to President Eisenhower, arrived here in time to take part in the annual "Pageant of Peace" held at Christmas on the Mall. J. Lear Grimmer, Associate Director of the National Zoological Park, and Charles Thomas, senior keeper of the large-mammal division, flew to Alaska and took part in the actual capture of the reindeer, which came from a herd that is under the management of the Bureau of Indian Affairs, Department of the Interior. Without a single loss the animals were flown to Anchorage, taken by the Alaska Railroad to Seward, shipped by the Alaska Steamship Co.'s SS *Iliamna* (captained by "Blackie" Selig) to Seattle, and then brought across country by Consolidated Freightways. They arrived in Washington on December 11 and were formally presented by Roger Ernst, Assistant Secretary of the Department of the Interior, to Homer Gruenther, Presidential Assistant, representing the Chief Executive and the people of the United States. The herd has been established in the Zoo with the addition of four fawns.

Mr. Grimmer also undertook an expedition to British Guiana, under the auspices of the Smithsonian Institution and the National Geographic Society. His purpose was to observe hoatzins in their native habitat. These strange birds, which somewhat resemble pheasants, occur along the northern coast of South America and have never been exhibited in any American zoo. His studies have convinced him that under proper conditions these birds can be kept in captivity. A

list of live animals collected by Mr. Grimmer in British Guiana follows:

22 Cook's tree boas	7 tawny-bellied seed-eaters
Vine snake	2 Swainson's grackles
2 yellow tegus	2 rice grosbeaks
Ameiva lizard	3 shiny cowbirds
Anaconda	3 lesser yellow finches
British Guiana green lizard	5 red-breasted marshbirds
Whipsnake	7 ground doves
4 common jaçanas	12 hoatzins
2 black-throated cardinals	2 agoutis

In addition, a small collection of museum specimens of animals indigenous to the Abary River region was added to the accessions of the U.S. National Museum.

GIFTS

The Rocky Mountain goat had not been represented in the Zoo for many years, and therefore the gift from the Montana State Fish and Game Commission of a trio of these spectacular animals was much appreciated. From the same source came also a herd of five prong-horn antelopes.

Ross E. Wilson, vice president and general manager of the Firestone Rubber Co., presented a fine West African leopard from Harbel, Liberia.

Dr. Hubert Fringes, of Pennsylvania State University, who has been doing research on the care of albatrosses in captivity, presented a group of two Laysan albatrosses and three of the black-footed variety. Thanks to the discovery of the need for salt in the diet of sea birds, these birds, which usually do not do well in captivity, are thriving. Another Laysan albatross was added to the group as a gift from Dr. W. J. Carr, of Bucknell University.

The Fish and Wildlife Service of the Department of the Interior continued to cooperate in the procurement of desirable species of North American animals and birds. During the past year this agency has secured for the Zoo a caribou from Alaska, a northern porcupine, a white-fronted goose, 2 horned grebes, 10 greater scaups, 2 redheads, and 2 wood ducks. In June the Service offered the Zoo a polar bear cub that had been captured in Alaska. Owing to the fact that the Zoo had had to absorb a Wage Board increase in salaries, funds were embarrassingly low in the last quarter of the fiscal year, and there was no money to pay the cub's air transportation to Washington. Station WMAL-TV volunteered to have the little bear flown to the Zoo, where it has already become a great favorite with the visiting public.

LEGEND FOR MAP OF NATIONAL ZOOLOGICAL PARK

- | | |
|-------------------------------|----------------------------------|
| 1. Hooved stock. | 19. Camels. |
| 2. Equines. | 20. Small mammals. |
| 3. Llamas. | 21. Virginia deer. |
| 4. Deer. | 22. Elk. |
| 5. Deer. | 23. Deer. |
| 6. Deer. | 24. Wolves. |
| 7. Flight cage. | 25. Foxes. |
| 8. Elephants. | 26. Sea-lions. |
| 9. Eagle cage. | 27. Beavers. |
| 10. Black swans. | 28. Raccoons. |
| 11. Flight cage. | 29. Prairie dogs. |
| 12. Condor cage. | 30. Beavers. |
| 13. Birds. | 31. Antelopes. |
| 14. Crane yards. | 32. Reptiles. |
| 15. Great flightless birds. | 33. Small cats. |
| 16. Pheasants. | 34. Monkeys. |
| 17. Flight cage. | 35. Lions. |
| 18. Mountain goats and sheep. | 36. Waterfowl. |
| A. Hay barn. | G. Heating plant. |
| B. Service roads. | H. Shop. |
| C. Parking areas. | I. Restrooms, police, first aid. |
| D. Incinerators. | J. Restaurant. |
| E. Clock. | K. Bridle paths. |
| F. Garage. | |





CATHEDRAL AVENUE

ROCK LAKE

TO CONNECTICUT AVE

ROAD

KINGLET ROAD

FROM HAPVARD ST

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The Maryland State Game Commission gave the Zoo a pair of wild turkeys, which have hatched four eggs.

The Maine State Game Department at Milo trapped a fisher for the National Zoo. This is the rarest and most valuable of American fur-bearing animals and had not been exhibited here for more than 30 years.

The Zoo is fortunate in having among its friends members of the Armed Forces who, when stationed abroad, are always searching for rare and interesting animals. Dr. Robert E. Kuntz, of the Navy Medical Research Unit in Taipei, Taiwan, sent a number of specimens, including a family of three pangolins—father, mother, and baby. Lt. Col. Robert Traub, stationed at Kuala Lumpur, Malaya, sent two species of squirrels as well as a number of particularly interesting reptiles. Other animals collected by these men are included in the following list of gifts of special interest:

- | | |
|---|---|
| Allen, George J., Salt Lake City, Utah, 2 junglefowl. | Kilham, Dr. Lawrence, Bethesda, Md., African crocodile (hatched from egg taken near Murchison Falls, Uranda). |
| Aquarium, Department of Commerce, Washington, D.C., American egret. | Kuntz, Dr. Robert E. Taipei, Taiwan, 4 pangolins, 5 Formosan civets of 2 species, 2 Formosan badgers, 2 Formosan flying squirrels, Malayan fishing owl, 7 Formosan red-billed pies, 6 many-banded kraits, 13 Taiwan cobras, 3 habus, 2 palm vipers, 2 Pope's pit vipers, 11 greater Indian rat snakes, 3 Formosan rat snakes, 10 water snakes, 11 pit vipers. |
| Beatty, Charles, Washington, D.C., spiny-tailed iguana. | Lichtenecker, Dr. Karl E., Austrian Embassy, Washington, D.C., collection of 18 species of European snakes and lizards. |
| Carter, Dr. Hill, Washington, D.C., red-shouldered hawk. | Long Fence Co., Washington, D.C., peahen. |
| Clark, W. B., Alexandria, Va., 2 sparrow hawks. | Long, Gerald, Falls Church, Va., Virginia deer. |
| DePrato, Mario, Langley Park, Md., 4 five-lined skinks, 4 American toads, 2 mud turtles, snapping turtle. | McHale, J. P., Chicago, Ill., 7 Reeves's turtles. |
| Farrel, Mrs. D. M., Cabin John, Md., Philippine macaque, Javan macaque and hybrid offspring. | Metzler, John, Arlington, Va., red-tailed hawk. |
| Grayson, William C., Upperville, Va., 12 wood ducks. | Moorhead, Thornton, Washington, D.C., Formosan macaque. |
| Greeson, L. E., Arlington, Va., 2 white-tailed antelope squirrels. | Newill, Dr. D. S., Connellsville, Pa., 5 red junglefowl. |
| Grimes, Mrs. E. D., Washington, D.C., yellow and blue macaw. | Nottingham, Mrs. F., Indian Head, Md., golden pheasant. |
| Haack, Miss Mildred A., Washington, D.C., African lovebird. | Posey, Calvert, R., Nanjemoy, Md., great horned owl. |
| Hillman, Eric, Washington, D.C., diamondback terrapin. | |
| Housholder, Bob, Phoenix, Ariz., Texas red wolf. | |
| Hubbard, Scott, Washington, D.C., kinkajou. | |
| Jones, Mrs. Beatrice, Chevy Chase, Md., sulphur-crested toucan. | |
| Keeler, W., Falls Church, Va., 7 species of local snakes. | |

Sawyers, Mrs. Thomas R., Arlington, Va., double yellow-headed Amazon parrot.

Sicre, José Gomez, Washington, D.C., 2 agoutis.

Styve, Mrs. Lauritz, Arlington, Va., short-eared owl.

Thomas, Charles, Washington, D.C., 3 Reeves's turtles.

Traub, Lt. Col. Robert, Kuala Lumpur, Malaya, small-clawed otter, 2 striped ground squirrels, 2 *Dromomys* squirrels, racket-tailed drongo, rufous-collared kingfisher,

orange-throated barbet, pygmy owl, 2 monitor lizards, flying lizard, skink lizard, mangrove snake, fat-cheeked water snake, elephant trunk snake, Wagler viper, flying snake, 4 geckos of 2 species, 9 lizards of 5 different species.

Woodward & Lothrop, Washington, D.C., 7 Humboldt's penguins, 2 fallow deer.

Young, Robert, Wheaton, Md., 3 diamondback terrapins.

Xanten, William, Jr., Washington, D.C., collection of Florida reptiles.

PURCHASES

The first Dall sheep ever to be exhibited in an American zoo were added to the collection this past year. The young animals are females, and prospects are bright for the addition of a ram within the next few months.

A great rarity purchased this year was a pair of Pallas's cats which had never before been exhibited in the collection. Other purchases of interest were:

2 serval cats
2 pig-tailed macaques
3 pygmy marmosets
Celebes crested ape
3 cottontop marmosets
Canada lynx
2 capybaras
2 mute swans
1 gray hornbill

Spectacled owl
Jackson's hornbill
Bellbird
Scarlet cock-of-the-rock
2 black-and-white turacos
Andean condor
2 Bateleur eagles
4 species of sunbirds
1 green jay

EXCHANGES

By the judicious use of exchanges made with other zoos and with individuals, the following animals were obtained:

Audubon Park Zoo, New Orleans, La., 2 aningas, 2 least bitterns.

Buffalo Zoo, Buffalo, N.Y., 2 milk snakes, 2 African soft-shelled turtles.

Calcutta Zoo, Calcutta, India, 5 Indian squirrels, 3 lesser pandas.

Calgary Zoo, Calgary, Alberta, wolverine, Canada lynx, 2 golden eagles, 2 pine martens.

Campbell, E., Detroit, Mich., 4 Bahama boas.

Chicago Zoological Park, Brookfield, Ill., ibex, 3 dingoes, 2 sitatungas.

Cleveland Zoo, Cleveland, Ohio, 2 mousebirds.

Freiheit, Clayton, Buffalo, N.Y., axolotl, 3 rhinoceros vipers, 2 prehensile-tailed vipers, 2 African soft-shelled tortoises.

Houston Zoo, Houston, Tex., a collection of 9 species of southwestern reptiles.

New York Zoological Park, New York, N.Y., 5 rhinoceros vipers, 10 puff adders (born in New York Zoo).

Riverside Park Zoo, Scottsbluff, Nebr., American badger.

San Antonio Zoo, San Antonio, Tex., Cape hunting dog, 6 boat-tailed grackles, 2 Hildebrandt's francolins, 7 Erckel's francolins, 2 fulvous tree ducks, 7 banded plovers.

DEPOSITS

The Zoo accepts for deposit only those animals that will make attractive additions to the collection, and even in such instances lack of proper housing often makes it necessary to refuse animals offered for temporary exhibition.

The offer of the National Aquarium Society of Washington to set up and maintain an exhibition of tropical fishes in the aquarium section of the reptile house was a welcome one. Members of the society have contributed tanks, filters, aerators, and a collection of fishes. The fishes belong to individual members of the Aquarium Society and will be returned to them when a new exhibition of different species is installed. This rotating or changing display should be a very attractive one for visitors.

For many years the National Zoological Park has exhibited a female Przewalski's wild horse, a species extinct in the wild and represented only by a few individuals in zoos in various parts of the world. Although the animal was assumed to be beyond breeding age, she had had foals in the past. She was mated with a stallion obtained on deposit from the Catskill Game Farm in New York, but without results, and on June 6 the mare died at the ripe old age of 33.

BIRTHS AND HATCHINGS

One of the signs that an animal is doing well in captivity is its ability to reproduce its kind, and, as the following list shows, the number of mammals, birds, and reptiles born in the National Zoological Park during the year is gratifying.

The outstanding birth of the year was that of a female wisent, which has been duly registered with the Wisent Society of Europe. These animals are now so scarce that careful records are kept of all that are born or die. Unfortunately the mother died 6 weeks after the baby was born; the young one, however, is thriving.

Other "firsts" for this Zoo included Cape hunting dogs, a striped hyena, a galago, a squirrel monkey, and an owl monkey, all of which are noteworthy by any zoo's standards.

Because of their curious life history, the hatching of Surinam toads in captivity is always of interest. For the second year one of the Zoo's females laid eggs; the male carefully embedded them in her back, and 35 little toads eventually emerged.

Zoo officials were gratified when the young pair of hippopotamuses purchased in 1956 and 1957 produced their first young one. These were bought as replacements for the old pair, Bongo and Pinky, which had been here since 1914 and 1939, respectively. The old pair are still here; Bongo sired seven young ones by his first mate, Mom, who came to the Zoo in 1911 and died in 1930. Several young ones were born to Pinky, but she raised none of them. The new female, Arusha,

seems to be a good mother, and it is hoped the baby will be the first of a long line such as the Zoo had many years ago.

MAMMALS

Scientific name	Common name	Number
<i>Aotus trivirgatus</i>	Douroucouli monkey	1
<i>Axis axis</i>	Axis deer	2
<i>Bison bonasus</i>	Wisent or European bison	1
<i>Canis antarcticus</i>	Dingo	7
<i>Cebus albifrons</i>	Capuchin monkey	1
<i>Cebus</i> sp.	Capuchin monkey	1
<i>Cercocebus fuliginosus</i>	Sooty mangabey	1
<i>Cercopithecus neglectus</i>	DeBrazza's monkey	1
<i>Cervus canadensis</i>	American elk	1
<i>Cervus elaphus</i>	Red deer	2
<i>Cervus nippon</i>	Sika deer	1
<i>Choloepus didactylus</i>	Two-toed sloth	1
<i>Cynomys ludovicianus</i>	Prairie dog	7
<i>Dama dama</i>	Brown fallow deer	5
	White fallow deer	2
<i>Equus burchelli boehmi</i>	Grant's zebra	1
<i>Galago senegalensis</i>	Galago	1
<i>Genetta genetta neumanni</i>	Genet	4
<i>Hippopotamus amphibius</i>	Hippopotamus	1
<i>Hyaena hyaena</i>	Striped hyena	1
<i>Hylobates agilis</i> × <i>H. lar pileatus</i>	Hybrid gibbon	1
<i>Hylobates lar</i> × <i>H. agilis</i> × <i>H. lar pileatus</i>	Hybrid gibbon	1
<i>Hypsiprymnodon moschatus</i>	Rat kangaroo	7
<i>Hystrix galeata</i>	African porcupine	2
<i>Jaculus aegyptius</i>	Egyptian gerbil	3
<i>Lama glama</i>	Llama	4
<i>Lama pacos</i>	Alpaca	1
<i>Lycan pictus</i>	Cape hunting dog	5
<i>Macaca mulatta</i>	Rhesus monkey	1
<i>Macaca philippensis</i> × <i>M. irus</i>	Hybrid macaque	1
<i>Macaca sylvanus</i>	Barbary ape	3
<i>Meriones unguiculatus</i>	Mongolian gerbil	6
<i>Nasua narica</i>	Coatimundi	3
<i>Odocoileus virginianus</i>	Virginia deer	5
<i>Pachyuromys duprasi</i>	Fat-tailed gerbil	16
<i>Pan satyrus</i>	Chimpanzee	1
<i>Panthera leo</i>	Lion	4
<i>Rangifer tarandus</i>	Reindeer	7
<i>Saimiri sciureus</i>	Squirrel monkey	1
<i>Thalarcos maritimus</i> × <i>Ursus middendorffi</i>	Hybrid bear (2d generation)	3
<i>Ursus horribilis</i>	Grizzly bear	3
<i>Vulpes fulva</i>	Red fox	4

BIRDS

<i>Aix sponsa</i>	Wood duck	22
<i>Anas platyrhynchos</i>	Mallard duck	4
<i>Chrysolophus pictus</i>	Golden pheasant	1
<i>Columba livia</i>	Homing pigeon	1
<i>Cygnus cygnus</i>	Whooper swan	2

Scientific name	Common name	Number
<i>Dendrocygna autumnalis</i>	Black-bellied tree duck	3
<i>Dendronessa galericulata</i>	Mandarin duck	3
<i>Gallus gallus</i>	Red junglefowl	5
<i>Gennaeus leucomelanus</i>	Nepal pheasant	3
<i>Larus dominicanus</i>	Kelp gull	2
<i>Meleagris gallopavo</i>	Wild turkey	10
<i>Melopsittacus undulatus</i>	Grass parakeet	6
<i>Nycticorax nycticorax hoactli</i>	Black-crowned night heron	8
<i>Pavo cristatus</i>	Peafowl	9

REPTILES

<i>Ancistrodon mokeson</i>	Copperhead	11
<i>Chelydra serpentina</i>	Snapping turtle	18
<i>Chrysemys picta</i>	Painted turtle	4
<i>Clemmys insculpta</i>	Wood turtle	2
<i>Crotalus atrox</i>	Western diamond-backed rattlesnake	10
<i>Egernia whitei</i>	White's skink	2
<i>Natrix insularum</i>	Island water snake	41
<i>Natrix rhombifera</i>	Diamondback water snake	35
<i>Pipa pipa</i>	Surinam toad	35
<i>Pseudemys sp</i>	Red-lined turtle	25
<i>Sistrurus catenatus</i>	Massasauga	10
<i>Sistrurus milliaris</i>	Pygmy rattlesnake	8
<i>Terrapene carolina</i>	Box turtle	3
<i>Thamnophis sirtalis</i>	Garter snake	1

ARTHROPODS

<i>Pandinus imperator</i>	Giant black African scorpion	10
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The importance of a zoological collection rests, to a large extent, upon the diversity and scope of its taxonomic representation throughout the whole of the Animal Kingdom. The National Zoological Park has enjoyed some measure of success in efforts to add representative species belonging to little-known or absent families.

The total number of accessions for the year was 1,286. This includes gifts, purchases, exchanges, deposits, births, and hatchings. Several minor species which are best displaced in large numbers do not have an individual count, merely being listed as "many."

STATUS OF THE COLLECTION

Class	Orders	Families	Species or subspecies	Individuals
Mammals	13	49	234	628
Birds	19	74	309	891
Reptiles	4	25	187	619
Amphibians	2	12	23	135
Fish	4	11	20	86
Arthropods	4	5	6	Many
Mollusks	1	1	1	Many
Total	47	177	780	2,384+

ANIMALS IN THE COLLECTION ON JUNE 30, 1959

MAMMALS

<i>Family and common name</i>	<i>Scientific name</i>	<i>Number</i>
MONOTREMATA		
Tachyglossidae:		
Echidna, or spiny anteater.....	<i>Tachyglossus aculeatus</i>	1
MARSUPIALIA		
Didelphidae:		
Opossum.....	<i>Didelphis marsupialis</i>	1
Dasyuridae:		
Tasmanian devil.....	<i>Sarcophilus harrisii</i>	2
Phalangeridae:		
Vulpine opossum.....	<i>Trichosurus vulpecula</i>	1
Lesser flying phalanger.....	<i>Petaurus norfolcensis</i>	3
Phascalomidae:		
Hairy-nosed wombat.....	<i>Lasiorhinus latifrons</i>	2
Mainland wombat.....	<i>Wombatus hirsutus</i>	1
Macropodidae:		
Red kangaroo.....	<i>Macropus rufus</i>	1
Rat kangaroo.....	<i>Hypsiprymnodon moschatus</i>	9
INSECTIVORA		
Erinaceidae:		
European hedgehog.....	<i>Erinaceus europaeus</i>	1
Soricidae:		
Short-tailed shrew.....	<i>Blarina brevicauda</i>	1
PRIMATES		
Lorisidae:		
Slow loris.....	<i>Nycticebus coucang</i>	1
Thick-tailed galago.....	<i>Galago crassicaudatus</i>	2
Cebidae:		
Night monkey.....	<i>Aotus trivirgatus</i>	6
Red uakari.....	<i>Cacajao rubicundus</i>	1
Brown capuchin monkey.....	} <i>Cebus capucinus</i>	8
White-throated capuchin.....		
Capuchin monkey.....		
Squirrel monkey.....	<i>Saimiri sciureus</i>	7
Colombian black spider monkey.....	<i>Ateles fusciceps</i>	1
Spider monkey.....	<i>Ateles geoffroyi</i>	2
Woolly monkey.....	<i>Lagothrix pygmaea</i>	1
Callithricidae:		
Cottontop marmoset.....	<i>Callithrix jacchus</i>	3
Golden lion tamarin.....	<i>Leontocebus rosalia</i>	1
Black-and-red tamarin.....	<i>Saguinus nigricollis</i>	1
Cercopitheciidae:		
Toque, or bonnet monkey.....	<i>Macaca sinica</i>	3
Pig-tailed monkey.....	<i>Macaca nemestrina</i>	1
Javan macaque.....	<i>Macaca irus</i>	1
Crab-eating macaque.....	<i>Macaca irus</i>	1
Philippine macaque.....	<i>Macaca philippinensis</i>	2

Family and common name	Scientific name	Number
Cercopithecidae—Continued		
Macaque, hybrid	<i>Macaca philippinensis</i> × <i>Macaca irus</i> .	2
Rhesus monkey	<i>Macaca mulatta</i>	3
Chinese macaque	<i>Macaca lasiotis</i>	1
Formosan monkey	<i>Macaca cyclops</i>	6
Red-faced macaque	<i>Macaca speciosa</i>	1
Barbary ape	<i>Macaca sylvanus</i>	11
Moor macaque	<i>Macaca maurus</i>	2
Gray-cheeked mangabey	<i>Cercocebus albigena</i>	1
Agile mangabey	<i>Cercocebus galeritus</i>	1
Golden-bellied mangabey	<i>Cercocebus galeritus</i>	1
Red-crowned mangabey	<i>Cercocebus torquatus</i>	2
Sooty mangabey	<i>Cercocebus fuliginosus</i>	5
Crested mangabey	<i>Cercocebus aterrimus</i>	2
Black-crested mangabey	<i>Cercocebus aterrimus</i>	3
Golden baboon	<i>Papio cynocephalus</i>	1
Hamadryas baboon	<i>Papio hamadryas</i>	1
Chacma baboon	<i>Papio comatus</i>	1
Mandrill	<i>Mandrillus sphinx</i>	1
Gelada baboon	<i>Theropithecus gelada</i>	1
Vervet guenon	<i>Cercopithecus aethiops</i>	1
Green guenon	<i>Cercopithecus aethiops</i>	2
Guenon, hybrid	<i>Cercopithecus aethiops</i> × <i>C. a. pygerythrus</i> .	2
Moustached monkey	<i>Cercopithecus cephus</i>	2
Diana monkey	<i>Cercopithecus diana</i>	1
Roloway monkey	<i>Cercopithecus diana</i>	1
Preussi's guenon	<i>Cercopithecus l'hoesti</i>	1
DeBrazza's guenon	<i>Cercopithecus neglectus</i>	2
White-nosed guenon	<i>Cercopithecus nictitans</i>	1
Lesser white-nosed guenon	<i>Cercopithecus nictitans</i>	1
Allen's monkey	<i>Allenopithecus nigroviridis</i>	2
Spectacled langur	<i>Presbytis phayrei</i>	1
Pongidae:		
Hoolock	<i>Hylobates hoolock</i>	1
White-handed gibbon	<i>Hylobates lar</i>	7
Wau-wau gibbon	<i>Hylobates moloch</i>	1
Gibbon, hybrid	<i>Hylobates agilis</i> × <i>H. lar</i>	1
Gibbon, hybrid	<i>Hylobates lar</i> × <i>H. sp.</i>	3
Sumatran orangutan	<i>Pongo pygmaeus</i>	2
Bornean orangutan	<i>Pongo pygmaeus</i>	1
Chimpanzee	<i>Pan satyrus</i>	4
Gorilla	<i>Gorilla gorilla</i>	2
EDENTATA		
Myrmecophagidae:		
Giant anteater	<i>Myrmecophaga tridactyla</i>	1
Bradypodidae:		
Two-toed sloth	<i>Choloepus didactylus</i>	5
LAGOMORPHA		
Leporidae:		
Domestic rabbit	<i>Oryctolagus cuniculus</i>	2

RODENTIA

<i>Family and common name</i>	<i>Scientific name</i>	<i>Number</i>
Sciuridae:		
Gray squirrel (black).....	<i>Sciurus carolinensis</i> , melanistic phase.	1
Gray squirrel (albino).....	<i>Sciurus carolinensis</i>	2
Fox squirrel.....	<i>Sciurus niger</i>	1
Giant Indian squirrel.....	<i>Ratufa indica</i>	4
Asiatic squirrel.....	<i>Callosciurus nigrovittatus</i>	1
Formosan tree squirrel.....	<i>Callosciurus erythraeus</i>	5
Asiatic forest squirrel.....	<i>Callosciurus caniceps</i>	4
Striped ground squirrel.....	<i>Lariscus insignis</i>	2
Long-nosed squirrel.....	<i>Dremomys rufigenis</i>	1
Woodchuck, or groundhog.....	<i>Marmota monax</i>	1
Prairie-dog.....	<i>Cynomys ludovicianus</i>	Many
White-tailed squirrel.....	<i>Citellus leucurus</i>	2
Eastern chipmunk.....	<i>Tamias striatus</i>	1
Eastern chipmunk, albino.....	<i>Tamias striatus</i>	1
Red-and-white flying squirrel.....	<i>Petaurista albirufus</i>	1
Formosan flying squirrel.....	<i>Petaurista grandis</i>	1
Eastern flying squirrel.....	<i>Glaucomys volans</i>	15
Cricetidae:		
Vesper rat.....	<i>Nyctomys sumichrasti</i>	2
Hamster.....	<i>Mesocricetus auratus</i>	3
Lesser Egyptian gerbil.....	<i>Gerbillus gerbillus</i>	1
Fat-tailed gerbil.....	<i>Pachyuromys duprasi</i>	19
Hairy-tailed jird.....	<i>Sekeetamys calurus</i>	1
Jird.....	<i>Meriones sp.</i>	8
Muridae:		
Egyptian spiny mouse.....	<i>Acomys cahirinus</i>	24
Egyptian spiny mouse.....	<i>Acomys dimidiatus</i>	Many
Slender-tailed cloud rat.....	<i>Phloeomys cumingii</i>	3
Gliridae:		
African dormouse.....	<i>Graphiurus murinus</i>	1
Dipodidae:		
Lesser or desert jerboa.....	<i>Jaculus jaculus</i>	1
Four-toed jerboa.....	<i>Allactaga tetradactyla</i>	6
Hystriidae:		
Malay porcupine.....	<i>Acanthion brachyura</i>	1
African porcupine.....	<i>Hystrix galeata</i>	4
Erethizontidae:		
Prehensile-tailed porcupine.....	<i>Coendou prehensilis</i>	1
Caviidae:		
Guinea-pig.....	<i>Cavia porcellus</i>	30
Hydrochoeridae:		
Capybara.....	<i>Hydrochoerus hydrochoeris</i>	2
Dinomyidae:		
Red agouti.....	<i>Dinomys branickii</i>	2
Dasyproctidae:		
Agouti.....	<i>Dasyprocta prymnolopha</i>	1
Speckled agouti.....	<i>Dasyprocta punctata</i>	1
Chinchillidae:		
Peruvian viscaccia.....	<i>Lagidium viscaccia</i>	1
Chinchilla.....	<i>Chinchilla chinchilla</i>	2

<i>Family and common name</i>	<i>Scientific name</i>	<i>Number</i>
Capromyidae:		
Coypu.....	<i>Myocastor coypus</i>	1
CARNIVORA		
Canidae:		
Dingo.....	<i>Canis antarcticus</i>	4
Timber wolf.....	<i>Canis lupus</i>	2
Texas red wolf.....	<i>Canis niger</i>	2
Red fox.....	<i>Vulpes fulva</i>	2
Platinum fox.....	<i>Vulpes fulva</i>	2
Fennec.....	<i>Fennecus zerda</i>	2
Gray fox.....	<i>Urocyon cinereoargenteus</i>	1
Raccoon dog.....	<i>Nyctereutes procyonoides</i>	1
Cape hunting dog.....	<i>Lycaon pictus</i>	4
Big-eared fox.....	<i>Otocyon megalotis</i>	3
Ursidae:		
Spectacled bear.....	<i>Tremarctos ornatus</i>	1
Himalayan bear.....	<i>Selenarctos thibetanus</i>	2
Japanese black bear.....	<i>Selenarctos thibetanus</i>	1
Korean bear.....	<i>Selenarctos thibetanus</i>	2
Black bear.....	<i>Euarctos americanus</i>	2
Alaskan brown bear.....	<i>Ursus</i> sp.....	1
European brown bear.....	<i>Ursus arctos</i>	3
Iranian brown bear.....	<i>Ursus arctos</i>	2
Alaskan Peninsula bear.....	<i>Ursus gyas</i>	2
Grizzly bear.....	<i>Ursus horribilis</i>	3
Sitka brown bear.....	<i>Ursus sitkensis</i>	2
Polar bear.....	<i>Thalarchos maritimus</i>	2
Bear, hybrid.....	<i>Thalarchos maritimus</i> × <i>Ursus middendorffi</i>	6
Malay sun bear.....	<i>Helarctos malayanus</i>	3
Procyonidae:		
Raccoon.....	<i>Procyon lotor</i>	4
Red coatimundi.....	<i>Nasua nasua</i>	2
Coatimundi.....	<i>Nasua narica</i>	14
Kinkajou.....	<i>Potos flavus</i>	4
Olingo.....	<i>Bassaricyon gabbi</i>	2
Lesser panda.....	<i>Ailurus fulgens</i>	3
Mustelidae:		
Short-tailed weasel.....	<i>Mustela erminea</i>	1
Eastern weasel.....	<i>Mustela frenata</i>	1
Ferret, albino.....	<i>Mustela eversmanni</i>	1
Marten.....	<i>Martes americana</i>	1
Fisher.....	<i>Martes pennanti</i>	1
Tayra.....	<i>Tayra barbara</i>	1
Grison.....	<i>Galictis vittata</i>	1
Wolverine.....	<i>Gulo luscus</i>	1
American badger.....	<i>Taxidea taxus</i>	1
Golden-bellied badger.....	<i>Helictis moschata</i>	2
Common skunk.....	<i>Mephitis mephitis</i>	3
California spotted skunk.....	<i>Spilogale gracilis</i>	1
African small-clawed otter.....	<i>Lutra cinerea</i>	1
South American flat-tailed otter.....	<i>Pteronura brasiliensis</i>	1
Malayan small-clawed otter.....	<i>Amblonyx cinerea</i>	1

Family and common name	Scientific name	Number
Viverridae:		
Genet.....	<i>Genetta genetta</i>	5
Formosan spotted civet.....	<i>Viverricula indica</i>	2
Ground civet.....	<i>Viverra zangalunga</i>	1
Linsang.....	<i>Prionodon linsang</i>	1
Formosan masked civet.....	<i>Paguma larvata</i>	4
Binturong.....	<i>Arctictis binturong</i>	1
African gray mongoose.....	<i>Herpestes ichneumon</i>	1
Water civet.....	<i>Atilax paludinosus</i>	3
White-tailed civet.....	<i>Ichneumia albicauda</i>	2
Cryptoproctidae:		
Fossa.....	<i>Cryptoprocta ferox</i>	1
Hyaenidae:		
Spotted hyena.....	<i>Crocuta crocuta</i>	2
Striped hyena.....	<i>Hyaena hyaena</i>	2
Felidae:		
Jungle cat.....	<i>Felis chaus</i>	1
Pallas's cat.....	<i>Felis manul</i>	2
Serval cat.....	<i>Felis serval</i>	3
Ocelot.....	<i>Felis pardalis</i>	2
Margay cat.....	<i>Felis wiedii</i>	2
Pampas cat.....	<i>Felis pajeros</i>	1
Puma.....	<i>Felis concolor</i>	5
Lynx.....	<i>Lynx canadensis</i>	2
Bobcat.....	<i>Lynx rufus</i>	2
Leopard.....	<i>Panthera pardus</i>	4
Black leopard.....	<i>Panthera pardus</i>	4
Lion.....	<i>Panthera leo</i>	3
Bengal tiger.....	<i>Panthera tigris</i>	4
Jaguar.....	<i>Panthera onca</i>	1
Snow leopard.....	<i>Panthera uncia</i>	3
Cheetah.....	<i>Ocinonyx jubata</i>	2
PINNIPEDIA		
Otariidae:		
Sea-lion.....	<i>Zalophus californianus</i>	1
Patagonian sea-lion.....	<i>Otaria flavescens</i>	2
TUBULIDENTATA		
Orycteropodidae:		
Aardvark, or antbear.....	<i>Orycteropus afer</i>	1
PROBOSCIDEA		
Elephantidae:		
African elephant.....	<i>Loxodonta africana</i>	1
Indian elephant.....	<i>Elephas maximus</i>	3
PERISSODACTYLA		
Equidae:		
Mongolian wild horse.....	<i>Equus przewalskii</i>	1
Kiang, or Asiatic wild ass.....	<i>Equus kiang</i>	1
Burro, or donkey.....	<i>Equus asinus</i>	1
Grant's zebra.....	<i>Equus burchelli</i>	5
Grevy's zebra.....	<i>Equus grevyi</i>	3

Family and common name	Scientific name	Number
Tapiridae:		
Brazilian tapir	<i>Tapirus terrestris</i>	1
Rhinocerotidae:		
White, or square-lipped, rhinoceros	<i>Ceratotherium simum</i>	2
ARTIODACTYLA		
Tayassuidae:		
Collared peccary	<i>Pecari tajacu</i>	2
Hippopotamidae:		
Hippopotamus	<i>Hippopotamus amphibius</i>	5
Pygmy hippopotamus	<i>Choeropsis liberiensis</i>	3
Camelidae:		
Llama	<i>Lama glama</i>	9
Guanaco	<i>Lama guanicoe</i>	3
Alpaca	<i>Lama pacos</i>	4
Bactrian camel	<i>Camelus bactrianus</i>	2
Cervidae:		
Brown fallow deer	<i>Dama dama</i>	7
White fallow deer	<i>Dama dama</i>	6
Axis deer	<i>Axis axis</i>	4
Red deer	<i>Cervus elaphus</i>	7
American elk	<i>Cervus canadensis</i>	4
Sika deer	<i>Cervus nippon</i>	4
Père David's deer	<i>Elaphurus davidianus</i>	1
Virginia deer	<i>Odocoileus virginianus</i>	5
Costa Rican deer	<i>Odocoileus virginianus</i>	1
Reindeer	<i>Rangifer tarandus</i>	14
Forest caribou	<i>Rangifer caribou</i>	1
Giraffidae:		
Okapi	<i>Okapia johnstoni</i>	1
Nubian giraffe	<i>Giraffa camelopardalis</i>	4
Antilocapridae:		
Pronghorn	<i>Antilocapra americana</i>	5
Bovidae:		
Sitatunga	<i>Tragelaphus spekii</i>	2
Eland	<i>Taurotragus oryx</i>	2
Anoa	<i>Anoa depressicornis</i>	3
Zebu	<i>Bos indicus</i>	1
Yak	<i>Poepagus grunniens</i>	2
Gaur	<i>Bibos gaurus</i>	4
African buffalo	<i>Syncerus caffer</i>	1
American bison	<i>Bison bison</i>	2
Wisent, or European bison	<i>Bison bonasus</i>	2
Black-fronted duiker	<i>Cephalophus nigrifrons</i>	1
Saiga antelope	<i>Saiga tatarica</i>	1
Rocky mountain goat	<i>Oreamnos americanus</i>	2
Tahr	<i>Hemitragus jemlahicus</i>	2
Ibex	<i>Capra ibex</i>	1
Blue sheep	<i>Pseudois nayaur</i>	1
Aoudad	<i>Ammotragus lervia</i>	3
Dall sheep	<i>Ovis dalli</i>	2
Mouflon	<i>Ovis musimon</i>	1

BIRDS

SPHENISCIFORMES

<i>Family and common name</i>	<i>Scientific name</i>	<i>Number</i>
Spheniscidae:		
King penguin.....	<i>Aptenodytes patagonica</i>	4
Adelie penguin.....	<i>Pygoscelis adeliae</i>	5

STRUTHIONIFORMES

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

RHEIFORMES

Rheidae:		
Rhea.....	<i>Rhea americana</i>	1

CASUARIIFORMES

Dromiceidae:		
Emu.....	<i>Dromiceius novaehollandiae</i>	4

PROCELLARIIFORMES

Diomedidae:		
Black-footed albatross.....	<i>Diomedea nigripes</i>	2
Laysan albatross.....	<i>Diomedea immutabilis</i>	1

PELICANIFORMES

Phoenicopteridae:		
Chilean flamingo.....	<i>Phoenicopterus chilensis</i>	2
Cuban flamingo.....	<i>Phoenicopterus ruber</i>	2
Old World flamingo.....	<i>Phoenicopterus antiquorum</i>	1
Pelecanidae:		
Rose-colored pelican.....	<i>Pelecanus onocrotalus</i>	2
White pelican.....	<i>Pelecanus erythrorhynchus</i>	3
Brown pelican.....	<i>Pelecanus occidentalis</i>	1
Phalacrocoracidae:		
Double-crested cormorant.....	<i>Phalacrocorax auritus</i>	1
Anhingidae:		
Snakebird.....	<i>Anhinga anhinga</i>	2

CICONIIFORMES

Ardeidae:		
Great white heron.....	<i>Ardea occidentalis</i>	3
Louisiana heron.....	<i>Hydranassa tricolor</i>	4
American egret.....	<i>Casmerodius albus</i>	4
Snowy egret.....	<i>Leucophoyx thula</i>	2
Black-crowned night heron.....	<i>Nycticorax nycticorax</i>	7
Least bittern.....	<i>Ixobrychus exilis</i>	2
American egret.....	<i>Herodias egretta</i>	1
Tiger bittern.....	<i>Tigrisoma lineatum</i>	4
Cochleariidae:		
Boat-billed heron.....	<i>Cochlearius cochlearius</i>	1
Balaenicipitidae:		
Shoebill.....	<i>Balaeniceps rex</i>	1
Ciconiidae:		
Marabou stork.....	<i>Leptoptilos crumeniferus</i>	1
Lesser adjutant.....	<i>Leptoptilos javanicus</i>	1

Family and common name	Scientific name	Number
Threskiornithidae:		
Glossy ibis.....	<i>Plegadis falcinellus</i>	2
Eastern glossy ibis.....	<i>Plegadis falcinellus</i>	2
Black-headed ibis.....	<i>Threskiornis melanocephala</i>	1
Roseate spoonbill.....	<i>Ajaia ajaja</i>	2
White ibis.....	<i>Eudocimus albus</i>	2
Scarlet ibis.....	<i>Eudocimus ruber</i>	2

ANSERIFORMES

Anhimidae:		
Crested screamer.....	<i>Chauna torquata</i>	4
Anatidae:		
Mute swan.....	<i>Cygnus olor</i>	2
Whooper swan.....	<i>Olor cygnus</i>	2
Whistling swan.....	<i>Olor columbianus</i>	4
Trumpeter swan.....	<i>Olor buccinator</i>	2
Cape Barren goose.....	<i>Cereopsis novaehollandiae</i>	1
Australian pied goose.....	<i>Anseranas semipalmata</i>	1
Black swan.....	<i>Chenopsis atrata</i>	3
Blue goose.....	<i>Chen caerulescens</i>	6
Lesser snow goose.....	<i>Chen hyperborea</i>	2
Greater snow goose.....	<i>Chen atlantica</i>	6
Ross's goose.....	<i>Chen rossii</i>	4
Indian bar-headed goose.....	<i>Eulabeia indica</i>	5
White-fronted goose.....	<i>Anser albifrons</i>	3
Emperor goose.....	<i>Philacte canagica</i>	2
Canada goose.....	} <i>Branta canadensis</i>	34
Lesser Canada goose.....		
Cackling goose.....		
White-cheeked goose.....		
Upland goose.....	<i>Chloephaga leucoptera</i>	1
Canada goose × Blue goose, hybrid.....	<i>Branta canadensis</i> × <i>Chen caerulescens</i>	2
Black-bellied tree duck.....	<i>Dendrocygna autumnalis</i>	8
Fulvous tree duck.....	<i>Dendrocygna bicolor</i>	2
Comb duck.....	<i>Sarkidiornis melanota</i>	1
European shell duck.....	<i>Tadorna tadorna</i>	1
Mallard duck, albino.....	<i>Anas platyrhynchos</i>	1
Mallard duck.....	<i>Anas platyrhynchos</i>	26
Mallard duck × American pintail duck, hybrid.....	<i>Anas platyrhynchos</i> × <i>Anas acuta</i>	1
Indian spotted-bill duck.....	<i>Anas poecilorhyncha</i>	1
Black duck.....	<i>Anas rubripes</i>	2
Pintail duck.....	<i>Anas acuta</i>	1
Baldpate.....	<i>Mareca americana</i>	13
Wood duck.....	<i>Aix sponsa</i>	34
Wood duck × Red-headed duck, hybrid.....	<i>Aix sponsa</i> × <i>Aythya americana</i>	1
Mandarin duck.....	<i>Dendronessa galericulata</i>	29
Rosy-billed pochard.....	<i>Metopiana peposaca</i>	1
Red-crested pochard.....	<i>Netta rufina</i>	1
Canvasback duck.....	<i>Aythya valisineria</i>	9
Red-headed duck.....	<i>Aythya americana</i>	11

<i>Family and common name</i>	<i>Scientific name</i>	<i>Number</i>
Anatidae—Continued		
Greater scaup duck.....	<i>Aythya marila</i>	10
Lesser scaup duck.....	<i>Aythya affinis</i>	7
FALCONIFORMES		
Cathartidae:		
Andean condor.....	<i>Vultur gryphus</i>	1
King vulture.....	<i>Sarcoramphus papa</i>	1
Black vulture.....	<i>Coragyps atratus</i>	1
Turkey vulture.....	<i>Cathartes aura</i>	1
Sagittariidae:		
Secretarybird.....	<i>Sagittarius serpentarius</i>	2
Accipitridae:		
Cayenne kite.....	<i>Odontriorchis palliatus</i>	1
African yellow-billed kite.....	<i>Milvus migrans</i>	2
Brahminy kite.....	<i>Haliastur indus</i>	1
Buzzard eagle.....	<i>Buteo poecilochrous</i>	1
Red-tailed hawk.....	<i>Buteo jamaicensis</i>	5
Swainson's hawk.....	<i>Buteo swainsoni</i>	1
Black-faced hawk.....	<i>Leucopternis melanops</i>	1
Guianan crested eagle.....	<i>Morphnus guianensis</i>	1
Harpy eagle.....	<i>Harpia harpyja</i>	1
Golden eagle.....	<i>Aquila chrysaetos</i>	1
Monkey-eating eagle.....	<i>Pithecophaga jefferyi</i>	1
Bald eagle.....	<i>Haliaeetus leucocephalus</i>	7
Ruppell's vulture.....	<i>Gyps rueppellii</i>	2
White-backed vulture.....	<i>Pseudogyps africanus</i>	1
Bateleur eagle.....	<i>Terathopius ecaudatus</i>	3
Falconidae:		
Forest falcon.....	<i>Micrastur semitorquatus</i>	2
Chimango.....	<i>Milvago chimango</i>	2
South American caracara.....	<i>Polyborus plancus</i>	3
Audubon's caracara.....	<i>Polyborus cheriway</i>	1
Sparrow hawk.....	<i>Falco sparverius</i>	6
GALLIFORMES		
Megapodiidae:		
Brush turkey.....	<i>Alectura lathamii</i>	1
Cracidae:		
Nocturnal curassow.....	<i>Nothocrax urumutum</i>	1
White-headed piping guan.....	<i>Pipile cumanensis</i>	1
Blue-cered curassow.....	<i>Crax alberti</i>	2
Wattled curassow.....	<i>Crax globulosa</i>	2
Panama curassow.....	<i>Crax panamensis</i>	1
Phasianidae:		
Erckel's francolin.....	<i>Francolinus erckeli</i>	5
Hildebrandt's francolin.....	<i>Francolinus hildebrandti</i>	1
Bobwhite.....	<i>Colinus virginianus</i>	1
Hungarian partridge.....	<i>Perdix perdix</i>	2
Japanese quail.....	<i>Coturnix coturnix</i>	1
Nepal pheasant.....	<i>Gennaeus leucomelanus</i>	2
Swinhoe's pheasant.....	<i>Gennaeus swinhoii</i>	1
Red junglefowl.....	<i>Gallus gallus</i>	9

<i>Family and common name</i>	<i>Scientific name</i>	<i>Number</i>
Phasianidae—Continued		
Ring-necked pheasant.....	<i>Phasianus colchicus</i>	4
Ring-necked pheasant, albino.....	<i>Phasianus colchicus</i>	1
Reeves's pheasant.....	<i>Syrmaticus reevesi</i>	2
Lady Amherst pheasant.....	<i>Chrysolophus amherstiae</i>	1
Golden pheasant.....	<i>Chrysolophus pictus</i>	5
Peafowl.....	<i>Pavo cristatus</i>	13
Argus pheasant.....	<i>Argusianus argus</i>	2
Numididae:		
Vulturine guineafowl.....	<i>Acryllium vulturinum</i>	5
Meleagrididae:		
Ocellated turkey.....	<i>Agriocharis ocellata</i>	1
Wild turkey.....	<i>Meleagris gallopavo</i>	11
Gruidae:		
Siberian crane.....	<i>Grus leucogeranus</i>	1
Demoiselle crane.....	<i>Anthropoides virgo</i>	1
Psophiidae:		
Trumpeter.....	<i>Psophia crepitans</i>	2
Rallidae:		
Virginia rail.....	<i>Lallus limicola</i>	1
Black-and-white crake.....	<i>Laterallus leucopyrrhus</i>	1
South Pacific swamphen.....	<i>Borphyrio poliocephalus</i>	1
American coot.....	<i>Fulica americana</i>	1
Eurypygididae:		
Sun bittern.....	<i>Eurypyga helias</i>	2
Cariamidae:		
Cariama or seriama.....	<i>Cariama cristata</i>	1

CHARADRIIFORMES

Jacanidae:		
Common jaçana.....	<i>Jacana spinosa</i>	3
Haematopodidae:		
Oystercatcher.....	<i>Haematopus ostralegus</i>	2
Stercorariidae:		
MacCormack's skua.....	<i>Catharacta maccormacki</i>	4
Charadriidae:		
Australian banded plover.....	<i>Zonifer tricolor</i>	6
South American lapwing.....	<i>Belonopterus cayennensis</i>	1
Killdeer.....	<i>Charadrius vociferus</i>	1
Recurvirostridae:		
Black-necked stilt.....	<i>Himantopus mexicanus</i>	1
Burhinidae:		
South American thick-knee.....	<i>Burhinus bistriatus</i>	1
Laridae:		
Ring-billed gull.....	<i>Larus delawarensis</i>	2
Kelp gull.....	<i>Larus dominicanus</i>	2
Laughing gull.....	<i>Larus atricilla</i>	1
Silver gull.....	<i>Larus novaehollandiae</i>	12

COLUMBIFORMES

Columbidae:		
Homing pigeon.....	<i>Columba livia</i>	1
Band-tailed pigeon.....	<i>Columba fasciata</i>	2

Family and common name	Scientific name	Number
Columbidae—Continued		
Black-billed pigeon.....	<i>Columba nigrirostris</i>	1
Mourning dove.....	<i>Zenaidura macroura</i>	3
White-winged dove.....	<i>Zenaida asiatica</i>	1
Ring-necked dove.....	<i>Streptopelia decaocto</i>	7
Blue-headed ring dove.....	<i>Streptopelia tranquebarica</i>	2
Diamond dove.....	<i>Geopelia cuneata</i>	1
Ground dove.....	<i>Columbigallina passerina</i>	5
Plain-breasted ground dove.....	<i>Columbigallina minuta</i>	7
Bleeding-heart dove.....	<i>Gallicolumba luzonica</i>	2
Crowned pigeon.....	<i>Goura victoria</i>	2

PSITTACIFORMES

Psittacidae:		
Kea parrot.....	<i>Nestor notabilis</i>	2
Red lory.....	<i>Domicella garrula</i>	1
Banksian cockatoo.....	<i>Calyptorhynchus magnificus</i>	1
White cockatoo.....	<i>Kakatoe alba</i>	2
Solomon Islands cockatoo.....	<i>Kakatoe dulcrops</i>	1
Sulphur-crested cockatoo.....	<i>Kakatoe galerita</i>	5
Bare-eyed cockatoo.....	<i>Kakatoe sanguinea</i>	5
Great red-crested cockatoo.....	<i>Kakatoe moluccensis</i>	1
Leadbeater's cockatoo.....	<i>Kakatoe leadbeateri</i>	7
Cockatiel.....	<i>Nymphicus hollandicus</i>	3
Yellow-and-blue macaw.....	<i>Ara araurauana</i>	3
Red-and-blue macaw.....	<i>Ara chloroptera</i>	2
Red-blue-and-yellow macaw.....	<i>Ara macao</i>	2
Petz's parakeet.....	<i>Aratinga canicularis</i>	1
Rusty-cheeked parrot.....	<i>Aratinga pertinax</i>	2
White-winged parakeet.....	<i>Brotogeris versicolurus</i>	1
Yellow-naped parrot.....	<i>Amazona auropalliata</i>	4
Finsch's parrot.....	<i>Amazona finschi</i>	1
Red-fronted parrot.....	<i>Amazona bodini</i>	1
Double yellow-headed parrot.....	<i>Amazona oratrix</i>	3
Red-shouldered parakeet.....	<i>Psittacula eupatria</i>	1
Moustached parakeet.....	<i>Psittacula fasciata</i>	1
Barraband's parakeet.....	<i>Polytelis swainsoni</i>	1
Rosy-faced lovebird.....	<i>Agapornis roseicollis</i>	1
Fischer's lovebird.....	<i>Agapornis fischeri</i>	1
Masked lovebird.....	<i>Agapornis personata</i>	4
Grass parakeet, or budgerigar.....	<i>Melopsittacus undulatus</i>	Many

CUCULIFORMES

Musophagidae:		
Purple turaco.....	<i>Tauraco persa</i>	1
South African turaco.....	<i>Tauraco corythaix</i>	1
Plantain-eater.....	<i>Crinifer africanus</i>	1
White-bellied go-away-bird.....	<i>Corythaixoides leucogaster</i>	1
Cuculidae:		
Koel.....	<i>Eudynamys scolopacea</i>	1
Roadrunner.....	<i>Geococcyx californianus</i>	1

STRIGIFORMES

Family and common name	Scientific name	Number
Tytonidae:		
Barn owl.....	<i>Tyto alba</i>	1
Strigidae:		
Screech owl.....	<i>Otus asio</i>	2
Great horned owl.....	<i>Bubo virginianus</i>	5
Colombian great horned owl.....	<i>Bubo virginianus</i>	1
Spectacled owl.....	<i>Pulsatrix perspicillata</i>	1
Malay fishing owl.....	<i>Ketupa ketupu</i>	2
Snowy owl.....	<i>Nyctea nyctea</i>	3
Barred owl.....	<i>Strix varia</i>	10

COLIIFORMES

Coliidae:		
Mousebird.....	<i>Colius striatus</i>	2

CORACIIFORMES

Alcedinidae:		
Kookaburra.....	<i>Dacelo gigas</i>	3
Momotidae:		
Motmot.....	<i>Momotus lessoni</i>	1
Coraciidae:		
Lilac-breasted roller.....	<i>Coracias caudata</i>	3
Indian roller.....	<i>Coracias benghalensis</i>	2
Bucerotidae:		
Gray hornbill.....	<i>Tockus birostris</i>	2
Wreathed hornbill.....	<i>Aceros plicatus</i>	1
Pied hornbill.....	<i>Anthracoceros malabaricus</i>	1
Black-and-white casqued hornbill.....	<i>Bycanistes subcylindricus</i>	2
Black casqued hornbill.....	<i>Ceratogymna atrata</i>	2
Philippine hornbill.....	<i>Buceros hydrocorax</i>	1
Abyssinian ground hornbill.....	<i>Bucorvus abyssinicus</i>	1

PICIFORMES

Capitonidae:		
Asiatic great barbet.....	<i>Megalaima virens</i>	1
Asiatic red-fronted barbet.....	<i>Megalaima asiatica</i>	1
Toucan barbet.....	<i>Semnornis ramphastinus</i>	2
Ramphastidae:		
White-lined toucanet.....	<i>Aulacorhynchus albivittatus</i>	3
White-breasted toucan.....	<i>Ramphastos culminatus</i>	1
Sulphur-breasted toucan.....	<i>Ramphastos carinatus</i>	3
Swainson's toucan.....	<i>Ramphastos swainsoni</i>	1
Toco toucan.....	<i>Ramphastos toco</i>	1
Picidae:		
Scaly-bellied woodpecker.....	<i>Picus squamatus</i>	2
Golden-backed woodpecker.....	<i>Brachypternus benghalensis</i>	2

PASSERIFORMES

Cotingidae:		
Naked-throated bellbird.....	<i>Chasmorhynchus nudicollis</i>	1
Orange cock-of-the-rock.....	<i>Rupicola rupicola</i>	1
Scarlet cock-of-the-rock.....	<i>Rupicola sanguinolenta</i>	1

Family and common name	Scientific name	Number
Pipridae:		
Long-tailed manakin	<i>Chiroziphia linearis</i>	2
Tyrannidae:		
Kiskadee flycatcher	<i>Pitangus sulphuratus</i>	1
Pittidae:		
Indian pitta	<i>Pitta brachyura</i>	2
Alaudidae:		
Skylark	<i>Alauda arvensis</i>	1
Corvidae:		
Steller's jay	<i>Cyanocitta stelleri</i>	4
Magpie	<i>Pica pica</i>	7
Yellow-billed magpie	<i>Pica nuttalli</i>	1
Hunting crow	<i>Kitta chinensis</i>	1
Formosan red-billed pie	<i>Kitta caerulea</i>	9
Asiatic tree pie	<i>Crypsirina formosae</i>	2
Raven	<i>Corvus corax</i>	1
African white-neck crow	<i>Corvus albus</i>	2
Crow	<i>Corvus brachyrhynchos</i>	2
Indian crow	<i>Corvus insolens</i>	2
Inca jay	<i>Xanthoura yncas</i>	2
Craetidae:		
White-backed piping crow	<i>Gymnorhina hypoleuca</i>	1
Paridae:		
Great tit	<i>Parus major</i>	1
Gray tit	<i>Parus major</i>	3
Red-headed tit	<i>Aegithaliscus concinnus</i>	2
Ptilonorhynchidae:		
Satin bowerbird	<i>Ptilonorhynchus violaceus</i>	2
Timaliidae:		
Tit babbler	<i>Yuhina flavicollis</i>	3
Indian scimitar babbler	<i>Pomatorhinus horsfieldii</i>	1
Rusty-cheeked scimitar babbler	<i>Pomatorhinus erythrogeus</i>	1
Black-headed sibia	<i>Heterophasia capistrata</i>	3
Sittidae:		
Chestnut-bellied nuthatch	<i>Sitta castanea</i>	4
Pycnonotidae:		
Red-vented bulbul	<i>Pycnonotus cafer</i>	1
White-cheeked bulbul	<i>Pycnonotus leucogenys</i>	2
Brown-eared bulbul	<i>Molpastes leucostis</i>	3
Turdidae:		
Bonaparte's thrush	<i>Turdus grayi</i>	1
Robin, albino	<i>Turdus migratorius</i>	1
Cliff chat	<i>Thamnodia cinnamomeiventris</i>	2
Silver-eared mesia	<i>Mesia argenteauris</i>	4
Muscicapidae:		
Veriter flycatcher	<i>Muscicapa thalassina</i>	3
Sturnidae:		
Jungle mynah	<i>Acridotheres tristis</i>	1
Burchell's glossy starling	<i>Lamprocolius purpureus</i>	3
Tri-colored starling	<i>Spreo superbus</i>	1
Long-tailed glossy starling	<i>Lamprotornis caudatus</i>	1
Gray-headed mynah	<i>Sturnus malabaricus</i>	1
Starling	<i>Sturnus vulgaris</i>	1

<i>Family and common name</i>	<i>Scientific name</i>	<i>Number</i>
Sturnidae—Continued		
Rose-colored pastor.....	<i>Pastor roseus</i>	1
Lesser hill mynah.....	<i>Gracula religiosa</i>	2
Greater hill mynah.....	<i>Gracula religiosa</i>	3
Parulidae:		
Ovenbird.....	<i>Seiurus aurocapillus</i>	1
Ploceidae:		
Baya weaver.....	<i>Ploceus baya</i>	5
Vitelline masked weaver.....	<i>Ploceus vitellinus</i>	3
Red bishop weaver.....	<i>Euplectes orix</i>	2
Yellow-crowned bishop weaver.....	<i>Euplectes afra</i>	4
Giant whydah.....	<i>Diatropura procne</i>	2
Mahali weaver.....	<i>Ploceipasser mahali</i>	1
Java finch.....	<i>Padda oryzivora</i>	14
Cut-throat weaver finch.....	<i>Amadina fasciata</i>	2
White-headed nun.....	<i>Lonchura maja</i>	7
Lavender finch.....	<i>Estrilda coerulescens</i>	2
Red-eared waxbill.....	<i>Estrilda astrild</i>	1
Common waxbill.....	<i>Estrilda troglodytes</i>	2
Strawberry finch.....	<i>Estrilda amandava</i>	8
Zebra finch.....	<i>Poephila castanotis</i>	20
Gouldian finch.....	<i>Poephila gouldiae</i>	1
Nectariniidae:		
Variable sunbird.....	<i>Cinnyris venustus</i>	2
Beautiful sunbird.....	<i>Nectarinia pulchella</i>	2
Scarlet-chested sunbird.....	<i>Chalcomitra rubescens</i>	2
Golden-winged sunbird.....	<i>Drepanorhynchus reichenowii</i>	2
Zosteropidae:		
White-eye.....	<i>Zosterops palpebrosa</i>	3
Coerebidae:		
Blue honeycreeper.....	<i>Cyanerpes cyaneus</i>	2
Icteridae:		
Rice grackle.....	<i>Psomocolax oryzivora</i>	1
Boat-tailed grackle.....	<i>Cassidix mexicanus</i>	5
Swainson's grackle.....	<i>Holoquiscalus lugubris</i>	2
Shiny cowbird.....	<i>Molothrus bonariensis</i>	4
Red-breasted marshbird.....	<i>Leistes militaris</i>	4
Colombian red-eyed cowbird.....	<i>Tangavius armenti</i>	1
Purple grackle.....	<i>Quiscalus quiscula</i>	1
Giraud's oriole.....	<i>Icterus giraudi</i>	1
Troupial.....	<i>Icterus icterus</i>	1
Yellow-headed marshbird.....	<i>Agelaius icterocephalus</i>	1
Thraupidae:		
Crimson tanager.....	<i>Ramphocelus dimidiatus</i>	1
Yellow-rumped tanager.....	<i>Ramphocelus icteronotus</i>	3
Passerini's tanager.....	<i>Ramphocelus passerinii</i>	1
Black-and-white tanager.....	<i>Cissopis leveriana</i>	2
Fringillidae:		
Buff-throated saltator.....	<i>Saltator maximus</i>	1
Black-throated cardinal.....	<i>Paroaria gularis</i>	3
Brazilian cardinal.....	<i>Paroaria cucullata</i>	1
Dickcissel.....	<i>Spiza americana</i>	7
Evening grosbeak.....	<i>Hesperiphona vespertina</i>	2

Family and common name	Scientific name	Number
Fringillidae—Continued		
Tawny-bellied seedeater.....	<i>Sporophila minuta</i>	5
European goldfinch × Canary, hybrid.	<i>Carduelis carduelis</i> × <i>Serinus canarius</i> .	1
Song sparrow.....	<i>Melospiza melodia</i>	1
Black-throated cardinal.....	<i>Paroaria gularis</i>	1
Melodious grassquit.....	<i>Tiaris canora</i>	6
Rice grosbeak.....	<i>Oryzoborus crassirostris</i>	1
Lesser yellow finch.....	<i>Sicalis luteola</i>	3

REPTILES

LORICATA

Crocodylidae:		
African crocodile.....	<i>Crocodylus niloticus</i>	2
Broad-nosed crocodile.....	<i>Osteolaemus tetraspis</i>	2
Narrow-nosed crocodile.....	<i>Crocodylus cataphractus</i>	1
Salt-water crocodile.....	<i>Crocodylus porosus</i>	1
American crocodile.....	<i>Crocodylus acutus</i>	2
Alligator.....	<i>Alligator mississippiensis</i>	16
Chinese alligator.....	<i>Alligator sinensis</i>	2
Caiman.....	<i>Caiman sclerops</i>	9
Gavial.....	<i>Tomistoma schlegeli</i>	1

SAURIA

Gekkonidae:		
House gecko.....	<i>Gecko monarchus</i>	2
Gecko.....	<i>Tarentola mauritanica</i>	1
Giant gecko.....	<i>Gecko smithi</i>	1
Giant gecko.....	<i>Gecko stentor</i>	1
Agamidae:		
Forest lizard.....	<i>Gonocephalus borneensis</i>	1
Forest lizard.....	<i>Gonocephalus grandis</i>	1
Flying lizard.....	<i>Draco quinquefasciata</i>	1
Chamaeleonidae:		
Meller's chameleon.....	<i>Chamaeleo melleri</i>	3
Flap-necked chameleon.....	<i>Chamaeleo dilepis</i>	10
Iguanidae:		
Common iguana.....	<i>Iguana iguana</i>	3
Carolina anole.....	<i>Anolis carolinensis</i>	Many
Giant anole.....	<i>Anolis equestris</i>	1
Texas horned lizard.....	<i>Phrynosoma cornutum</i>	12
Western horned lizard.....	<i>Phrynosoma cornutum</i>	2
Fence lizard.....	<i>Sceloporus undulatus</i>	3
Spiny-tailed iguana.....	<i>Ctenosaurus nigra</i>	1
Desert iguana.....	<i>Dipsosaurus dorsalis</i>	1
Sonora spiny lizard.....	<i>Sceloporus clarki</i>	2
Southern prairie lizard.....	<i>Sceloporus undulatus</i>	1
Pine lizard.....	<i>Sceloporus undulatus</i>	2
Crevice spiny lizard.....	<i>Sceloporus poinsetti</i>	2
Leopard lizard.....	<i>Crotaphytus wislizeni</i>	2
Collared lizard.....	<i>Crotaphytus collaris</i>	1
Western earless lizard.....	<i>Holbrookia maculata</i>	2
Ameiva lizard.....	<i>Ameiva ameiva</i>	1
British Guiana green lizard.....	<i>Centropyx striatus</i>	1

<i>Family and common name</i>	<i>Scientific name</i>	<i>Number</i>
Scincidae:		
Mourning skink	<i>Egernia luctuosa</i>	2
White's skink	<i>Egernia whitei</i>	8
Greater five-lined skink	<i>Eumeces fasciatus</i>	6
Great Plains skink	<i>Eumeces obsoletus</i>	1
Four-lined skink	<i>Eumeces tetragrammus</i>	2
Sand skink	<i>Scincus officinalis</i>	7
Stump-tailed lizard	<i>Trachysaurus rugosus</i>	1
Ground skink	<i>Lygosoma laterale</i>	2
Malayan skink	<i>Mabuva multifasciata</i>	7
Gerrhosauridae:		
Plated lizard	<i>Gerrhosaurus major</i>	4
Teiidae:		
Black tegu	<i>Tupinambis nigropunctatus</i>	1
Yellow tegu	<i>Tupinambis teguixin</i>	2
Lacertidae:		
European green lizard	<i>Lacerta viridis</i>	1
Anguidae:		
Glass lizard	<i>Ophisaurus ventralis</i>	3
Southern alligator lizard	<i>Gerrhonotus multicarinatus</i>	1
Alligator lizard	<i>Gerrhonotus multicarinatus</i>	1
Helodermatidae:		
Mexican beaded lizard	<i>Heloderma horridum</i>	3
Beaded lizard (black phase)	<i>Heloderma horridum</i>	1
Gila monster	<i>Heloderma suspectum</i>	3
Varanidae:		
Bornean rough-necked monitor lizard.	<i>Varanus nudicollis</i>	2
Indian monitor lizard	<i>Varanus flavescens</i>	1
Indian monitor lizard	<i>Varanus salvator</i>	1
Australian lace monitor	<i>Varanus varius</i>	2
Cape monitor	<i>Varanus albigularis</i>	1

SERPENTES

Boidae:		
Anaconda	<i>Euneetes murinus</i>	1
Bahama boa	<i>Epicrates striatus</i>	2
Rainbow boa	<i>Epicrates cenchria</i>	2
Cuban tree boa	<i>Epicrates angulifer</i>	5
Tree boa	<i>Boa enydris</i>	1
Cook's tree boa	<i>Boa enydris</i>	19
Ball python	<i>Python regius</i>	4
African python	<i>Python sebae</i>	1
Indian rock python	<i>Python molurus</i>	2
Regal python	<i>Python reticulatus</i>	2
Emperor boa	<i>Constrictor imperator</i>	1
Acrochordidae:		
Elephant trunk snake	<i>Acrochordus javanicus</i>	1
Colubridae:		
Slate water snake	<i>Enhydris plumbea</i>	10
Flying snake	<i>Chrysopelea ornata</i>	1
Vine snake	<i>Oxybelis acuminatus</i>	1
Twig, or vine, snake	<i>Thelotornis kirklandi</i>	3
Mud snake	<i>Farancia abacura</i>	2

Family and common name	Scientific name	Number
Colubridae—Continued		
King snake	<i>Lampropeltis getulus</i>	3
Speckled king snake	<i>Lampropeltis getulus</i>	3
California king snake	<i>Lampropeltis getulus</i>	2
Florida king snake	<i>Lampropeltis getulus</i>	2
Sonoran king snake	<i>Lampropeltis getulus</i>	1
Scarlet king snake	<i>Lampropeltis dolia</i>	1
Milk snake	<i>Lampropeltis triangulum</i>	2
Mole snake	<i>Lampropeltis rhombomaculata</i>	1
Tropical king snake	<i>Lampropeltis polyzonus</i>	1
Garter snake	<i>Thamnophis sirtalis</i>	8
Lake Erie garter snake	<i>Thamnophis sirtalis</i>	1
Eastern hognose snake	<i>Heterodon platyrhinos</i>	1
Western hognose snake	<i>Heterodon nasicus</i>	2
Green snake	<i>Opheodrys aestivus</i>	1
Water snake	<i>Natrix sipedon</i>	5
Diamond-backed water snake	<i>Natrix rhombifera</i>	1
Brown water snake	<i>Natrix taxispilota</i>	1
Red-bellied water snake	<i>Natrix erythrogaster</i>	1
Florida water snake	<i>Natrix pictiventris</i>	4
Tessellated snake	<i>Natrix tessellatus</i>	1
Island water snake	<i>Natrix insularum</i>	1
Mangrove snake	<i>Natrix compressicauda</i>	2
Indigo snake	<i>Drymarchon corais</i>	1
Texas indigo snake	<i>Drymarchon corais</i>	1
Pilot black snake, albino	<i>Elaphe obsoleta</i>	1
Pilot black snake	<i>Elaphe obsoleta</i>	7
Southern pilot black snake	<i>Elaphe obsoleta</i>	1
Corn snake	<i>Elaphe obsoleta</i>	1
Lindheimer's rat snake	<i>Elaphe obsoleta</i>	1
Chicken snake	<i>Elaphe quadrivittata</i>	6
Aesculapian snake	<i>Elaphe longissima</i>	1
Black racer	<i>Coluber constrictor</i>	1
Red racer	<i>Masticophis flagellum</i>	1
Western coachwhip snake	<i>Masticophis flagellum</i>	2
Asiatic rat snake	<i>Elaphe taeniura</i>	3
Lesser Indian rat snake	<i>Elaphe carinata</i>	4
African house snake, or musaga	<i>Boaedon lineatum</i>	2
Ring-necked snake	<i>Diadophis punctatus</i>	2
DeKay's snake	<i>Storeria dekayi</i>	2
Grass green whip snake	<i>Dryophis prasinus</i>	1
Dhaman, or Greater Indian rat snake.	<i>Ptyas mucosus</i>	9
File snake	<i>Simocephalus capensis</i>	1
Elapidæ:		
Boomsnang	<i>Dispholidus typhus</i>	3
Indian cobra	<i>Naja naja</i>	4
Taiwan cobra	<i>Naja naja</i>	14
Black cobra	<i>Naja melanoleuca</i>	1
Egyptian cobra	<i>Naja haje</i>	2
King cobra	<i>Ophiophagus hannah</i>	1
Krait	<i>Bungarus multicinctus</i>	6

<i>Family and common name</i>	<i>Scientific name</i>	<i>Number</i>
Crotalidae:		
Northern copperhead snake.....	<i>Ancistrodon contortrix</i>	5
Broad-banded copperhead.....	<i>Ancistrodon contortrix</i>	1
Water moccasin, or cottonmouth.....	<i>Ancistrodon piscivorus</i>	4
Cantil.....	<i>Ancistrodon bilineatus</i>	2
Asian snorkel viper.....	<i>Ancistrodon acutus</i>	3
Palm viper.....	<i>Trimeresurus stejnegeri</i>	15
Pope's pit viper.....	<i>Trimeresurus popeorum</i>	1
Wagler's pit viper.....	<i>Trimeresurus wagleri</i>	1
Mamushi, or Asiatic viper.....	<i>Trimeresurus elegans</i>	3
Habu, or Asiatic viper.....	<i>Trimeresurus flavoviridis</i>	1
Eastern diamondback rattlesnake.....	<i>Crotalus adamanteus</i>	3
Western diamondback rattlesnake.....	<i>Crotalus atrox</i>	2

Viperidae:		
Puff adder.....	<i>Bitis arietans</i>	4

CHELONIA

Chelydridae:		
Snapping turtle.....	<i>Chelydra serpentina</i>	21
Alligator snapping turtle.....	<i>Macrolemys temmincki</i>	5

Kinosternidae:		
Musk turtle.....	<i>Sternotherus odoratus</i>	4
Mud turtle.....	<i>Kinosternon subrubrum</i>	7
South American mud turtle.....	<i>Kinosternon cruentatum</i>	3

Emydidae:		
Spotted turtle.....	<i>Clemmys guttata</i>	4
Wood turtle.....	<i>Clemmys insculpta</i>	5
Pacific pond turtle.....	<i>Clemmys marmorata</i>	1
Kura kura box turtle.....	<i>Cuora amboinensis</i>	3
European pond turtle.....	<i>Emys orbicularis</i>	3
Box turtle.....	<i>Terrapene carolina</i>	Many
Three-toed box turtle.....	<i>Terrapene carolina</i>	3
Western box turtle.....	<i>Terrapene ornata</i>	2
Florida box turtle.....	<i>Terrapene bauri</i>	1
Diamondback turtle.....	<i>Malaclemys terrapin</i>	7
Map turtle.....	<i>Graptemys geographica</i>	3
Barbour's turtle.....	<i>Graptemys barbouri</i>	6
False map turtle.....	<i>Graptemys pseudogeographica</i>	4
Painted turtle.....	<i>Chrysemys picta</i>	Many
South American red-lined turtle.....	<i>Pseudemys callirostris</i>	Many
South American turtle.....	<i>Pseudemys dorbigni</i>	8
Cumberland turtle.....	<i>Pseudemys scripta</i>	22
Mobile turtle, or cooter.....	<i>Pseudemys floridana</i>	12
Florida water turtle, or cooter.....	<i>Pseudemys floridana</i>	15
Red-bellied turtle.....	<i>Pseudemys rubriventris</i>	11
Central American turtle.....	<i>Pseudemys ornata</i>	2
Cuban water turtle.....	<i>Pseudemys decussata</i>	1
Yellow-bellied turtle.....	<i>Pseudemys scripta</i>	13
Indian fresh-water turtle.....	<i>Batagur baska</i>	1
Reeves's turtle.....	<i>Chinemys reevesii</i>	5

Testudinidae:		
Giant Aldabra turtle.....	<i>Testudo elephantina</i>	2
Duncan Island turtle.....	<i>Testudo ephippium</i>	2

<i>Family and common name</i>	<i>Scientific name</i>	<i>Number</i>
Testudinidae—Continued		
South American turtle.....	<i>Testudo tabulata</i>	1
Galápagos turtle.....	<i>Testudo vicina</i>	1
African soft-shelled tortoise.....	<i>Malacochersus tornieri</i>	2
Hinged-backed turtle.....	<i>Kinixys erosa</i>	1
Trionychidae:		
Florida soft-shelled turtle.....	<i>Trionyx ferox</i>	6
African soft-shelled turtle.....	<i>Trionyx triunguis</i>	2
Pelomedusidae:		
African water turtle.....	<i>Pelomedusa subrufa</i>	2
African black mud turtle.....	<i>Pelusios subniger</i>	1
Amazon spotted turtle.....	<i>Podocnemis unifilis</i>	7
Chelidae:		
South American side-necked turtle..	<i>Batrachemys nasuta</i>	2
Australian side-necked turtle.....	<i>Chelodina longicollis</i>	3
Kreff's turtle.....	<i>Emydura krefftii</i>	3
Murray turtle.....	<i>Emydura macquarrii</i>	6
Small side-necked turtle.....	<i>Hydromedusa tectifera</i>	2
South American gibba turtle.....	<i>Mesoclemmys gibba</i>	2
Large side-necked turtle.....	<i>Phrynops hilarii</i>	12
Flat-headed turtle.....	<i>Platemys platycephala</i>	9

AMPHIBIANS

CAUDATA

Amphiumidae:		
Congo eel.....	<i>Amphiuma means</i>	4
Ambystomidae:		
Tiger salamander.....	<i>Ambystoma tigrinum</i>	2
Small-mouthed salamander.....	<i>Ambystoma texanum</i>	1
Salamandridae:		
Red-bellied newt.....	<i>Cynops pyrrhogaster</i>	12
Red-spotted newt.....	<i>Diemictylus viridescens</i>	15

SALIENTIA

Bufonidae:		
American toad.....	<i>Bufo americanus</i>	6
Forest toad.....	<i>Bufo blombergii</i>	1
Giant toad.....	<i>Bufo marinus</i>	5
Cuban toad.....	<i>Bufo peltocephalus</i>	6
Pelobatidae:		
Spadefoot toad.....	<i>Scaphiopus holbrooki</i>	7
Pipidae:		
Surinam toad.....	<i>Pipa pipa</i>	20
Leptodactylidae:		
Colombian horned frog.....	<i>Ceratophrys calcarata</i>	2
Argentine horned frog.....	<i>Ceratophrys ornata</i>	1
Hylidae:		
Squirrel tree frog.....	<i>Hyla squirella</i>	6
Green tree frog.....	<i>Hyla cinerea</i>	1
Gray tree frog.....	<i>Hyla versicolor</i>	13
Microhylidae:		
Narrow-mouthed toad.....	<i>Microhyla olivacea</i>	2

<i>Family and common name</i>	<i>Scientific name</i>	<i>Number</i>
Ranidae:		
African bull frog.....	<i>Rana adspersa</i>	7
American bull frog.....	<i>Rana catesbeiana</i>	1
Green frog.....	<i>Rana clamitans</i>	20
Leopard frog.....	<i>Rana pipiens</i>	Many
Rhacophoridae:		
African flash tree frog.....	<i>Hylambates maculatus</i>	2
Dendrobatidae:		
Green poison-arrow frog.....	<i>Dendrobates tinctorius</i>	1

ARTHROPODS

DECAPODA

Cenobitidae:		
Land hermit crab.....	<i>Coenobita clypeatus</i>	Many

ARANEIDA

Theraphosidae:		
Tarantula.....	<i>Eurypelma hentzi</i>	1
Theridiidae:		
Black-widow spider.....	<i>Latrodectus mactans</i>	1

SCORPIONIDA

Vejoividae:		
Stripe-tailed scorpion.....	<i>Vejoivis spinigerus</i>	1
African giant black scorpion.....	<i>Pandinus imperator</i>	2

ORTHOPTERA

Blattidae:		
Tropical giant cockroach.....	<i>Blaberus giganteus</i>	Many

MOLLUSKS

PULMONATA

Planorbidae:		
Pond snails.....	<i>Helisoma trivolvis</i>	20

FISHES

NEOCERATODONTOIDEI

Lepidosirenidae:		
South American lungfish.....	<i>Lepidosiren paradoxa</i>	1
Protopteridae:		
African lungfish.....	<i>Protopterus annectens</i>	1

OSTARIOPHYSOIDEI

Characidae:		
Metynnis.....	<i>Metynnis roosevelti</i>	2
Gymnotidae:		
African knifefish.....	<i>Sternarchella schotti</i>	2
Cyprinidae:		
Zebrafish.....	<i>Brachydanio rerio</i>	17
White Cloud Mountain fish.....	<i>Tanichthys albonubes</i>	4

Family and common name	Scientific name	Number
Cobitidae:		
Large kuhlii.....	<i>Acanthopthalmus semicinctus</i>	1
Callichthyidae:		
Corydoras.....	<i>Corydoras hastatus</i>	2
Corydoras scavenger catfish.....	<i>Corydoras paleatus</i>	1
Loricariidae:		
Armored catfish.....	<i>Plecostomus plecostomus</i>	2
CYPRINODONTOIDEI		
Poeciliidae:		
Blue gambusia.....	<i>Gambusia punctatus</i>	2
Flag-tailed guppy.....	<i>Lebistes reticulatus</i>	10
Guppy.....	<i>Lebistes reticulatus</i>	22
Black mollie.....	<i>Mollienisia latipinna</i>	3
Platy, or moonfish.....	<i>Xiphophorus maculatus</i>	5
PERCOMORPHOIDEI		
Anabantoidea:		
Climbing perch.....	<i>Anabas testudineus</i>	3
Blue gourami.....	<i>Trichogaster trichopterus</i>	1
Cichlidae:		
Peacock cichlid.....	<i>Astronotus ocellatus</i>	1
Egyptian mouthbreeder.....	<i>Haplochromis multicolor</i>	1
Angelfish.....	<i>Pterophyllum scalare</i>	5

PYGMY HIPPOPOTAMUSES

Because the National Zoological Park had considerable success in raising pygmy hippopotamuses, it seems advisable to list the breeding record here. The first pygmy hippopotamus to come to the Zoo was a gift from Harvey Firestone, Sr., to President Calvin Coolidge in 1927. It was known as Billy. In 1929 a mate, Hannah, was purchased. In 1940 the Smithsonian Institution-Firestone Expedition returned from Liberia with one young male, which died May 3, 1943, and one adult female (known as Matilda).

Billy and Hannah

- August 26, 1931, male, died August 27, 1931, killed by mother.
- August 21, 1932, male, died August 22, 1932, killed by mother.
- April 29, 1933, male, died April 29, 1933, killed by mother.
- May 8, 1938, female, sent to Cole Bros. Circus April 26, 1939.
- June 24, 1939, female, prematurely born, died June 25, 1939.
- February 25, 1940, female, died October 28, 1942.
- May 9, 1941, female, sent to Philadelphia Zoological Gardens March 16, 1944.
- February 1, 1943, female, died February 2, 1943.
- February 20, 1945, male, sent to Miller Bros. Circus January 7, 1950.
- December 21, 1945, female, died December 21, 1945.
- October 11, 1947, female, died February 11, 1948.
- March 12, 1950, female, sent to Catskill Game Farm June 16, 1953.
- June 13, 1951, male, sent to Catskill Game Farm June 16, 1953.
- April 26, 1953, female, died November 8, 1953.
- June 8, 1954, female, died June 23, 1955.

Billy and Matilda

December 13, 1943, male, sent to Fort Worth (Tex.) Zoo.

March 5, 1947, female (living in NZP).

July 3, 1948, female (living in NZP).

December 20, 1949, female, sent to Sydney, Australia, October 18, 1954.

April 24, 1952, male, died October 8, 1952.

October 2, 1953, female, died September 16, 1954.

January 30, 1955, female, sent to John Seago, England, September 7, 1956.

March 29, 1956, female, sent to L. Ruhe, New York, May 7, 1957.

Matilda and two of her daughters are still living in the National Zoological Park. Billy died on October 11, 1955, and Hannah on March 6, 1958.

FINANCES

Funds for the operation of the National Zoological Park are appropriated annually under the District of Columbia Appropriation Act. The operation and maintenance appropriation for the fiscal year 1959 totaled \$953,800, which includes a supplemental appropriation of \$55,800. This was an increase of \$120,800 over fiscal year 1958. The increase consisted of \$55,800 supplemental for pay increases in accordance with Public Law 85-462 and Wage Board increases approved by the District of Columbia Commissioners in June 1958; \$52,833 to establish 14 new positions; \$4,700 for the purchase of new equipment; \$7,467 increase in miscellaneous supplies. Of the \$953,800 appropriated, \$734,666 was for salaries and \$219,134 for the maintenance and operation of the Zoo. Included in the latter figure were major operational expenditures amounting to \$180,434, consisting of \$65,000 for animal food; \$17,168 for fuel for heating; \$29,545 for materials, building, construction, and repairs; \$44,979 for civil service retirement; \$3,575 for the purchase of animals; \$9,101 for electricity; \$3,633 for telephone, postal, and telegraph services; \$5,000 for veterinarian equipment and supplies; and \$2,433 for Federal employees group life insurance. The balance of \$28,700 in operational funds was expended for other items, including freight, sundry supplies, uniforms, gasoline, road repairs, equipment replacement, and new equipment.

In addition to the regular appropriation, \$50,000 was allotted for capital outlay. This money was used to renovate the deer paddocks at the Connecticut Avenue entrance and to restore the area for aquatic mammals above the sea-lion pool.

PERSONNEL

There are 158 authorized positions at the Zoo divided as follows: Administrative office, 16; animal department, 58; mechanical department, 50; police department, 27; and grounds department, 7.

Lee O. Burris, who was appointed head gardener on March 1, 1954, retired on October 31, 1958. Michael Dubik, formerly assistant head gardener, became the supervisory gardener.

During the year nine police officers completed a police course offered by the University of Maryland, and five keepers attended a course in supervision at the Department of Agriculture Night School.

On March 17, at a luncheon in the Zoo Park Restaurant, six women were honored for their efforts in behalf of the National Zoological Park. Five were wives of Zoo officials or keepers; the sixth was the mother of a keeper, and all had taken baby animals into their homes to care for them, and had successfully raised them for the Zoo. The Director introduced the guests of honor, and Dr. Carmichael, Secretary of the Smithsonian Institution, presented each one with a certificate of appreciation. Those receiving the certificates were Mrs. Lucile Q. Mann, Mrs. Esther S. Walker, Mrs. Elizabeth C. Reed, Mrs. Margaret A. Grimmer, Mrs. Louise E. Gallagher, and Mrs. Nettie L. Stroman.

INFORMATION AND EDUCATION

The Zoo continues to handle a large correspondence with persons all over the world who write for information regarding animals. From every part of this country citizens write to the Zoo as a national institution. Telephone calls come in constantly, asking for identification of animals, proper diets, or treatment of disease. Visitors to the office as well as to the animal exhibits are constantly seeking information.

The Director spoke before six civic groups and one school group and appeared on six television programs, displaying animals from the Zoo.

A symposium on "Recognition and Treatment of Snake Bite" was given to the medical staff of Children's Hospital by the Associate Director.

Dr. James F. Wright, veterinarian, published two articles in *Veterinary Medicine*: "Necrotic Stomatitis in an American Elk" (October 1958) and "Treatment of Captive Wild Animals Using an Automatic Projectile Type Syringe" (January 1959).

Malcom Davis, associate headkeeper, continued to write his weekly nature column for the Herndon-Chantilly (Va.) Times and the Loudoun Times Mirror as a public service. He published a monthly article in *All-Pets Magazine* and the *American Cage-Bird Magazine*, as well as biological notes for *The Auk* and notes for the *Pheasant Breeders Gazette*. He spoke on three television programs and broadcast a nature script once a month from the Herndon, Va., radio station. He also spoke to four civic clubs and two high-school biology classes on Zoo animals. Mr. Davis, who is a charter member of the Inter-

national Wild Waterfowl Association, Inc., was appointed to its board of directors in July 1958.

Keepers Burgess, DePrato, Stroman, Welk, and Widman brought young animals to the television screen repeatedly. Many of these programs were on "Time for Science" from WTTG, which is watched by 43,000 students in the District of Columbia, Maryland, and Virginia schools. A half-hour program devoted to the Zoo was broadcast from WTOP, sponsored by the Friends of the National Zoo, and showed the Director and Keepers Maliniak, Stroman, and Gallagher with a young gibbon, a baby chimpanzee, and two hybrid bear cubs.

Ordinarily the Zoo does not conduct guided tours of the park, but exceptions were made for groups of physically handicapped children who visited the park. Two groups were from the District of Columbia Health School, whose children were brought by the Kiwanis Club, and another from the Silver Spring Intermediate School. A small group of blind children were conducted through the Zoo in July 1958. They came from Four Corners (Md.) School and were sponsored by the Lions Club International.

Fifteen members of the Virginia Society of Ornithology, Northern Branch, met at the birdhouse to study Central American birds. The American Society of Mammalogists, during its 3-day meeting in Washington, spent an afternoon on a guided tour of the Zoo. Ten students of chordate anatomy from Baltimore (Md.) Junior College were taken on a tour of the reptile house by Senior Keeper Mario DePrato.

While the Zoo does not conduct a regular research program as such, effort is made to study the animals and to improve their health, housing, and diet in every way possible.

VETERINARIAN'S REPORT

During the past year further uses of the projectile syringe for treatment and immobilization of the large animals in the collection were investigated.

With the help of Dr. Warren Pistey of the New England Institute for Medical Research, experiments utilizing the drug succinylcholine were carried out on numerous species with a view to developing a safe method of immobilizing animals for treatment and such routine procedures as the intradermic tuberculin test. Successful immobilization was accomplished by this method in the zebu, eland, tiger, lion, fallow deer, Virginia deer, gaur, American elk, yak, American bison, giraffe, peccary, and red deer. All these were immobilized without any form of physical restraint being applied. The full particulars of these and other immobilizations are to be published in two papers concerning the use of succinylcholine. The first paper was presented

with motion pictures by Dr. Pistey at the Midwinter Conference of the Midwestern Zoological Park Directors at Columbus, Ohio, in February 1959.

The projectile syringe was used also to effect the capture of an escaped Barbary ape. In this case the drug used for immobilization was the alkaloidal form of nicotine because of its more rapid and predictable action.

The past year has shown that the change in diets instituted in 1958 was a wise move. Wastage sharply decreased, animal reproduction is improved, and a better understanding of the nutritional state of the collection has been gained. One dietary change of major importance was instituted this year by the substitution of a packing-house byproduct for a portion of the raw ground horsemeat formerly used as the carnivore ration. This product has a much better nutritional analysis than horsemeat and requires no labor to bone and grind, as it is supplied ready to use.

As in the past 2 years, all bacterial isolations and identifications were made by Dr. F. R. Lucas, director of the Livestock Sanitary Laboratory at Centreville, Md. At least 300 bacterial isolations and 25 tissue examinations were made by Dr. Lucas for the park in the past year. Most important of the bacterial isolations are the following:

1. Four isolations of *Salmonella typhimurium* from the fecals of hoatzins brought back from British Guiana by Mr. Grimmer.

2. *Salmonella typhimurium* from a great red-crested cockatoo.

3. *Salmonella choleraesuis* var. *kunzendorf* from the spleen of a slow loris.

4. *Salmonella arizona* from a fox snake.

5. *Salmonella edinburg* from the intestine of a viper.

6. *Salmonella georgia* from the blood of a rainbow snake.

7. *Hemolytic micrococcus* from a young DeBrazza's guenon.

8. *Hemolytic micrococcus* from a pronghorn antelope.

9. Short chain streptococcus and pasteurella from an Indian rhinoceros.

The numerous enteric pathogens being isolated indicate that more attention must be paid to the cleanliness of food preparation and utensil cleaning operations.

In addition to the above, Dr. Lucas also identified *Leptospira* organisms in dark-field examinations of kidney tissues from one of the Zoo's aged bush dogs which showed gross kidney pathology. This and earlier reports indicate that leptospirosis is a problem in small mammals, particularly the canines.

Many parasite identifications were made by A. McIntosh and M. B. Chitwood of the U.S. Department of Agriculture. The following parasites, however, are repeatedly identified from the species indicated:

Bears—*Toxascaris transfuga*.

Cats—*Toxascaris leonine*.

Grant's zebras—*Parascaris zebrae*.

Albatrosses—*Tetrabothrium* cestodes.

Snakes—Neorenenifer flukes, *Bothridium* and *Ophioaenia* cestodes.

The bears, cats, and zebras have been repeatedly treated with piperazine compounds, but the parasites persist. The zebra paddocks are certainly contaminated with infective parasite eggs, but the cats and bears are on concrete, which should help to break the parasite cycle.

Several of the Zoo's more valuable large mammals died during the year. The first loss was the female wisent, which had a fine calf by her side. She died within minutes of being found down. No previous indication of sickness in the animal was noticed, and nothing unusual was noted on the day prior to death. Necropsy was performed by the Armed Forces Institute of Pathology, but the gross post mortem failed to disclose the cause of death. A condition similar to bovine ketosis was suspected. The 13 bacterial cultures taken from important organs of this animal were all negative for pathogenic organisms.

The Indian rhinoceros received in July 1939 sickened on January 8. Symptomatic treatment was begun, using the projectile syringe, but the animal died the next day. Necropsy was performed by the Armed Forces Institute of Pathology. The pathological diagnosis was hemorrhagic enteritis, ascending cholangitis, arterio and arteriolar nephrosclerosis, hemorrhagic lymphadenitis, cholelithiasis, and acute pneumonitis. Of the 12 bacterial cultures taken from important organs in the animal, all were negative except two blood cultures, from which short chain streptococcus and bipolar rods were isolated.

The male okapi became sick on February 1 and was treated with the projectile method for 6 weeks until a sputum sample was obtained. This was examined by Dr. Feldman of the Veterans' Administration and found positive for acid-fast organisms. The animal was euthanized for necropsy by the AFIP. Examination of the carcass disclosed pulmonary granulomas consistent with tuberculosis infection.

The cage next to the okapi was occupied by a female African black rhinoceros which had been failing in physical condition for some months. A sputum sample obtained from the animal was examined by Dr. Feldman and declared heavily laden with acid-fast bacteria. The animal died on April 21. Necropsy revealed lesions similar to but more extensive and of much longer standing than those found in the okapi. Since these animals had some physical contact over the cage partition, transmission of the infection may have occurred by this route.

A family of elands consisting of an adult male and female and a female calf were all found to have similar lesions during the year.

Dr. A. G. Karlson of the Mayo Foundation was able to isolate *Mycobacterium tuberculosis* var. *bovis* from the okapi, rhinoceros, and the two adult elands. Results of examination of culture from a young South American tapir and an old female American bison are being

awaited. In addition, three capybaras and two more old bison showed necropsy lesions of tuberculous infection.

A young DeBrazza's guenon, a 6-week-old squirrel monkey, a pig-tailed macaque, and a moor macaque all sickened and died rapidly with signs and necropsy findings consistent with a virus encephalitis. No definite diagnosis could be made because of lack of facilities. The problem of virus infections is one which needs investigation, since it is probable that immunization procedures would be of considerable value.

Other losses during the year were animals that may have established a longevity record, such as the white-faced heron (*Notophoxyx novae-hollandiae*), which was received September 11, 1938, and died August 20, 1958; Anzio Boy, the hero homing pigeon, hatched in San Prisco, Italy, in 1943, and credited with completing 38 wartime missions in Italy during World War II; the Przewalski horse, born in Philadelphia in 1926; and the African civet (*Civettictis civetta*)¹ which was brought from Liberia by the Smithsonian-Firestone Expedition of 1940.

A long-acting ataraxic drug (Trilafon, Schering) has been used with very encouraging results on the following animals, all except the last being given by projectile syringe:

Gaur, young male. This animal was shipped to the Philadelphia Zoological Gardens after receiving two doses of the drug. He was crated, loaded, and trucked without creating any disturbance.

Yak, male. This very aggressive bull was given one dose of the drug which lasted for 4 days, during which it was possible for the men to enter his pen.

American bison, male. This bull became aggressive when it was necessary to treat one of the old cows. He also began to knock the cow about and keep her down. After the drug had been given he became docile and easily managed.

Brown fallow deer, buck. The animal was extremely excitable until given this drug for the removal of a leg cast.

Pampas cat. This excitable individual was given a small dose of the drug to facilitate trapping and moving to new quarters. The move was easily accomplished, and the effect of the drug lasted during the early acclimatization period in the new cage.

Following are the statistics for the mortality rates during the past fiscal year and a table of comparison with the past 6 years:

	Mortality, fiscal year 1959		Total mortality, past 6 fiscal years	
	Deaths	Attrition*	1954	1955
Mammals	95	25	648	735
Birds	148	24	618	549
Reptiles	138	42	550	472
Total	381	91		

* Attrition is the term used for those losses due mainly to the trauma of shipment and handling after accession at the Zoo, or before an animal can adapt to cage habitation within the collection.

¹ Originally identified as *Civettictis civetta*, the animal was later carried on Zoo records as *Herpestes ichneumon*, but proper identification has been established as *Civettictis civetta*.

COOPERATION

At all times special efforts are made to maintain friendly contacts with other Federal and State agencies, private concerns and individuals, and scientific workers for mutual assistance. As a result the Zoo receives much help and advice and many valuable animals, and in turn it furnishes information and, whenever possible, animals it does not need.

Special acknowledgment is due William G. Vale, U.S. Dispatch Agent in New York City, and Stephen E. Lato, Dispatch Agent in San Francisco, who are frequently called upon to clear shipments of animals coming from abroad, often at great personal inconvenience. The animals have been forwarded to Washington without the loss of a single individual.

Russell Arundel, of Warrenton, Va., gave the Zoo a 13-year-old chestnut gelding, and his son, Arthur W. Arundel, has placed his horse, an 8-year-old quarter horse, also a gelding, on indefinite loan in the National Zoological Park. Both are used by the Zoo Park Police in patrolling areas that could not be covered otherwise.

Gen. William Dunckel of Rockville, Md., presented a number of tropical plants, among them some mango trees, which have been set out in the background of the crocodile cage. Lee O. Burris, formerly head gardener and now retired, brought back from Florida a truckload of cabbage palms, magnolias, yellow honeysuckle, and Spanish moss, which have been used in the birdhouse and in the reptile house. Mrs. Vera S. Hunt of Washington, D.C., donated a large rubber plant, which has been placed in the birdhouse.

Dr. Carlton Herman of the Patuxent Wildlife Refuge gave the Zoo a 300-egg capacity incubator, which has been put to good use in the birdhouse. The U.S. Naval Receiving Station sent 650 pounds of nuts that had been declared unfit for human consumption; from the District of Columbia Dog Pound the Zoo received a quantity of horsemeat and 40 cases of Japanese tuna.

As in the past, the Zoo cooperated with the National Capital Parks and lent small animals to Park naturalists and to the Nature Center in Rock Creek Park for demonstration. In return, the Zoo received a number of specimens as gifts.

VISITORS

Attendance at the Zoo this year reached a total of 4,055,673. In general, this figure is based on estimates rather than actual counts.

Estimated number of visitors for fiscal year 1959

July (1958)-----	575, 300	January (1959)-----	114, 650
August-----	552, 920	February-----	166, 550
September-----	413, 554	March-----	312, 453
October-----	294, 656	April-----	374, 540
November-----	185, 000	May-----	573, 200
December-----	69, 250	June-----	423, 600
		Total-----	4, 055, 673

Number of bus groups

Locality	Number of groups	Number in groups	Locality	Number of groups	Number in groups
Alabama-----	28	2, 112	Missouri-----	1	21
Connecticut-----	10	343	New Hampshire-----	1	36
Delaware-----	16	579	New Jersey-----	29	1, 235
District of Columbia	96	4, 165	New York-----	198	9, 259
Florida-----	48	2, 265	North Carolina-----	275	11, 953
Georgia-----	218	9, 311	Ohio-----	56	2, 287
Illinois-----	2	71	Pennsylvania-----	297	12, 201
Indiana-----	15	574	South Carolina-----	60	2, 514
Iowa-----	1	32	Tennessee-----	75	3, 018
Kentucky-----	27	944	Texas-----	1	40
Louisiana-----	3	87	West Virginia-----	59	2, 375
Maine-----	6	243	Wisconsin-----	5	210
Maryland-----	706	33, 788	Virginia-----	779	32, 831
Massachusetts-----	11	411	U.S.A.-----	1	77
Michigan-----	9	343			
Minnesota-----	9	313	Total-----	3, 050	121, 937
Mississippi-----	8	252			

Groups from foreign countries

Africa-----	1	88
China-----	1	12
Norway-----	2	73
Foreign exchange students-----	1	1, 100
Total-----	5	1, 273

About 2 p.m. each day the cars then parked in the Zoo are counted and listed according to the State, Territory, or country from which they come. This is, of course, not a census of the cars coming to the Zoo but is valuable in showing the percentage of attendance by States

of people in private automobiles. Many District of Columbia, Maryland, and Virginia cars come to the Zoo to bring guests from other States. The tabulation for the fiscal year 1959 is as follows:

	<i>Percentage</i>		<i>Percentage</i>
Maryland -----	31.1	California -----	0.7
Virginia -----	22.1	Connecticut -----	.7
District of Columbia -----	21.7	South Carolina -----	.7
Pennsylvania -----	4.0	Illinois -----	.6
New York -----	3.0	Michigan -----	.6
North Carolina -----	2.1	Tennessee -----	.6
New Jersey -----	1.6	Texas -----	.5
Ohio -----	1.6	Alabama -----	.4
West Virginia -----	1.2		
Florida -----	1.0		
Massachusetts -----	0.8		
		Total -----	95.0

The remaining 5 percent came from other States, Africa, Belgium, Canada, Canal Zone, France, Germany, Guam, Japan, Manitoba, Mexico, New Brunswick, Newfoundland, Nicaragua, Nova Scotia, Okinawa, Puerto Rico, and El Salvador.

On the days of even small attendance there are cars parked in the Zoo from at least 15 States, Territories, the District of Columbia, and foreign countries. On average days there are cars from about 22 States, Territories, the District of Columbia, and foreign countries; and during the periods of greatest attendance the cars represent not less than 34 different States, Territories, and countries.

Parking spaces in the Zoo now accommodate 1,079 cars when the bus parking place is utilized and 969 cars when it is not used.

BUILDINGS, GROUNDS, AND ENCLOSURES

Most of the year's work done throughout the Zoo was with a view to improving visitor and employee safety, continuing the effort started in the last quarter of the previous year. The new type of visitor safety fence, 46 inches high with a 12-inch 45° angle outward at the top, has been installed around the bear pits, the elephant pools, and the lion house. Additional horizontal bars were placed on the outside lion cages.

The ceiling of the birdhouse was patched and replastered where necessary. In addition to the large areas of deterioration which were readily discernible, Hurricane Hazel, in 1954, did much damage not apparent until extensive plaster repairs were underway. It had been necessary to keep one wing closed for a year. The inside of the birdhouse was repainted, using light sunny colors. The cages in the "new" wing of the birdhouse have been completely redecorated, furnishing a more naturalistic setting with extensive use of plantings and trees. Not only are the birds exhibited in a much more inter-

esting fashion but they seem happier and more contented. The keepers have done all this work on their own initiative.

Some of the cages of the reptile house were redecorated with additional stonework, giving the reptiles crevices to lie in and providing them a sense of security and at the same time keeping them on exhibition. Some of the cages were repainted in pastel colors, and several were equipped with fluorescent lights, as a pilot exhibit anticipating the day when all of them will be lighted in this manner. The glass at the top of all the permanent reptile cages was replaced by wire screening to provide better ventilation; four of the portable cages were reconstructed out of aluminum as pilot exhibits.

The parking-lot fill near the elephant house was completed, as well as the fill between the hay barn and the incinerator, and a service road was built from the sheep mountain to the basement of the reptile house, thus furnishing vehicular access from the reptile house to the buffalo pens. This means that various park automobiles can service this entire area without interfering with public traffic.

The year's appropriation included \$50,000 in capital outlay for the replacement and refurbishing of the hoofed-stock pens at the Connecticut Avenue entrance and the aquatic-mammal area above the sea-lion pool. The two pens on the right side of the walk leading to the birdhouse were refenced, using chain-link fence, and slightly enlarged; terraced walls were put in, resurfaced with dirt, and seeded. This hillside had been unsightly because of years of erosion. The two pens in the triangle between the walk leading to the birdhouse and the Connecticut Avenue-Harvard Street road were refenced, using chain-link fencing, and enlarged, the surface was raised by the use of fill dirt, and another pen was added. The new type of visitors' fence was put around these new pens. A new pen for deer was installed behind the beaver area and the sea-lion pool. The deer can be seen across the valley from the walk in front of the bear dens.

Work on the aquatic-mammal area should be completed in the early part of fiscal year 1960. It is hoped that in the coming year the otter exhibit will also be functioning once again. In years past the public took a keen interest in watching otters at play, but this section of "Beaver Valley" was abandoned because of lack of funds to maintain it.

The work of the gardener's force was mainly that of removing dead trees, which are a menace to both animals and visitors, and replacing them with young trees. In all, 243 trees were cut down in the course of the year. The grounds department also furnishes the animal department with forage for the animals. Heavy logs for the big cats to climb, perches and sawed hollow logs for small mammals, gnawing logs for rodents, and perches for birds are supplied on demand; and

tropical plants for indoor cages and the buildings are supplied and cared for.

Activities in the Police Department continue to show a marked increase, in keeping with the larger visitor attendance. The police force was expanded by the addition of four men, and two horses were added, thereby permitting additional patrols in and around heavily wooded areas of the park. A safety committee was set up, with regularly scheduled meetings of all park personnel, designed to insure all possible safety precautions for the protection of visitors and employees. Additional emphasis with regard to traffic-law enforcement resulted in an increase in the number of arrests for traffic violations. The total number of visitors stopping in the police station for information of various sorts was 13,740, an increase of 6,914 over the preceding year. First-aid cases also increased; a total of 809 persons were treated, principally for minor injuries.

PLANS FOR THE FUTURE

A new office to replace the 154-year-old "mansion" is imperative. The present administration building, while a historic landmark, is not suited to the purpose for which it is being used, nor is it safe, being honeycombed with termites and rotted from dampness. A modern building, with properly arranged offices, library stacks and shelves, a conference room, and a small laboratory, is badly needed.

All the facilities at the National Zoological Park are based on antiquated installations and should be modernized, starting with such basic necessities as water, electricity, sewage, and heating. It is hoped that a master plan can be drawn for the Zoo so that all future construction and work may be coordinated.

Respectfully submitted.

THEODORE H. REED, *Director.*

Dr. LEONARD CARMICHAEL,
Secretary, Smithsonian Institution.

Report on the Canal Zone Biological Area

SIR: It gives me pleasure to present herewith the annual report on the Canal Zone Biological Area for the fiscal year ended June 30, 1959.

SCIENTISTS, STUDENTS, AND OBSERVERS

Following is the list of 54 scientists, students, and observers who visited the island last year and stayed for several days, in order to conduct scientific research or observe the wildlife of the area. In addition, approximately 40 others spent 1 day and 1 night on the island.

<i>Name</i>	<i>Principal interest</i>
Anderson, Eugene, Santa Monica, Calif.	Bird observation.
Barth, Robert H., Harvard University.	Study of interspecific relations of formicariids in mixed species flocks.
Bennett, Charles, University of California, Los Angeles.	Temperature and humidity gradients in forest.
Blest, Dr. A. D., University College, London.	Behavior of sphingid and saturniid moths.
Bruno, Kent, Ohio State University.	Assistant to Dr. Hartman.
Burkhart, Mrs. Harriet, Sarasota, Fla.	Nature writing.
Carpenter, Dr. C. R., Pennsylvania State University.	Primate population and social organization of B.C.I.
Carpenter, Lane, Perkiomen School.	Assistant to Dr. Carpenter.
Clark, Dr. Walter, Eastman Kodak Co.	Inspection of facilities.
Cox, Mr. and Mrs. George W., University of Illinois.	Photographic test.
Darnton, Mr. and Mrs. Rupert, Kent, England.	Physiology of tropical birds.
Dolan, John, Pittsburgh, Pa.	Bird studies.
Drayton, Charles, New York.	Photographing and collecting reptiles, amphibians, and insects.
Dulaney, James A., Smithsonian Institution.	Observation of wildlife.
Dybas, Henry, Chicago Natural History Museum.	Specialist on ptiliid beetles.
Elms, Alan, Pennsylvania State University.	Assistant to Dr. Carpenter.
Emerson, Guy, Kress Foundation, New York.	Observation of wildlife.

<i>Name</i>	<i>Principal interest</i>
Enders, Dr. Robert, Swarthmore College.	Survey of mammal population.
Engesland, Rolf, Oslo, Norway.	Assistant to Per Host.
Fast, A. H., Arlington, Va.	Bird observation.
Greene, Earle R., Los Angeles, Calif.	Bird observation.
Grégoire, Dr. and Mrs. Charles, Brussels, Belgium.	Microscopy of insect blood.
Halka, Dr. Oli, Columbia University, New York.	Cytochemical study of the Homoptera.
Harbison, Charles F., Natural History Museum, San Diego, Calif.	Collection of arthropods.
Hartman, Dr. Frank, Ohio State University.	Muscle study of birds and adrenal gland.
Host, Per, Oslo, Norway.	Photography and sound recording.
Kaufmann, Jack, University of California, Berkeley.	Behavior and ecology of coatis.
Kessler, Dietrich, University of Wisconsin.	Wildlife observation.
Kuehn, Robert E., University of California, Berkeley.	Assistant to Dr. Carpenter.
Ledecky-Janecek, Emanuel, New York.	Herpetology.
Mason, Dr. W. A., Pennsylvania State University.	Primate population and social organi- zation of Barro Colorado Island.
McFarland, Douglas, Apple Valley, Calif.	Observation of wildlife.
Motzfeldt, Ulrik, Oslo, Norway.	Assistant to Per Host.
Peterman, Dan, Pennsylvania State University.	Assistant to Dr. Carpenter.
Peterson, David M., California.	Assistant to C. F. Harbison.
Ruud, Miss Berit, Oslo, Norway.	Assistant to Per Host.
Salem, Alan, Chicago Natural History Museum.	Nonmarine mollusks.
Scott, Mr. and Mrs. Peter, Gloucestershire, England.	B. B. C. television.
Smith, John, Harvard University.	Behavior of flycatchers.
Soper, Dr. Cleveland C., Eastman Kodak Tropical Research Laboratory.	Deterioration studies.
Southwick, Dr. C. H., Ohio University.	Primate population and social organi- zation of Barro Colorado Island.
Vogt, George, U.S. National Museum.	Study of leaf-mining beetles.

<i>Name</i>	<i>Principal interest</i>
Walch, Miss Carolyn R., Johns Hopkins University.	Wildlife observation.
Ward, Mr. and Mrs. R., Kennett Square, Pa.	Bird photography.
Weil, Mr. and Mrs. John, University of California, Berkeley.	Wildlife observation.
Wetmore, Dr. and Mrs. Alexander, Washington, D.C.	Bird observation.
Wyse, Gordon B., Swarthmore College.	Wildlife observation.

VISITORS

Approximately 400 visitors were permitted to visit the island for the day.

Because of the increased number of scientists conducting research on the island, the decision was made to eliminate the Tuesday guided tours through the jungle. Large groups are welcome on Saturdays, however, and visitors interested in natural history are permitted to visit the island whenever transportation is available.

RAINFALL

During the dry season (January through April) of the calendar year 1958, rains of 0.01 inch or more fell during 57 days (216 hours) and amounted to 19.31 inches, as compared to 1.20 inches during 1957. During the wet season of 1958 (May through December), rains of 0.01 inch or more fell on 191 days (669 hours) and amounted to 80.89 inches, as compared to 96.77 inches during 1957. Total rainfall for the year was 100.20 inches. During 34 years of record, the wettest year was 1935 with 143.42 inches, and the driest year was 1930, with only 76.57 inches. March was the driest month of 1958 (2.98 inches) and October the wettest (15.42 inches). The maximum records for short periods were: 5 minutes: 1.30 inches; 10 minutes: 1.65 inches; 1 hour: 4.11 inches; 2 hours: 4.81 inches; 24 hours: 10.48 inches.

BUILDINGS, EQUIPMENT, AND IMPROVEMENTS

Special attention has again been paid to the improvement of existing facilities.

The expansion of the library has continued. A great many new books and journals were received, and most of the older books and journals were re-bound. A temporary librarian completed the cataloging of the collection. The library is now much more useful as an aid to research than it has ever been before.

Many new aviaries, mammal pens, and smaller cages were built this year. Facilities are now available for the keeping of considerable numbers of animals and birds in excellent condition for experimental observations.

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

Year	Total inches	Station average	Year	Total inches	Station Average
1925	104.37		1942	111.10	108.55
1926	118.22	113.56	1943	120.29	109.20
1927	116.36	114.68	1944	111.96	109.30
1928	101.52	111.35	1945	120.42	109.84
1929	87.84	106.56	1946	87.38	108.81
1930	76.57	101.51	1947	77.92	107.49
1931	123.30	104.69	1948	83.16	106.43
1932	113.52	105.76	1949	114.86	106.76
1933	101.73	105.32	1950	114.51	107.07
1934	122.42	107.04	1951	112.72	107.28
1935	143.42	110.35	1952	97.68	106.94
1936	93.88	108.98	1953	104.97	106.87
1937	124.13	110.12	1954	105.68	106.82
1938	117.09	110.62	1955	114.42	107.09
1939	115.47	110.94	1956	114.05	107.30
1940	86.51	109.43	1957	97.97	106.98
1941	91.82	108.41	1958	100.20	106.70

TABLE 2.—Comparison of 1957 and 1958 rainfall, Barro Colorado Island (inches)

Month	Total		Station average	Years of record	1958 excess or deficiency	Accumulated excess or deficiency
	1957	1958				
January	0.56	4.26	2.21	33	+2.05	+2.05
February	.57	7.34	1.41	33	+5.93	+7.98
March	.02	2.98	1.21	33	+1.77	+9.75
April	.05	4.73	3.02	34	+1.71	+11.46
May	6.37	12.22	10.91	34	+1.31	+12.77
June	5.97	8.89	10.89	34	-2.00	+10.77
July	10.86	9.54	11.60	34	-2.06	+8.71
August	21.90	12.35	12.47	34	-.12	+8.59
September	12.40	10.64	10.06	34	+.58	+9.17
October	17.22	15.42	14.04	34	+1.38	+10.55
November	17.96	7.16	18.44	34	-11.28	-.73
December	4.09	4.67	10.44	34	-5.77	-6.50
Year	97.97	100.20	106.70			-6.50
Dry season	1.20	19.31	7.85			+11.46
Wet season	96.77	80.89	98.85			-17.96

A 60- by 30-foot wire-screen shed was built to provide space for the smaller cages and storage of materials. This has relieved much of the crowding problem at the station.

In connection with the research on tropical birds now being conducted by George W. Cox of the University of Illinois, two large constant-temperature chambers were built and installed in the new storage shed. These chambers were financed by a grant from the National Science Foundation to Dr. S. Charles Kendeigh of the University of Illinois.

Various minor items of research and collecting equipment, including traps and trapping nets, and a Sniperscope for work at night, were also procured this year.

A new system of electric cables from the generators to the laboratories and living quarters on the island was installed, to permit the simultaneous use of two generators. This has doubled the effective electric power supply of the station.

A new winch, 25-h.p., 3,300-pound capacity, was purchased and installed to replace the old one.

Extensive repairs, almost a complete rebuilding job, are being made to the termite-infested Chapman House. This should provide adequate living quarters for three or four scientists.

Routine maintenance activities included repainting the inside and outside of most of the other station buildings, minor repairs to the docks, and new roofing for some of the buildings.

A new 15-foot Fiberglas boat was bought to replace the old aluminum speedboat, and extensive repairs were made to the launch *Snook*. The old boat channel from the canal to the station dock on the island was widened and deepened. Means of transportation with the mainland are now in excellent condition.

A jeep was purchased to replace the ½-ton truck and has proved to be extremely useful for work in the more remote parts of the Canal Zone and the Republic of Panama.

It was necessary to move the office in Diablo Heights, as the building in which it was located is being torn down. The office is now in temporary quarters in the Ancon Court House.

OTHER ACTIVITIES

In order to increase the available opportunities for research at the Canal Zone Biological Area, a small piece of land (one-sixteenth of a square mile) was procured on the mainland. This new area consists of grassland and forest edge and is located inside the Navy Pipeline Reservation between Gamboa and Montelirio on the east side of the canal. The Navy also granted permission to accredited scientists to work along the 14-mile road running through the Pipeline Reservation. This road runs through areas of mixed grassland and second-growth scrub and forest of different ages and types. Thus, scientists working at the Canal Zone Biological Area will be able to conduct research in a variety of environments quite different from the

heavy mature forest on Barro Colorado itself. Research in this mainland area will be completely undisturbed, as the whole Pipeline Reservation is closed to the general public.

The policy of helping promising graduate students in biology has continued. Charles F. Bennett, Jr., of the University of California in Los Angeles, completed the main part of his study of temperature and humidity gradients in the forest on Barro Colorado; but additional climatological data are still being collected and will be included in Mr. Bennett's published report. Robert H. Barth, of Harvard University, completed a preliminary analysis of the behavior of birds of the family Formicariidae in mixed flocks in the forest.

The analysis of the behavior of sphingid and saturniid moths continued by Dr. A. D. Blest of University College, London, which was supported by a grant from the National Science Foundation to the resident naturalist, was completed. Dr. Blest's results will be published shortly. A second research project supported by a grant from the National Science Foundation to the resident naturalist, a comparative study of the evolution and behavior of certain tropical birds, is still in progress. A new research project on the evolution and behavior of American monkeys was started this year.

Plans have already been made to move the office on the mainland into larger quarters in the former Ancon Post Office Building, as soon as these became available after remodeling.

FINANCES

Trust funds for maintenance of the island and its living facilities are obtained by collections from visitors and scientists, table subscriptions, and donations.

The following institutions continued their support to the laboratory through the payment of table subscriptions: Eastman Kodak Co., New York Zoological Society, and Smithsonian Institution. Donations are also gratefully acknowledged from the following: Eugene Eisenmann, C. M. Goethe, and Frank Hartman.

PLANS AND REQUIREMENTS

The improvement of the library will continue. It will be necessary to obtain new books and journals as they are published and to complete present journal files.

It is hoped to continue the program of employing temporary biological aides. Arrangements have been made to employ John H. Kaufmann, of the University of California, to continue his research on the behavior and ecology of the coati and other carnivores on Barro Colorado Island and to begin a census of the vertebrate species in the mainland area.

It is still planned to remodel the second floor of the Old Laboratory Building to make available separate rooms and to provide additional washing and toilet facilities. Now that additional electric power is available, airconditioning in some of the other living quarters and in the laboratory space on the second floor of the New Laboratory Building is anticipated.

ACKNOWLEDGMENTS

The Canal Zone Biological Area can operate only with the excellent cooperation of the Canal Zone Government and the Panama Canal Company. Thanks are due especially to the Lt. Gov. John D. McElheny, the Executive Secretary Paul Runnestrand and his staff; Lieutenant Colonel Brown; the Customs and Immigration officials; and the Police Division. Also deeply appreciated are the technical advice and assistance provided by P. Alton White, Chief of the Dredging Division, and members of his staff; C. C. Soper of the Eastman Kodak Co.; and Lt. K. E. McCall and other members of the Signal Corps Meteorological Team No. 2.

Respectfully submitted.

MARTIN H. MOYNIHAN,
Resident Naturalist.

Dr. LEONARD CARMICHAEL,
Secretary, Smithsonian Institution.

Report on the International Exchange Service

SIR: I have the honor to submit the following report on the activities of the International Exchange Service for the fiscal year ended June 30, 1959:

The Smithsonian Institution is the official United States agency for the exchange with other nations of governmental, scientific, and literary publications. The International Exchange Service, initiated by the Smithsonian Institution in the early years of its existence for the interchange of scientific publications between learned societies and individuals in the United States and those of foreign countries, serves as a means of developing and executing in part the broad and comprehensive objective, "the diffusion of knowledge." It was later designated by the U.S. Government as the agency for the transmission of official documents to selected depositories throughout the world, and it continues to execute the exchanges pursuant to conventions, treaties, and other international agreements.

The number of packages of publications received for transmission during the year was 1,129,476, an increase of 34,678 packages over the previous fiscal year. The weight of the packages received was 767,389 pounds, an increase of 24,060 pounds.

The average weight of the individual package was 10.87 ounces as compared to the 10.86-ounce average for the fiscal year of 1958.

The publications received from foreign sources for addressees in the United States and from domestic sources for shipment abroad are classified as shown in the following table:

Classification	Packages		Weight	
	Number	Number	Pounds	Pounds
U.S. parliamentary documents sent abroad.....	626, 465		226, 119	
Publications received in return for parliamentary documents.....		5, 775		10, 325
U.S. departmental documents sent abroad.....	239, 401		218, 261	
Publications received in return for departmental documents.....		5, 146		13, 059
Miscellaneous scientific and literary publications sent abroad.....	189, 721		199, 414	
Miscellaneous scientific and literary publications received from abroad for distribution in the United States.....		62, 968		100, 211
Total	1, 055, 587	73, 889	643, 794	123, 595
Grand total	1, 129, 476		767, 389	

The packages of publications are forwarded to the exchange bureaus of foreign countries by freight or, where shipment by such means is impractical, to the foreign addressees by direct mail. Distribution in the United States of the publications received through the foreign exchange bureaus is accomplished primarily by mail, but by other means when more economical. The number of boxes shipped to the foreign exchange bureaus was 2,840, or 242 less than for the previous year. Of these boxes, 899 were for depositories of full sets of U.S. Government documents, these publications being furnished in exchange for the official publications of foreign governments which are received for deposit in the Library of Congress. The weight of packages forwarded by mail and by means other than freight was 271,372 pounds.

There was allocated to the International Exchange Service for transportation \$30,294.47. With this amount it was possible to effect the shipment of 784,571 pounds, which was 34,316 pounds less than was shipped in the previous year. However, approximately 7,374 pounds of the full sets of U.S. Government documents accumulated during the year because the Library of Congress had requested suspension of shipment to certain foreign depositories.

During the year, ocean freight rates per cubic foot continued at the 1958 level. The transportation cost for hauling books and periodicals to the Baltimore piers also remained at the 1958 level.

With the exception of those to Taiwan, no shipments are being made to China, North Korea, and Communist-controlled area of Vietnam.

FOREIGN DEPOSITORIES OF GOVERNMENTAL DOCUMENTS

The number of sets of U.S. official publications received by the Exchange Service for transmission abroad in return for the official publications sent by foreign governments for deposit in the Library of Congress is now 106 (63 full and 43 partial sets), listed below. Changes that occurred during the year are shown in the footnotes.

DEPOSITORIES OF FULL SETS

ARGENTINA: División Biblioteca, Ministerio de Relaciones Exteriores y Culto, Buenos Aires.

AUSTRALIA: Commonwealth 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: State Library, Perth.

AUSTRIA: Administrative Library, Federal Chancellery, Vienna.

BELGIUM: Bibliothèque Royale, Bruxelles.

BRAZIL: Biblioteca Nacional, Rio de Janeiro.

- BULGARIA:** Bulgarian Bibliographical Institute, Sofia.¹
- BURMA:** Government Book Depot, Rangoon.
- CANADA:** Library of Parliament, Ottawa.
- MANITOBA:** Provincial Library, Winnipeg.
- ONTARIO:** Legislative Library, Toronto.
- QUEBEC:** Library of the Legislature of the Province of Quebec.
- CEYLON:** Department of Information, Government of Ceylon, Colombo.
- CHILE:** Biblioteca Nacional, Santiago.
- CHINA:** National Central Library, Taipei, Taiwan.
- National Chengchi University, Taipei, Taiwan.
- COLOMBIA:** Biblioteca Nacional, Bogotá.
- COSTA RICA:** Biblioteca Nacional, San José.
- CUBA:** Ministerio de Estado, Canje Internacional, Habana.
- CZECHOSLOVAKIA:** University Library, Prague.
- DENMARK:** Institut Danois des Échanges Internationaux, Copenhagen.
- EGYPT:** Bureau des Publications, Ministère des Finances, Cairo.
- FINLAND:** Parliamentary Library, Helsinki.
- FRANCE:** Bibliothèque Nationale, Paris.
- GERMANY:** Deutsche Staatsbibliothek, Berlin.
- Free University of Berlin, Berlin-Dahlem.
- Parliamentary Library, Bonn.
- GREAT BRITAIN:**
- ENGLAND:** British Museum, London.
- LONDON:** London School of Economics and Political Science. (Depository of the London County Council.)
- HUNGARY:** Library of Parliament, Budapest.¹
- INDIA:** National Library, Calcutta.
- Central Secretariat Library, New Delhi.
- Parliament Library, New Delhi.
- INDONESIA:** Ministry for Foreign Affairs, Djakarta.
- IRELAND:** National Library of Ireland, Dublin.
- ISRAEL:** State Archives and Library, Hakirya, Jerusalem.
- ITALY:** Ministero della Pubblica Istruzione, Rome.
- JAPAN:** National Diet Library, Tokyo.²
- MEXICO:** Secretaría de Relaciones Exteriores, Departamento de Información para el Extranjero México, D.F.
- NETHERLANDS:** Royal Library, The Hague.
- NEW ZEALAND:** General Assembly Library, Wellington.
- NORWAY:** Utenriksdepartementets Bibliothek, Oslo.
- PERU:** Sección de Propaganda y Publicaciones, Ministerio de Relaciones Exteriores, Lima.
- PHILIPPINES:** Bureau of Public Libraries, Department of Education, Manila.
- POLAND:** Bibliothèque Nationale, Warsaw.¹
- PORTUGAL:** Biblioteca Nacional, Lisbon.
- SPAIN:** Biblioteca Nacional, Madrid.
- SWEDEN:** Kungliga Biblioteket, Stockholm.
- SWITZERLAND:** Bibliothèque Centrale Fédérale, Berne.
- TURKEY:** National Library, Ankara.
- UNION OF SOUTH AFRICA:** State Library, Pretoria, Transvaal.
- UNION OF SOVIET SOCIALIST REPUBLICS:** All-Union Lenin Library, Moscow.

¹ Shipment suspended.² Receives two sets.

UNITED NATIONS: Library of the United Nations, Geneva, Switzerland.

URUGUAY: Oficina de Canje Internacional de Publicaciones, Montevideo.

VENEZUELA: Biblioteca Nacional, Caracas.

YUGOSLAVIA: Bibliografski Institut, Belgrade.²

DEPOSITORIES OF PARTIAL SETS

AFGHANISTAN: Library of the Afghan Academy, Kabul.

BOLIVIA: Biblioteca del Ministerio de Relaciones Exteriores y Culto, La Paz.

BRAZIL: MINAS GERAIS: Departamento Estadual de Estatística, Belo Horizonte.

BRITISH GUIANA: Government Secretary's Office, Georgetown, Demerara.

CANADA:

ALBERTA: Provincial Library, Edmonton.

BRITISH COLUMBIA: Provincial Library, Victoria.

NEW BRUNSWICK: Legislative Library, Fredericton.

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

NOVA SCOTIA: Provincial Secretary of Nova Scotia, Halifax.

SASKATCHEWAN: Legislative Library, Regina.

DOMINICAN REPUBLIC: Biblioteca de la Universidad de Santo Domingo, Ciudad Trujillo.

ECUADOR: Biblioteca Nacional, Quito.

EL SALVADOR:

Biblioteca Nacional, San Salvador.

Ministerio de Relaciones Exteriores, San Salvador.

GREECE: National Library, Athens.

GUATEMALA: Biblioteca Nacional, Guatemala.

HAITI: Bibliothèque Nationale, Port-au-Prince.

HONDURAS:

Biblioteca Nacional, Tegucigalpa.

Ministerio de Relaciones Exteriores, Tegucigalpa.

ICELAND: National Library, Reykjavik.

INDIA:

BOMBAY: Secretary to the Government, Bombay.

BIHAR: Revenue Department, Patna.

UTTAR PRADESH:

University of Allahabad, Allahabad.

Secretariat Library, Lucknow.

WEST BENGAL: Library, West Bengal Legislative Secretariat, Assembly House, Calcutta.

IRAN: Imperial Ministry of Education, Tehran.

IRAQ: Public Library, Baghdad.

JAMAICA:

Colonial Secretary, Kingston.

University College of the West Indies, St. Andrew.

LEBANON: American University of Beirut, Beirut.

LIBERIA: Department of State, Monrovia.

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

MALTA: Minister for the Treasury, Valletta.

NICARAGUA: Ministerio de Relaciones Exteriores, Managua.

PAKISTAN: Central Secretariat Library, Karachi.

PANAMA: Ministerio de Relaciones Exteriores, Panamá.

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

PHILIPPINES: House of Representatives, Manila.

SCOTLAND: National Library of Scotland, Edinburgh.

SIAM: National Library, Bangkok.

SINGAPORE: Chief Secretary, Government Offices, Singapore.

SUDAN: Gordon Memorial College, Khartoum.

VATICAN CITY: Biblioteca Apostolica Vaticana, Vatican City.

INTERPARLIAMENTARY EXCHANGE OF THE OFFICIAL JOURNAL

There are now being sent abroad 85 copies of the Federal Register and 95 copies of the Congressional Record. This is an increase over the preceding year of five copies of the Federal Register and of four 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 de la H. Legislatura de Mendoza, Mendoza.³

Biblioteca del Poder Judicial, Mendoza.⁴

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

Cámara de Diputados Oficina de Información Parlamentaria, Buenos Aires.

AUSTRALIA:

Commonwealth National Library, Canberra.

NEW SOUTH WALES: Library of Parliament of New South Wales, Sydney.

QUEENSLAND: Chief Secretary's Office, Brisbane.

VICTORIA: Public Library of Victoria, Melbourne.⁴

WESTERN AUSTRALIA: Library of Parliament of Western Australia, Perth.

BRAZIL: Secretaria de Presidencia, Rio de Janeiro.³

BRITISH HONDURAS: Colonial Secretary, Belize.

CANADA:

Library of Parliament, Ottawa.

Clerk of the Senate, Houses of Parliament, Ottawa.

CEYLON: Ceylon Ministry of Defense and External Affairs, Colombo.³

CHILE: Biblioteca del Congreso Nacional, Santiago.^{3,5}

CHINA:

Legislative Yuan, Taipei, Taiwan.³

Taiwan Provincial Government, Taipei, Taiwan.

CUBA:

Biblioteca del Capitolio, Habana.

Biblioteca Pública Panamericana, Habana.⁴

CZECHOSLOVAKIA: Ceskoslovenska Akademie Ved, Prague.³

EGYPT: Ministry of Foreign Affairs, Egyptian Government, Cairo.³

FRANCE:

Bibliothèque Assemblée Nationale, Paris.

Bibliothèque Conseil de la République, Paris.

Library, Organization for European Economic Cooperation, Paris.³

Research Department, Council of Europe, Strasbourg.³

Service de la Documentation Étrangère, Assemblée Nationale, Paris.³

³ Congressional Record only.

⁴ Federal Register only.

⁵ Added during the year.

GERMANY :

Amerika-Institute der Universität München, München.³

Archiv, Deutscher Bundestag, Bonn.

Bibliothek der Instituts für Weltwirtschaft an der Universität Kiel, Kiel-Wik.

Bibliothek Hessischer Landtag, Wiesbaden.³

Der Bayrische Landtag, Munich.^{3 6}

Deutsches Institut für Rechtswissenschaft, Potsdam-Babelsberg II.⁴

Deutscher Bundesrat, Bonn.³

Deutscher Bundestag, Bonn.³

Hamburgisches Welt-Wirtschafts-Archiv, Hamburg.

GHANA : Chief Secretary's Office, Accra.³

GREAT BRITAIN :

Department of Printed Books, British Museum, London.

House of Commons Library, London.³

N.P.P. Warehouse, H.M. Stationery Office, London.^{4 7}

Printed Library of the Foreign Office, London.

Royal Institute of International Affairs, London.³

GREECE : Bibliothèque, Chambre des Députés Hellénique, Athens.

GUATEMALA : Biblioteca de la Asamblea Legislativa, Guatemala.

HAITI : Bibliothèque Nationale, Port-au-Prince.

HONDURAS : Biblioteca del Congreso Nacional, Tegucigalpa.

HUNGARY : National Library, Budapest.

INDIA :

Civil Secretariat Library, Lucknow, United Provinces.⁴

Indian Council of World Affairs, New Delhi.³

Jammu and Kashmir Constituent Assembly, Srinagar.³

Legislative Assembly, Government of Assam, Shillong.³

Legislative Assembly Library, Lucknow, United Provinces.

Kerala Legislature Secretariat, Trivandrum.^{3 8}

Madras State Legislature, Madras.³

Parliament Library, New Delhi.

Servants of Indian Society, Poona.³

IRELAND : Dail Eireann, Dublin.

ISRAEL : Library of the Knesset, Jerusalem.

ITALY :

Biblioteca Camera dei Deputati, Rome.

Biblioteca del Senato della Repubblica, Rome.

Periodicals Unit, Food and Agriculture Organization of the United Nations, Rome.⁴

International Institute for the Unification of Private Law, Rome.⁴

JAPAN :

Library of the National Diet, Tokyo.

Ministry of Finance, Tokyo.

JORDAN : Parliament of the Hashemite Kingdom of Jordan, Amman.³

KOREA : Secretary General, National Assembly, Seoul.

LUXEMBOURG : Assemblée Commune de la C.E.C.A., Luxembourg.

⁶ Three copies.

⁷ Two copies.

⁸ Changed from Legislative Assembly Library, Trivandrum.

MEXICO:

Dirección General Information, Secretaría de Gobernación, Mexico, D.F.

Biblioteca Benjamin Franklin, México, D.F.

AGUASCALIENTES: Gobernador del Estado de Aguascalientes, Aguascalientes.

BAJA CALIFORNIA: Gobernador del Distrito Norte, Mexicali.

CAMPECHE: Gobernador del Estado de Campeche, Campeche.

CHIAPAS: Gobernador del Estado de Chiapas, Tuxtla Guitiérrez.

CHIHUAHUA: Gobernador del Estado de Chihuahua, Chihuahua.

COAHUILA: Periódico Oficial del Estado de Coahuila, Palacio de Gobierno, Saltillo.

COLIMA: Gobernador del Estado de Colima, Colima.

GUANAJUATO: Secretaría General de Gobierno del Estado, Guanajuato.⁴

JALISCO: Biblioteca del Estado, Guadalajara.

MÉXICO: Gaceta del Gobierno, Toluca.

MICHOACÁN: Secretaría General de Gobierno del Estado de Michoacán, Morelia.

MORELOS: Palacio de Gobierno, Cuernavaca.

NAYARIT: Gobernador de Nayarit, Tepic.

NUEVO LEÓN: Biblioteca del Estado, Monterrey.

OAXACA: Periódico Oficial, Palacio de Gobierno, Oaxaca.⁴

PUEBLA: Secretaría General de Gobierno, Puebla.

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

SINALOA: Gobernador del Estado de Sinaloa, Culiacán.

SONORA: Gobernador del Estado de Sonora, Hermosillo.

TAMAULIPAS: Secretaría General de Gobierno, Victoria.

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

YUCATÁN: Gobernador del Estado de Yucatán, Mérida.

NETHERLANDS: Koninklijke Bibliotheek, The Hague.⁴

NEW ZEALAND: General Assembly Library, Wellington.

NORWAY: Library of the Norwegian Parliament, Oslo.

PANAMA: Biblioteca Nacional, Panama City.³

PHILIPPINES: House of Representatives, Manila.

POLAND: Kancelaria Rady, Panstwa, Biblioteka Sejmowa, Warsaw.

PORTUGUESE TIMOR: Repartição Central de Administração Civil, Dili.⁴

RHODESIA AND NYASALAND: Federal Assembly, Salisbury.^{4 5}

RUMANIA: Biblioteca Centrala de Stat RPR, Bucharest.⁵

SPAIN: Secretaría General Tecnica, Presidencia del Gobierno, Madrid.^{4 5}

SWITZERLAND: Bibliothéque, Bureau International du Travail, Geneva.⁴

International Labor Office, Geneva.^{4 7}

Library, United Nations, Geneva.

UNION OF SOUTH AFRICA:

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

TRANSVAAL: State Library, Pretoria.

UNION OF SOVIET SOCIALIST REPUBLICS: Fundamental'nii Biblioteka Obschestvennykh Nauk, Moscow.

URUGUAY: Diario Oficial, Calle Florida 1178, Montevideo.

YUGOSLAVIA: Bibliografski Institut FNRJ, Belgrade.^{5 7}

FOREIGN EXCHANGE SERVICES

Exchange publications for addresses in the countries listed below are forwarded by freight to the exchange services of those countries.

Exchange publications for addresses in other countries are forwarded directly by mail.

LIST OF EXCHANGE SERVICES

- AUSTRIA:** Austrian National Library, Vienna.
- BELGIUM:** Service des Échanges Internationaux, Bibliothèque Royale de Belgique, Bruxelles.
- CHINA:** National Central Library, Taipei, Taiwan.
- CZECHOSLOVAKIA:** Bureau of International Exchanges, University Library, Prague.
- DENMARK:** Institut Danois des Échanges Internationaux, Bibliothèque Royale, Copenhagen.
- EGYPT:** Government Press, Publications Office, Bulaq, Cairo.
- FINLAND:** Delegation of the Scientific Societies, Helsinki.
- FRANCE:** Service des Échanges Internationaux, Bibliothèque Nationale, Paris.
- GERMANY (Eastern):** Deutsche Staatsbibliothek, Berlin.
- GERMANY (Western):** Deutsche Forschungsgemeinschaft, Bad Godesberg.
- HUNGARY:** National Library, Széchényi, Budapest.
- INDIA:** Government Printing and Stationery, Bombay.
- INDONESIA:** Minister of Education, Djakarta.
- ISRAEL:** Jewish National and University Library, Jerusalem.
- ITALY:** Ufficio degli Scambi Internazionali, Ministero della Pubblica Istruzione, Rome.
- JAPAN:** Division of International Affairs, National Diet Library, Tokyo.
- KOREA:** Korean Library Association, Seoul.⁹
- NETHERLANDS:** International Exchange Bureau of the Netherlands, Royal Library, The Hague.
- NEW SOUTH WALES:** Public Library of New South Wales, Sydney.
- NEW ZEALAND:** General Assembly Library, Wellington.
- NORWAY:** Service Norvégien des Échanges Internationaux, Bibliothèque de l'Université Royale, Oslo.
- PHILIPPINES:** Bureau of Public Libraries, Department of Education, Manila.
- POLAND:** Service Polonais des Échanges Internationaux, Bibliothèque Nationale, Warsaw.
- PORTUGAL:** Secção de Trocas Internacionais, Biblioteca Nacional, Lisbon.
- QUEENSLAND:** Bureau of International Exchange of Publications, Chief Secretary's Office, Brisbane.
- RUMANIA:** International Exchange Service, Biblioteca Centrala de Stat, Bucharest.
- SOUTH AUSTRALIA:** South Australian Government Exchanges Bureau, Government Printing and Stationery Office, Adelaide.
- SPAIN:** Junta de Intercambio y Adquisición de Libros y Revistas para Bibliotecas Públicas, Ministerio de Educación Nacional, Madrid.
- SWEDEN:** Kungliga Biblioteket, Stockholm.
- SWITZERLAND:** Service Suisse des Échanges Internationaux, Bibliothèque Centrale Fédérale, Palais Fédéral, Berne.
- TASMANIA:** Secretary of the Premier, Hobart.
- TURKEY:** National Library, Ankara.
- UNION OF SOUTH AFRICA:** Government Printing and Stationery Office, Cape Town.

⁹ Changed from Korean National Commission for UNESCO, Seoul.

UNION OF SOVIET SOCIALIST REPUBLICS: Bureau of Book Exchange, State Lenin Library, Moscow.

VICTORIA: Public Library of Victoria, Melbourne.

WESTERN AUSTRALIA: State Library, Perth.

YUGOSLAVIA: Bibliografski Institut FNRJ, Belgrade.

Respectfully submitted.

J. A. COLLINS, *Chief.*

Dr. LEONARD CARMICHAEL,
Secretary, Smithsonian Institution.

Report on the National Gallery of Art

SIR: I have the honor to submit, on behalf of the Board of Trustees, the 22d annual report of the National Gallery of Art, for the fiscal year ended June 30, 1959. This report is made pursuant to the provisions of section 5(d) of Public Resolution No. 14, 75th Congress, 1st session, approved March 24, 1937 (50 Stat. 51).

ORGANIZATION

The statutory members of the Board of Trustees of the National Gallery of Art are the Chief Justice of the United States, the Secretary of State, the Secretary of the Treasury, and the Secretary of the Smithsonian Institution, ex officio. On May 6, 1959, Rush H. Kress was reelected a general trustee of the National Gallery of Art to serve in that capacity for the term expiring July 1, 1969. The four other general trustees continuing in office during the fiscal year ended June 30, 1959, were Chester Dale, Ferdinand Lammot Belin, Duncan Phillips, and Paul Mellon. On May 7, 1959, Chester Dale was reelected by the Board of Trustees to serve as President of the Gallery and Ferdinand Lammot Belin was reelected Vice President.

The executive officers of the Gallery as of June 30, 1959, are as follows:

Huntington Cairns, Secretary-Treasurer.	Ernest R. Feidler, Administrator.
John Walker, Director.	Huntington Cairns, General Counsel.
	Perry B. Cott, Chief Curator.

The three standing committees of the Board, as constituted at the annual meeting on May 7, 1959, are as follows:

EXECUTIVE COMMITTEE

Chief Justice of the United States, Earl Warren, Chairman.	Secretary of the Smithsonian Institution, Leonard Carmichael.
Chester Dale, Vice Chairman.	Paul Mellon.
Ferdinand Lammot Belin.	

FINANCE COMMITTEE

Secretary of the Treasury, Robert B. Anderson, Chairman.	Secretary of the Smithsonian Institution, Leonard Carmichael.
Chester Dale, Vice Chairman.	Ferdinand Lammot Belin.
	Paul Mellon.

ACQUISITIONS COMMITTEE

Ferdinand Lammot Belin, Chairman.	Paul Mellon.
Duncan Phillips.	John Walker.
Chester Dale.	

At the close of the fiscal year full-time Government employees on the staff of the National Gallery of Art numbered 299, as compared with 317 employees at the close of the previous year. The U.S. civil service regulations govern the appointment of employees paid from appropriated public funds.

During the year the Civil Service Commission inspected the personnel management operations of the National Gallery of Art. Suggestions made during that inspection are being incorporated into the personnel management program.

APPROPRIATIONS

For the fiscal year ended June 30, 1959, Congress in the regular annual appropriation for the National Gallery of Art provided \$1,674,000 to be used for salaries and expenses in the operation and upkeep of the Gallery, the protection and care of works of art acquired by the Board of Trustees, and all administrative expenses incident thereto, as authorized by joint resolution of Congress approved March 24, 1937 (20 U.S.C. 71-75; 50 Stat. 51). Congress also included in a supplemental appropriation act \$116,100 to cover pay increases not provided for in the regular appropriation. The total appropriation for the fiscal year was \$1,790,100. The following expenditures and encumbrances were incurred:

Personal services.....	\$1, 452, 022
Other than personal services.....	338, 004
Unobligated balance.....	74
	<hr/>
Total.....	1, 790, 100

ATTENDANCE

There were 951,608 visitors to the Gallery during the fiscal year 1959, an increase of 38,127 over the total attendance of 913,481 for the fiscal year 1958. The average daily number of visitors was 2,622.

ACCESSIONS

There were 370 accessions by the National Gallery of Art as gifts, loans, or deposits during the fiscal year.

GIFTS

During the year the following gifts or bequests were accepted by the Board of Trustees:

PAINTINGS

<i>Donor</i>	<i>Artist</i>	<i>Title</i>
Chester Dale.....	Monet.....	Morning Haze.
Syma Busiel.....	Rubens.....	The Meeting of Abraham and Melchizedek.
Lewis Einstein.....	Guardi.....	San Marco.
Avalon Foundation.....	Copley.....	Epes Sargent.
Miss Harriet Winslow.....	George Cuitt, the Younger.	Easby Abbey, near Rich- mond.
Mrs. Edith Stuyvesant Gerry.	Manet.....	The Tragedian (Portrait of Rouviere as Hamlet).
Do.....	Whistler.....	Self-portrait.
Do.....	Whistler.....	George W. Vanderbilt.
Col. and Mrs. Edgar W. Garbisch.	Bauman.....	Geese in Flight.
Do.....	Bauman.....	U.S. Mail Boat.
Do.....	Bradley.....	Little Girl in Lavender.
Do.....	Brown.....	Bareback Riders.
Do.....	Haddoca.....	Red Jacket.
Do.....	Toole.....	Skating Scene.
Do.....	Unknown.....	Burning of Old South Church, Bath, Maine.
Do.....	Unknown.....	Cat and Kittens.
Do.....	Unknown.....	The Cheney Family.
Do.....	Unknown.....	Family Burying Ground.
Do.....	Unknown.....	Martha.
Do.....	Unknown.....	(Mrs.) Aphia SalisburyRich and Baby Edward.
Do.....	Unknown.....	Twenty-two Houses and a Church.
Do.....	Unknown.....	Village by the River.

SCULPTURE

Lessing J. Rosenwald.....	Daumier.....	Le Confident.
Do.....	Daumier.....	Le Représentant.

PRINTS AND DRAWINGS

During the year Lessing J. Rosenwald increased his gift to the Gallery by 198 additional prints and drawings. Four etchings by Breitner were given to the Gallery by the Rijksmuseum, The Netherlands. Two prints were also given by Mrs. Andrew G. Carey to be added to the Addie Burr Clark Memorial Collection.

OTHER GIFTS

Gifts of money were made during the fiscal year 1959 by the Old Dominion Foundation, Avalon Foundation, Mr. and Mrs. W. Randolph Burgess, Mrs. Tracy C. Dickson, Jr., and James E. Boudreau.

EXCHANGE OF WORKS OF ART

In exchange for five paintings, the Samuel H. Kress Foundation gave the National Gallery of Art the following notable paintings:

<i>Artist</i>	<i>Title</i>
Master of Flémalle and Assistants.	Madonna and Child with Saints in the Enclosed Garden.
El Greco.....	The Holy Family.
Cranach.....	Portrait of a Man.
Cranach.....	Portrait of a Woman.
Koerbecke.....	The Ascension.
Veronese.....	The Annunciation.

WORKS OF ART ON LOAN

The following works of art were received on loan by the Gallery:

<i>From</i>	<i>Artist</i>	<i>Title</i>
Chester Dale, New York, N.Y.	Vuillard.....	The Visit.
Do.....	Bakst.....	Ida Rubenstein.
Do.....	Monet.....	The Seine at Giverny.
Do.....	Bellows.....	Blue Morning.
Do.....	Domergue.....	Mrs. Dale.
Do.....	Gros.....	Dr. Vignardonne.
Col. and Mrs. Edgar W. Garbisch, New York, N.Y.	Earl.....	Mrs. Noah Smith and Her Five Children.
Mr. and Mrs. Carleton Mitchell, Annapolis, Md.	Van Gogh.....	The Stevedores.
Do.....	Cézanne.....	Man with Crossed Arms.
The Samuel H. Kress Foundation, New York, N.Y.	Massys.....	Salvator Mundi.
Do.....	Magnasco.....	Bay with Shipwreck.
Do.....	Correggio.....	Salvator Mundi.

WORKS OF ART ON LOAN RETURNED

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

<i>To</i>	<i>Artist</i>	<i>Title</i>
The Samuel H. Kress Foundation, New York, N.Y.	Ferrucci.....	Madonna and Child.
Do.....	Tino di Camaino...	Madonna and Child.
Do.....	Pintoricchio.....	Madonna and Child.
Do.....	Sienese School.....	Madonna and Child with St. Bartholomew and St. John the Baptist.
Do.....	Neroccio de' Landi.	The Battle of Actium.
Do.....	Francesco di Giorgio.	The Visit of Cleopatra to Anthony.
Do.....	Master of the Jarves Cassoni.	The Triumph of Chastity.
Do.....	Guariento.....	Madonna and Child with Four Saints.
Do.....	Segna di Buonaventura.	Madonna and Child.
Do.....	Catena.....	Portrait of a Woman.
Do.....	Veronese.....	The Baptism of Christ.
Do.....	Botticelli.....	Madonna and Child.
Do.....	Bonfigli.....	Madonna and Child Enthroned.
Do.....	Rigaud.....	President Hébert.

<i>From</i>	<i>Artist</i>	<i>Title</i>
Chester Dale, New York, N.Y.	Derain.....	Portrait of a Girl.
Do.....	Flemish School XVI Century.	Portrait of a Woman.
Do.....	German School XVI Century.	Portrait of a Girl.
Do.....	Pisanello, Style of..	Portrait of a Woman.
Arnold W. Knauth II, Rockport, Mass.	Copley.....	Epes Sargent.
Robert Woods Bliss, Washington, D.C.	19 objects of Pre-Columbian Art.	

WORKS OF ART LENT

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

<i>To</i>	<i>Artist</i>	<i>Title</i>
The Metropolitan Museum of Art, New York, N.Y.	Homer.....	Breezing Up.
Do.....	Homer.....	Hound and Hunter.
Do.....	Homer.....	Right and Left.
Do.....	Boucher.....	Tête-à-Tête (drawing).
Do.....	Moreau le Jeune...	Oui ou Non (drawing).
Museum of Fine Arts, Boston, Mass.	Homer.....	Breezing Up.
Do.....	Homer.....	Hound and Hunter.
Do.....	Homer.....	Right and Left.
Boymans Museum, Rotterdam, and the Orangerie, Paris.	Boucher.....	Tête-à-Tête (drawing).
Do.....	Moreau le Jeune...	Oui ou Non (drawing).
Westmoreland County Museum, Greensburg, Pa.	Park.....	Flax Scutching Bee.
Pennsylvania Historical Museum Commission, Harrisburg, Pa.	Eichholtz.....	Mrs. Phoebe Freeman.
Do.....	Eichholtz.....	James P. Smith.
Do.....	Eichholtz.....	Henry Eichholtz Leman.
Do.....	Eichholtz.....	William Clark Frazer.
Chatham College, Pittsburgh, Pa.	Copley.....	The Death of the Earl of Chatham.
Birmingham Museum of Art, Birmingham, Ala.	Stuart.....	George Washington (Vaughan-Sinclair).
Smallwood Foundation, Inc., Faulkner, Md.	Pine.....	General William Smallwood.
U.S. Supreme Court, Washington, D.C.	George Cuitt, the Younger.	Easby Abbey, near Richmond.
Woodlawn Plantation, Mount Vernon, Va.	Polk.....	General Washington at Princeton.

EXHIBITIONS

The following exhibitions were held at the National Gallery of Art during the fiscal year 1959:

- Etchings and Lithographs by Redon, from the Rosenwald collection. July 17, 1958, through December 7, 1958.
- Drawings and Prints by Rembrandt, from the Rosenwald and Widener collections. August 1, 1958, through September 21, 1958.
- Dutch Drawings—Masterpieces from Five Centuries, a special loan exhibition of 148 Dutch drawings, the most important ever shown in this country. October 5, 1958, through October 26, 1958.
- Winslow Homer—A Retrospective Exhibition, the Gallery's second one-man show in honor of a leading American painter. November 23, 1958, through January 4, 1959.
- Christmas Prints, gift of W. G. Russell Allen and from the Rosenwald collection. December 8, 1958, through March 23, 1959.
- Whistler Etchings, gift of Mr. and Mrs. J. Watson Webb. March 23, 1959, through June 23, 1959.
- Masterpieces of Impressionist and Post-Impressionist Painting, loan exhibition of French 19th-century paintings from private collections, celebrating the 50th anniversary of the founding of the American Federation of Arts and honoring the meetings of the International Chamber of Commerce. April 25, 1959, through May 24, 1959.
- Etchings and Mezzotints from Turner's Liber Studiorum, gift of Miss Ellen T. Bullard and from the Rosenwald collection. June 25, 1959, to continue into the next fiscal year.

TRAVELING EXHIBITIONS

Rosenwald collection.—Special exhibitions of prints from the Rosenwald collection were circulated to the following places during the fiscal year 1959:

- Smithsonian Traveling Exhibition Service, Washington, D.C.:
- Contemporary German Prints. Exhibition tour extended through the fiscal year 1959. (Tour started October 1956.)
 - George Bellows—Prints and Drawings. 19 prints. Continued until January 30, 1959. (Tour started March 1957.)
- American Federation of Arts, New York, N.Y.:
- The Life of Christ in Prints. 50 prints. Continued until February 10, 1959. (Tour started October 1957.)
- Arts Council of Great Britain:
- Two prints by Hayter lent to a touring exhibition of Hayter's work starting in the fiscal year 1958 and continuing through July 1958.
- Museum of Art of Ogunquit, Maine:
- Fourteen prints and drawings by Mary Cassatt. Exhibition starting in the fiscal year 1958 and continuing through the first week of September 1958.
- Boston Museum of Fine Arts, Boston, Mass.:
- Daumier Anniversary Exhibition. 8 drawings and 35 prints by Daumier; also 8 bronzes by Daumier given by Mr. Rosenwald. July 1 through October 1, 1958.

National Museum of Modern Art, Mexico City, Mexico :

Inaugural Exhibition. 50 modern prints. September 1958 through April 1959.

Marion Koogler McNay Art Institute, San Antonio, Tex. :

Twenty-nine prints by Picasso. September and October 1958.

Huntington Library, San Marino, Calif. :

Five Daumier busts in Rosenwald Collection. August through October 1958.

Sunday School Board, Southern Baptist Convention, Nashville, Tenn. :

Twenty prints. September 10 to November 10, 1958.

St. George's School, Newport, R.I. :

Fourteen prints. October 15 through November 15, 1958.

Los Angeles County Museum, Los Angeles, Calif. :

Exhibition of Daumier lithographs and sculpture. 1 woodblock, 5 bronzes, 25 prints and drawings. November and December 1958.

Smithsonian Traveling Exhibition Service, Washington, D.C. :

Dutch Drawing Exhibition. One Dutch miniature. November 1958 through April 1959.

Detroit Institute of Arts, Detroit, Mich. :

Decorative Arts of the Italian Renaissance. One engraving. November 17, 1958 through January 6, 1959.

Everhart Museum, Scranton, Pa. :

Christmas Exhibition. 20 prints. Last week of November through December 1958.

Isaac Delgado Museum of Art, New Orleans, La. :

Life of Christ. 52 prints. December 7 through December 28, 1958.

The University of Nebraska Art Galleries, Lincoln, Nebr. :

Twenty-six prints. January 16 through February 13, 1959.

The University of Kansas Museum, Lawrence, Kans. :

Two prints. January 18 through March 1, 1959.

Metropolitan Museum of Art, New York, N.Y. :

Homer Exhibition. One lithograph by Homer. January 29 through March 8, 1959.

Art Institute of Chicago, Chicago, Ill. :

Gauguin Exhibition. Two monotypes by Gauguin. February and March 1959.

Notre Dame University, Notre Dame, Ind. :

Twenty-five prints. February 15 through April 5, 1959.

Mary Washington College of the University of Virginia, Fredericksburg, Va. :

Seventeen prints illustrating antique musical instruments. March 10 through March 31, 1959.

Metropolitan Museum of Art, New York, N.Y. :

Gauguin Exhibition. Two monotypes by Gauguin. April through May 1959.

Hillel Foundation at Pennsylvania State University, State College, Pa. :

Twenty-six prints on biblical themes. April 1 through April 15, 1959.

Corcoran Gallery of Art, Washington, D.C. :

The American Muse. One Audubon print. April 3 through May 17, 1959.

Gallaudet College, Washington, D.C. :

Three prints by Cadwallader Washburn. April 11 through June 8, 1959.

Virginia Museum of Fine Arts, Richmond, Va. :

Twenty-four prints with subjects related to the law for an exhibition commemorating the introduction of Common Law in the Colonies. May 14 through June 14, 1959.

Index of American Design.—During the fiscal year 1959, 27 traveling exhibitions (including 1,498 plates) with 44 bookings were circulated to Germany and the following States:

State	Number of exhibitions	State	Number of exhibitions
Alabama	1	North Carolina	1
Connecticut	2	Ohio	4
District of Columbia	2	Pennsylvania	7
Florida	2	Rhode Island	1
Indiana	1	Tennessee	1
Iowa	2	Texas	4
Maryland	1	Utah	3
Minnesota	1	Virginia	8
New York	1	West Virginia	1

CURATORIAL ACTIVITIES

Under the direction of Dr. Perry B. Cott, chief curator, the curatorial department accessioned 238 gifts to the Gallery during the fiscal year 1959. Advice was given regarding 381 works of art brought to the Gallery for expert opinion and 18 visits to collections were made by members of the staff in connection with offers of gifts. About 2,200 inquiries requiring research were answered verbally and by letter.

William P. Campbell, curator of painting, lectured on Early American Masterpieces in the National Gallery of Art at the Williamsburg Antiques Forum.

During the year members of the curatorial staff assisted in the judging of the following art exhibitions: Dr. Fern Rusk Shapley: *Conservative Contemporary Art* at the State Fair in Birmingham, Ala., and *Virginia Artists* at Vienna, Va.; Dr. H. Lester Cooke: Exhibitions sponsored by the Waterford Art Society, Virginia, Wilmington Society of the Fine Arts, and the USIA exhibition of Washington artists; Thomas P. Baird: Delmarva Chicken Festival, Dover, Del.; Ralph T. Coe: Exhibition held at The Plains, Va.

The Richter Archives received and cataloged over 700 photographs on exchange from museums here and abroad, and 3,055 photographs were purchased for the Richter Archives.

RESTORATION

Francis Sullivan, resident restorer of the Gallery, made regular and systematic inspection of all works of art in the Gallery, and periodically removed dust and bloom as required. He relined 11 paintings and gave special treatment to 38 paintings and 2 pieces of sculpture. Nineteen paintings were X-rayed as an aid in research. Experiments were continued with synthetic varnishes, and a fluores-

cent light rack was built to test the fading of paints and pigments in cooperation with the Mellon Institute of Industrial Research, Pittsburgh, Pa. In September, Mr. Sullivan attended a seminar held in Boston, Mass., on "Application of Science in Examination of Works of Art." In the spring he also made trips to New York, Bryn Athyn, Pa., and Annapolis, Md., to supervise the collecting and return of paintings for the exhibition "Masterpieces of Impressionist and Post-Impressionist Painting." Technical advice on condition and care of paintings was given when works of art were brought to the Gallery, and such technical information as could be given when requested by the public. He inspected all Gallery paintings on loan in Government buildings in Washington, and also gave advice on the special treatment of works of art belonging to Government agencies, including the Capitol, the White House, the Supreme Court, the State Department, the Treasury, the Department of the Interior, the Maritime Commission, the Smithsonian Institution, and the Freer Gallery of Art.

PUBLICATIONS

Dr. Perry B. Cott, chief curator, contributed an article entitled "A Note on Houdon's Bust of Diana" to *Studies in the History of Art* dedicated to William E. Suida on his 80th birthday, 1959. He also wrote an article for the *World Book Encyclopedia* on the "Art Museum."

Dr. Fern Rusk Shapley, assistant chief curator, also contributed an article entitled "Baldassare d' Este and a Portrait of Francesco II Gonzaga" to *Studies in the History of Art* dedicated to William E. Suida.

Dr. H. Lester Cooke, museum curator, wrote the following articles: "The Art of Edward Hopper," *America Illustrated*, 1959, No. 32; "The Art of George Bellows," *America Magazine*, May 1959; and the introduction to a catalog of an exhibition of Washington artists sent to Europe by USIA.

Ralph T. Coe, museum curator, contributed an article entitled "Impressionists in Washington" to the *Burlington Magazine*, June 1959.

During the fiscal year 1959 the Publications Fund published one new 11- by 14-inch color reproduction and eight new color and five new black-and-white Christmas cards. A large pochoir reproduction of a picture of the National Gallery of Art building was published by an outside publisher and was placed on sale by the fund. Fifteen new 2- by 2-inch color-slide subjects were added to the selection available, and two more sets of slides were issued.

Color plates of five new subjects for 11- by 14-inch prints were completed during the year, and, in addition, work was begun on color



1. The Meeting of Abraham and Melchizedek: Peter Paul Rubens. Gift of Syma Busiel, National Gallery of Art.



2. Madonna and Child with Saints in the Enclosed Gardens: Master of Flémalle and Assistants. Samuel H. Kress Collection, National Gallery of Art.



1. The Annunciation: Paolo Veronese. Samuel H. Kress Collection, National Gallery of Art.



2. The Ascension: Johann Koerbecker. Samuel H. Kress Collection, National Gallery of Art.



The Holy Family: El Greco. Samuel H. Kress Collection, National Gallery of Art.



1. Epes Sargent: John Singleton Copley. Gift of Avalon Foundation, National Gallery of Art.



2. The Tragedian (portrait of Bouvière as Hamlet): Edouard Manet. Gift of Mrs. Edith Stuyvesant Gerry, National Gallery of Art.

plates for a series of booklets to be issued by the Publications Fund on the schools of painting represented in the Gallery.

The publications sales rooms operated by the Publications Fund enjoyed their busiest year, serving 184,254 individuals, organizations, etc.

EDUCATIONAL PROGRAM

The program of the Educational Office was carried out under the supervision of Dr. Raymond S. Stites, curator in charge of educational work, and his staff, who lectured and conducted tours in the Gallery on the works of art in its collections.

The attendance for the general tours, Tours of the Week, and Picture of the Week talks totaled 40,532 persons; while that of the auditorium lectures on Sunday afternoon totaled 14,515 persons.

Tours, lectures, and conferences were arranged by special appointment for 340 groups and individuals. The total number of persons served in this manner was 11,585, an increase over last year of 3,488 persons. These special appointments were made for such groups as the various governmental agencies, educators (both foreign and American), religious groups, Girl Scouts, 4-H Clubs, convention groups, and members of the radio and television industry.

The program for the training of volunteer docents continued, and during the fiscal year 1959 special instruction was given to 100 women under the general supervision of the curator in charge of educational work. By special arrangement with the school systems of the District of Columbia and surrounding counties of Maryland and Virginia these women conducted tours for 1,546 classes with a total of 40,355 children—an increase over last year of 7,807 children visiting the National Gallery.

The staff of the Educational Office delivered 23 lectures in the auditorium on Sunday afternoons and 24 lectures were given by guest speakers. During the month of April and the first two Sundays in May, the Eighth Annual Series of the A. W. Mellon Lectures in the Fine Arts was delivered by the noted sculptor Naum Gabo, whose subject was "A Sculptor's View of the Fine Arts."

The Educational Office continued to circulate the nine sets of traveling exhibitions to schools, clubs, libraries, and universities throughout the country, free of charge except for transportation costs. These were viewed by a total of 20,000 persons during the year. Fifteen copies of the old National Gallery of Art film "Your National Gallery of Art" were borrowed 34 times through distribution centers, and the new film "Art in the Western World" was borrowed 26 times by local borrowers.

The Educational Office continued the sale of slide strips, and during the year a total of 80 sets were sold. The sale of the filmstrip "The Art of the Florentine Golden Age in the National Gallery of Art" totaled 30 sets.

A total of 1,750 slides were added to the slide collections during the year, and the slide library now contains 37,492 slides. A total of 10,982 slides were lent to 378 borrowers and seen by approximately 11,340 viewers. There was an increase of 143 borrowers over last year, and a total of 3,743 more slides lent. A number of slide lecture sets with text are available for loan.

Members of the staff prepared 6 more leaflets on works of art in individual galleries, and prepared mimeographed material for school groups, as well as undertaking the preparation of three illustrated 27-page booklets for sale at the publications sales rooms.

A printed calendar of events announcing all Gallery activities and publications was prepared by the Educational Office and distributed monthly to a mailing list of 6,800 names. This is an increase over last year of 1,100 names.

The staff members prepared and delivered twenty-nine 10-minute talks over station WGMS during intermission of the National Gallery of Art concerts broadcasts.

The curator in charge of educational work delivered lectures to several university, church, and club groups, gave two talks over WMAL-TV for the National Council of Churches, appeared on TV in Providence, R.I., in a lecture on American art, and judged an art exhibition at the Navy Department.

Groser Evans taught an evening course at George Washington University, delivered a number of outside lectures, and acted as judge for several art contests in the area.

Margaret Bouton taught evening courses in art at American University.

Dorothea Michelson delivered a talk at the National Housing Center.

Hugh Broadley taught an evening course in American art at American University.

LIBRARY

Important acquisitions to the library, recorded by Miss Ruth E. Carlson, librarian, and her staff, included 607 books, pamphlets, periodicals, subscriptions, and a group of 7,998 photographs purchased from private funds.

A total of 44 books and subscriptions were purchased from Government funds made available for this purpose. Gifts to the library included 773 books and pamphlets; 1,024 books, pamphlets, period-

icals, and bulletins were received on exchange from other institutions. During the fiscal year the library cataloged 3,307 publications, and 1,984 periodicals were recorded; 12,177 catalog cards were filed. The library borrowed 1,385 books on interlibrary loan; the Library of Congress lent 1,333 books.

The library is the depository for photographs of the works of art in the National Gallery of Art's collections. A stock of reproductions is maintained for use in research, for exchange with other institutions, and for sale to interested individuals. Approximately 6,300 photographs were received and processed in the library during the year. The library filled 1,143 orders for these photographs. Sales to the general public amounted to \$1,195, covering about 1,600 photographs. There were 303 permits for reproduction of 783 subjects processed in the library.

INDEX OF AMERICAN DESIGN

During the fiscal year the work of the Index continued as usual, under the direction of Dr. Erwin O. Christensen, curator. Twenty sets (1,020 slides) of color slides in 65 bookings were circulated throughout the country. Regular sets were lent for lecture and study purposes. Notes were completed for one additional set of slides on furniture. Three new lectures were completed on Index material, and 1,003 photographs of Index material were used for exhibition and study purposes, as well as for publicity, and purchase by the public. The photographic file of the Index material has been increased by 1,650 prints. Approximately 406 persons studied Index material for research purposes, and to gather material for publication and design.

Dr. Christensen continued to participate in the orientation program of the USIA personnel. The card-file index of the Index renderings was completed last year and an inventory of all photographs was begun. The curator of the Index prepared a report on the completion of the Index.

In all, 357 photographs of New England gravestone carvings, dating from 1653 to 1810, and 5 photographs of wood statues were given to the Gallery by Saul Ludwig of Montclair, N.J., and Mrs. Hugh De Witt of Stanford, Calif., respectively, for the Index of American Design.

MAINTENANCE OF THE BUILDING AND GROUNDS

The Gallery building, the mechanical equipment, and its grounds were maintained at the established standards throughout the year, under the direction of Ernest R. Feidler, administrator, and his staff.

Lectour, the electronic guide system, was installed in 10 additional galleries. Several of the installations were experimental in that the electronic guide system was introduced in adjacent galleries. Heretofore, in similar installations elsewhere and in the National Gallery of Art, service in adjacent galleries was deemed impracticable because of "crosstalk." This problem was solved in the new installations made during this past fiscal year.

The roofing over the Seventh and Fourth Street entrances and around the base of the dome, which had begun to deteriorate after 19 years of service, was replaced with roofing of improved design.

Permanent and improved floodlighting on the north portico and adjacent to the flagpoles replaced the temporary lighting developed for the 15th anniversary of the Gallery in 1956. This permanent floodlighting illuminates the central portion of the building on the north side.

The A.D.T. Aero Fire Alarm System was extended to the registrar's storeroom.

There was continued expansion of the Gallery's horticulture program with the result that extraordinary displays of flowering plants were available for the Christmas and Easter seasons and several important night openings.

LECTOUR

Lectour was installed and used successfully in two special exhibitions, and one foreign-language broadcast was prepared for a special group visit.

Lectour was used by 72,793 Gallery visitors during the fiscal year 1959. The system is being used progressively more extensively by visitors, as evidenced by the fact that in the last month of the fiscal year 1958 the percentage of visitors using Lectour was 6.3 percent, whereas the latter part of this year the percentage rose to 9.7 percent.

OTHER ACTIVITIES

Forty Sunday-evening concerts were given during the fiscal year in the east garden court, including nine concerts by the National Gallery of Art Orchestra under the direction of Richard Bales, two of which were made possible by the Music Performance Trust Fund of the American Federation of Musicians. A string orchestra under Mr. Bales's direction furnished music during the opening of the Dutch Exhibition on October 4, 1958, and during the opening of the Winslow Homer Exhibition on November 22, 1958. The National Gallery of Art orchestra with the Church of the Reformation cantata choir presented Mr. Bales's two cantatas, "The Confederacy" and "The Union," at the Watergate on July 30, 1958. On June 3, 1959, the National Gallery orchestra presented a concert at the Watergate in

honor of the Governor of Casablanca (both concerts were paid for by the Music Performance Trust Fund of the American Federation of Musicians). Mr. Bales appeared as guest conductor at a number of concerts in several cities throughout the United States during the year. Special concerts were held to commemorate United Nations Day and the Lincoln Sesquicentennial.

Four Sunday evenings during May 1959 were devoted to the Gallery's 16th American Music Festival. All concerts were broadcast in their entirety in stereophonic sound by station WGMS-AM and FM, Washington. The Voice of America regularly received portions of the Sunday evening concerts for transmission overseas. The intermissions during Sunday evening concerts featured discussions by members of the Educational Office staff and Mr. Bales.

During the fiscal year, 4,103 copies of 14 press releases in connection with the Gallery's activities were approved and issued by Director John Walker. In all, 148 permits to copy and 121 permits to photograph works of art in the Gallery were also issued.

During the fiscal year, in response to requests from Senators and Congressmen, 9,872 copies of the pamphlet "A Cordial Invitation from the Director" and 9,636 copies of the National Gallery of Art Information Booklet were sent for distribution to their constituents; 29,800 copies of "A Cordial Invitation from the Director" were sent to various organizations holding conventions in the Washington area.

During this fiscal year, the slide project begun in the fiscal year 1958 was carried to completion and sets of 500 color slides were sent to 114 colleges and universities having departments in the History of Art, and to museums having slide-lending services. This program was initiated in order to make slides of the works of art in the National Gallery of Art available in color at a minimum cost.

Henry B. Beville, the Gallery's photographer, and his staff processed 13,681 prints, 438 black-and-white slides, 1,121 color slides, 1,508 black-and-white negatives, 175 sets of color-separation negatives, 345 color transparencies, 6 infrared and 2 ultraviolet photographs during the fiscal year.

AUDIT OF PRIVATE FUNDS OF THE GALLERY

An audit of the private funds of the Gallery will be made for the fiscal year ended June 30, 1959, by Price Waterhouse & Co., public accountants, and the certificate of that company on its examination of the accounting records maintained for such funds will be forwarded to the Gallery.

Respectfully submitted,

HUNTINGTON CAIRNS, *Secretary.*

Dr. LEONARD CARMICHAEL

Secretary, Smithsonian Institution.

Report on the Library

SIR: I have the honor to submit the following report on the activities of the Smithsonian library for the fiscal year ended June 30, 1959:

Of the 52,669 publications received in the library, 2,706 were books and periodicals that could not be obtained in exchange. A special effort was made to acquire some of the much-needed reference materials that could not be obtained in the past. Publications were acquired to fill in special subject areas where adequate source materials were missing. Exchange relations with learned societies and scientific establishments both in this country and abroad continued to provide their serials and monographs which comprise the backbone of the library's collection. New exchanges arranged this year totaled 159, to be added to the vast number already established. Special requests for 2,359 publications were made to issuing societies and organizations for back issues of publications needed for completing sets in our collections. Books and periodicals were acquired for the Canal Zone Biological Area and also for the Astrophysical Observatory in Cambridge, Mass.

Recommendations for the acquisition of materials are of great importance in enriching the collections. Many significant gifts also come to the library from interested individuals including members and friends of the Smithsonian staff. Gifts of special note included "Voices from the Flowery Kingdom," from Mrs. Lucille Nott; 327 issues of philatelic journals from Alexander Halperson; 50 issues of the *Connoisseur*, from Fred J. P. Chitty; 3 volumes on Indian dancing by Leila Row Dayal; "Grundzuge der zoologischen Mikropaläontologie," Band 1, by Vladmir Pokorny.

Controlling the vast intake of publications each year requires the efforts of the entire staff in evaluating the materials for retention and in making them readily available for use. Lack of adequate space necessitates the daily sorting and shipping of all extraneous and duplicate publications to other agencies.

Beginning July 1, 1958, all publications forwarded to the Library of Congress were sent by transfer instead of being specifically designated for the Smithsonian Deposit, thus eliminating unnecessary recordkeeping on the part of both organizations. Publications sent to this organization totaled 20,558, many of which were continuations

of serials and monographs that have been received regularly in exchange since their first date of publication. To the National Library of Medicine were sent 2,378 publications, and to other Government libraries 714 items.

The catalog section cataloged and classified 4,082 books and pamphlets, entered 24,933 periodicals, and filed 45,485 cards. In spite of being short staffed and having an increased acquisitions program, the efforts of the catalogers to organize and plan their work have kept the bulk of the material moving. Efficient library service depends on a good catalog, and good cataloging practice is a basic requirement. The large number of uncataloged publications throughout the Institution remains a major problem. The scientific and technical nature of these publications, many of which are in foreign languages, requires scholarly treatment in processing.

The binding program continued to show vast improvements in the preservation and conservation of our valuable research materials. Through a waiver from the Government Printing Office, 8,800 volumes were bound or re-bound by a commercial binder under contract. A skilled bindery assistant repaired or hand-bound 1,851 volumes of materials not suitable to send to a binder. A special project is underway to put call-number labels on all the library materials. This will facilitate the shelving and locating of books and periodicals by the staff and users as well.

The program of continuous weeding and discarding of unused and duplicate materials is still in effect. A total of 8,901 books, pamphlets, and periodicals was discarded.

The library is frequently called upon to translate correspondence and miscellaneous items into English. Members of the catalog section translated 214 items and provided reference assistance or translations of obscure words and phrases. The class in scientific Russian, taught by David Ray, is still in progress.

Demands on the staff of the reference and circulation section continued to be heavy. It is difficult to measure the various services the library gives in making its resources available to those who wish to make use of them. During the year 12,360 loans were made, plus 9,374 volumes sent to the sectional libraries for semipermanent file. Since no estimate can be made of how many times books and periodicals circulate within a section, the exact number of times library materials are consulted cannot be determined.

There were 1,158 volumes lent to Government, college, and university libraries; and 3,853 volumes were borrowed from other libraries, chiefly the Library of Congress.

Visitors to the library numbered 9,202 persons who consulted the reference books and periodicals in the main reading room. Visiting research scholars used the library's facilities for checking and verifying references, and librarians and scientists from other countries came to acquaint themselves with the collections. The library staff answered 20,799 reference questions, which in most cases required the consultation of many different publications. These queries are from individuals who either write, telephone, or come in person to the library, and always it is rewarding to be able to provide them with the desired information or refer them to an authoritative source.

Care of the collections includes the task of relieving crowding of the books and keeping them clean. The addition of 26 new cases in the stacks of the main library has provided additional shelf space for the growing accumulation. Vacuuming the books and washing the shelves are underway in this area, and routine cleaning schedules are in effect in other stack areas.

In September 1958, the branch library for the Museum of History and Technology began operation. This collection of books and journals formerly served the staff in the Arts and Industries Building. The initial phase of the project of cleaning and discarding unused materials has been completed. The specific task of making this into a working library is in progress with a shelf inventory started, a binding and repairing program underway, the acquiring of necessary source and reference books and missing journals in process. This library will in the future supply source materials on the historical and technical development of this country. In spite of numerous handicaps during the 9 months of operation, 3,498 reference questions were answered, 2,559 books were charged out, 999 volumes were sent to the bindery, and 1,042 persons who came to the library for service were assisted.

It has been possible for the library to acquire some long-needed equipment. New microfilm reading machines and a book-copying machine have increased the service and efficiency. Other items such as a new charge desk and catalog cases have improved the appearance of the library and the morale of the staff. The repainting of several of the rooms has enhanced the whole cleanup program. The value of these new improvements cannot be measured, but their total effect on individual performance is more than gratifying.

Professional members of the staff attended the annual conventions of both the Special Libraries Association and the American Library Association, where they took advantage of the specialized activities that pertained to the functions of this library.

SUMMARIZED STATISTICS

ACCESSIONS

	Volumes	Total recorded volumes, 1959
Smithsonian Deposit at the Library of Congress----	(*)	586, 722
Smithsonian main library (includes former office and museum libraries)-----	7, 421	323, 924
Astrophysical Observatory (includes Radiation and Organisms)-----	42	15, 078
Bureau of American Ethnology-----	33	37, 749
National Air Museum-----	19	577
National Collection of Fine Arts-----	19	14, 159
National Zoological Park-----	69	4, 287
Total-----	7, 603	982, 596

*20,558 publications were forwarded by transfer to the Library of Congress without the Smithsonian Deposit stamp.

Unbound volumes of periodicals and reprints and separates from serial publications, of which there are many thousands, have not been included in these totals.

EXCHANGES

New exchanges arranged-----	159
Specially requested publications received-----	2, 359

CATALOGING

Volumes cataloged-----	4, 082
Catalog cards filed-----	45, 485

PERIODICALS

Periodical parts entered-----	24, 933
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CIRCULATION

Loans of books and periodicals-----	21, 734
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Circulation in sectional libraries is not counted except in the Division of Insects.

BINDING AND REPAIR

Volumes sent to the bindery-----	8, 800
Volumes repaired in the library-----	1, 851

Respectfully submitted.

RUTH E. BLANCHARD, *Librarian.*

Dr. LEONARD CARMICHAEL,
Secretary, Smithsonian Institution.

Report on Publications

SIR: I have the honor to submit the following report on the publications of the Smithsonian Institution and its branches for the year ended June 30, 1959:

The publications of the Smithsonian Institution are issued partly from federally appropriated funds (Smithsonian Reports and publications of the National Museum, the Bureau of American Ethnology, and the Astrophysical Observatory) and partly from private endowment funds (Smithsonian Miscellaneous Collections, publications of the Freer Gallery of Art, and some special publications). The Institution also edits and publishes under the auspices of the Freer Gallery of Art the series *Ars Orientalis*, which appears under the joint imprint of the University of Michigan and the Smithsonian Institution. The third volume in this series was in press at the close of the year. In addition, the Smithsonian publishes a guidebook, a picture pamphlet, postcards and a postcard folder, a color-picture album, color slides, a filmstrip on Smithsonian exhibits, a coloring book for children, and popular publications on scientific and historical subjects related to its important exhibits and collections for sale to visitors. Through its publication program the Smithsonian endeavors to carry out its founder's expressed desire for the diffusion of knowledge.

During the year the Institution published 1 whole volume and 10 papers in the Miscellaneous Collections; 1 Annual Report of the Board of Regents and separates of 19 articles in the General Appendix; 1 Annual Report of the Secretary; 4 special publications; and reprints of 1 volume of Miscellaneous Collections and 1 special publication.

The U.S. National Museum issued 1 Annual Report, 4 Bulletins, 18 Proceedings papers, and 2 special publications.

The Bureau of American Ethnology issued one Annual Report and four Bulletins.

The Astrophysical Observatory issued seven numbers in the series *Smithsonian Contributions to Astrophysics*.

The National Collection of Fine Arts published three catalogs, and the Smithsonian Traveling Exhibition Service, under the National Collection of Fine Arts, published one catalog.

The Freer Gallery of Art issued one paper in its *Occasional Papers* series, and a revised edition of one pamphlet.

DISTRIBUTION

There were distributed 580,018 copies of publications and miscellaneous items. *Publications*: 34 Contributions to Knowledge, 23,886 Smithsonian Miscellaneous Collections, 8,725 Annual Report volumes and 22, 528 pamphlet copies of Report separates, 575 War Background Studies, 49,684 special publications, 93 reports of the Harriman Alaska Expedition, 52,700 publications of the National Museum, 27,721 publications of the Bureau of American Ethnology, 28,170 publications of the National Collection of Fine Arts, 583 publications of the Freer Gallery of Art, 14,951 publications of the Astrophysical Observatory, 1,581 reports of the American Historical Association, and 1,775 publications not issued by the Smithsonian Institution. *Miscellaneous items*: 4 sets of North American Wild Flowers and 34 Wild Flower prints, 57 Pitcher Plant volumes, 44,230 guide books, 19,293 picture pamphlets, 211,260 postcards and postcard folders, 19,414 color slides, 49,660 information leaflets, and 15 New Museum of History and Technology pamphlets. There were also distributed 366 statuettes, 2,670 Viewmaster reels, and 5 filmstrips and 4 filmstrip records.¹

SMITHSONIAN MISCELLANEOUS COLLECTIONS

In this series, under the immediate editorship of Ruth B. MacManus, there were issued one paper in volume 119, two papers in volume 135, two papers in volume 136, whole volume 137, four papers in volume 138, and one paper in volume 139, as follows:

Volume 119

No. 3. Mississippian fauna in northwestern Sonora, by William H. Easton, John E. Sanders, J. Brookes Knight, and Arthur K. Miller. 87 pp., 9 pls., 4 figs. (Publ. 4313.) Aug. 8, 1958. (\$1.35.)

Volume 135

No. 1. The customs and religion of the Ch'iang, by David Crockett Graham. 114 pp., 16 pls., 6 figs. (Publ. 4300.) Dec. 2, 1958. (\$2.)

No. 9. New American Paleozoic echinoids, by Porter M. Kier. 26 pp., 8 pls., 22 figs. (Publ. 4337.) Aug. 4, 1958. (75 cents.)

Volume 136

No. 1. A review of the middle and upper Eocene primates of North America, by C. Lewis Gazin. 112 pp., 14 pls. (Publ. 4340.) July 7, 1958. (\$1.75.)

No. 2. The journals of Daniel Noble Johnson (1822-1863), United States Navy, edited by Mendel L. Peterson. 268 pp., 16 pls. (Publ. 4375.) Apr. 2, 1959. (\$4.)

¹ Additional copies of the Institution's filmstrip and record, "Let's Visit the Smithsonian," were distributed through the Society for Visual Education, Chicago, Ill.

Volume 137

Studies in invertebrate morphology. Published in honor of Dr. Robert Evans Snodgrass on the occasion of his 84th birthday, July 5, 1959. 18 articles by various authors. 416 pp., 49 pls., 149 figs. (Publ. 4350.) [June 19] 1959. (\$7.50.)

Volume 138

- No. 1. Pueblo del Arroyo, Chaco Canyon, New Mexico, by Neil M. Judd. 222 pp., 55 pls., 45 figs. (Publ. 4346.) June 26, 1959. (\$4.50.)
 No. 2. Evolution of arthropod mechanisms, by R. E. Snodgrass. 77 pp., 24 figs. (Publ. 4347.) Nov. 28, 1958. (85 cents.)
 No. 3. Long-range weather forecasting, by C. G. Abbot. 19 pp., 11 figs. (Publ. 4352.) Feb. 16, 1959. (30 cents.)
 No. 4. Birds of the Pleistocene in North America, by Alexander Wetmore. 24 pp. (Publ. 4353.) Jan. 15, 1959. (35 cents.)

Volume 139

- No. 1. The oldest known reptile, *Eosaurus copei* Williston, by Frank E. Peabody. 14 pp., 1 pl., 3 figs. (Publ. 4377.) May 7, 1959. (50 cents.)

SMITHSONIAN ANNUAL REPORTS

REPORT FOR 1957

The complete volume of the Annual Report of the Board of Regents for 1957 was received from the printer on October 10, 1958:

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, 1957. x+499 pp., 74 pls., 32 figs. (Publ. 4314.)

The general appendix contained the following papers (Publ. 4315-4333):

Science, technology, and society, by L. R. Hafstad.

United States Coast and Geodetic Survey, 1807-1957, by Elliott B. Roberts.

Cosmic rays from the sun, by Thomas Gold.

Meteors, by Fred L. Whipple.

The development of the planetarium in the United States, by Joseph Miles Chamberlain.

The development of radio astronomy, by Gerald S. Hawkins.

Jet streams, by R. Lee.

Pollen and spores and their use in geology, by Estella B. Leopold and Richard A. Scott.

The influence of man on soil fertility, by G. V. Jacks.

The land and people of the Guajira Peninsula, by Raymond E. Crist.

The nature of viruses, cancer, genes, and life, by Wendell M. Stanley.

Mystery of the red tide, by F. G. Walton Smith.

The return of the vanishing musk oxen, by Hartley H. T. Jackson.

Bamboo in the economy of Oriental peoples, by F. A. McClure.

Mechanizing the cotton harvest, by James H. Street.

Aniline dyes—their impact on biology and medicine, by Morris C. Leikind.

Causes and consequences of salt consumption, by Hans Kaunitz.

Roman garland sarcophagi from the quarries of Proconnesus (Marmara), by J. B. Ward Perkins.

Stone age skull surgery, by T. D. Stewart.

REPORT FOR 1958

The Report of the Secretary, which will form part of the Annual Report of the Board of Regents to Congress, was issued January 16, 1959:

Report of the Secretary and financial report of the Executive Committee of the Board of Regents for the year ended June 30, 1958. x+232 pp., 14 pls., 1 chart. (Publ. 4345.)

SPECIAL PUBLICATIONS

The gown of Mrs. Dwight D. Eisenhower, by Margaret Brown Klapthor. Supplement to "The Dresses of the First Ladies of the White House," Publ. 4060. 4 pp., 2 pls. [Sept. 26] 1958. (50 cents.)

Anthropology as a career, by William C. Sturtevant. 18 pp. (Publ. 4343.) July 25, 1958. (20 cents.)

List of Smithsonian publications available for distribution June 30, 1958, compiled by Eileen M. McCarthy. 54 pp. (Publ. 4344.) [Oct. 14] 1958.

First book of grasses, by Agnes Chase. Ed. 3, with revisions and additions of color plate and foreword by Leonard Carmichael. xix+127 pp., 1 pl., 94 figs. (Spec. Publ. 4351.) [Feb. 12] 1959. (\$3.)

REPRINTS

Smithsonian Meteorological Tables, Sixth Revised Edition, prepared by Robert J. List. First reprint. Smithsonian Miscellaneous Collections, vol. 114, Publ. 4014. xi+527 pp. [July 24] 1958. (\$4.)

Brief Guide to the Smithsonian Institution. 1958 rev. ed. Spec. Publ. 82 pp., illus. [Nov. 10] 1958. (25 cents.)

PUBLICATIONS OF THE UNITED STATES NATIONAL MUSEUM

The editorial work of the National Museum continued during the year under the immediate direction of John S. Lea, assistant chief of the division. The following publications were issued:

REPORT

The United States National Museum annual report for the year ended June 30, 1958. Pp. iv+150, illus. Jan. 16, 1959.

BULLETINS

193. Supplement 1. Publications of the United States National Museum, January 1947-June 1958. Pp. iii+16. Oct. 8, 1958.

212. Checklist of the millipeds of North America, by Ralph V. Chamberlin and Richard L. Hoffman. Pp. iii+236. Sept. 26, 1958.

214. Review of the parrotfishes, family Scaridae, by Leonard P. Schultz. Pp. v+143, 31 figs., 27 pls. Sept. 16, 1958.

216. Ichneumon-flies of America north of Mexico: 1. Subfamily Metopiinae, by Henry and Marjorie Townes. Pp. ix+318, 196 figs. Mar. 6, 1959.

PROCEEDINGS

Volume 106

Title page, table of contents, and index. Pp. i-vii, 589-615. June 8, 1959.

Volume 107

Title page, table of contents, and index. Pp. i-v, 651-671. May 29, 1959.

Volume 108

- No. 3395. A review of some galerucine beetles with excised middle tibiae in the male, by Doris H. Blake. Pp. 59-101, 6 figs. July 16, 1958.
- No. 3398. A review of the copepod genus *Ridgewayia* (Calanoida) with descriptions of new species from the Dry Tortugas, Florida, by Mildred Stratton Wilson. Pp. 137-179, 37 figs. Aug. 11, 1958.
- No. 3399. Revision of the milliped genus *Pachydesmus* (Polydesmida: Xystodesmidae), by Richard L. Hoffman. Pp. 181-218, 12 figs. Aug. 20, 1958.
- No. 3400. A revision of the eels of the genus *Conger* with descriptions of four new species, by Robert H. Kanazawa. Pp. 219-267, 7 figs., 4 pls. Oct. 6, 1958.
- No. 3401. Three North American Cretaceous fishes, by David H. Dunkle. Pp. 269-277, 3 pls. Oct. 21, 1958.
- No. 3402. Taxonomy and nomenclature of three species of *Lonchura* (Aves: Estrildinae), by Kenneth C. Parkes. Pp. 279-293, 1 fig. Oct. 21, 1958.
- No. 3403. Rhizocephala of the family Peltogastridae parasitic on West Indian species of Galatheidae, by Edward G. Reinhard. Pp. 295-307, fig. 4, 1 pl. Nov. 20, 1958.
- No. 3404. Advances in our knowledge of the honey-guides, by Herbert Friedmann. Pp. 309-320. Oct. 21, 1958.
- No. 3405. Three new serranid fishes, genus *Pikea*, from the western Atlantic, by Leonard P. Schultz. Pp. 321-329, 2 figs. Nov. 17, 1958.
- No. 3406. The status of the lizard *Cnemidophorus perplexus* Baird and Girard (Teiidae), by T. Paul Maslin, Richard G. Beidleman, and Charles H. Lowe, Jr. Pp. 331-345. Dec. 31, 1958.
- No. 3407. Synopsis of the species of agromyzid leaf miners described from North America (Diptera), by Kenneth E. Frick. Pp. 347-465, 170 figs. Mar. 5, 1959.
- No. 3409. Scarab beetles of the genus *Bothynus* in the United States (Coleoptera: Scarabaeidae), by O. L. Cartwright. Pp. 515-541, 6 figs. Mar. 10, 1959.
- No. 3410. A further study of Micronesian polyclad flatworms, by Libby H. Hyman. Pp. 543-597, 17 figs. Mar. 6, 1959.

Volume 109

- No. 3411. A revision of the milliped genus *Brachoria* (Polydesmida: Xystodesmidae), by William T. Keeton. Pp. 1-58, 11 figs. Apr. 14, 1959.
- No. 3413. Notes on Aradidae in the U.S. National Museum (Hemiptera), I. Subfamily Calisiinae, by Nicholas A. Kormilev. Pp. 209-222, 18 figs. Apr. 20, 1959.
- No. 3414. Flies of the genus *Odinia* in the Western Hemisphere (Diptera: Odiniidae), by Curtis W. Sabrosky. Pp. 223-236, 1 pl. May 29, 1959.

SPECIAL PUBLICATIONS

- A handbook for employees. iii+40 pp., 27 figs. Dec. 24, 1958.
- Guard manual and regulations for the guard force. [8]+75 pp. June 1958.

PUBLICATIONS OF THE BUREAU OF AMERICAN ETHNOLOGY

The editorial work of the Bureau continued under the immediate direction of Mrs. Eloise B. Edelen. The following publications were issued:

ANNUAL REPORT

- Seventy-fifth Annual Report of the Bureau of American Ethnology, 1957-1958. ii+36 pp., 5 pls. 1959.

BULLETINS

- Bulletin 168. The Native Brotherhoods: Modern intertribal organizations on the Northwest coast, by Philip Drucker. iv+194 pp. October 1958.
- Bulletin 169. River Basin Surveys Papers Nos. 9-14. ix+392 pp., 73 pls., 13 figs., 9 maps. December 1958.
- No. 9. Archeological investigations in the Heart Butte Reservoir area, North Dakota, by Paul L. Cooper.
- No. 10. Archeological investigations at the Tuttle Creek Dam, Kansas, by Robert B. Cumming, Jr.
- No. 11. The Spain site (39LM301), a winter village in Fort Randall Reservoir, South Dakota, by Carlyle S. Smith and Roger T. Grange, Jr.
- No. 12. The Wilbanks site (9CK-5), Georgia, by William H. Sears.
- No. 13. Historic sites in and around the Jim Woodruff Reservoir area, Florida-Georgia, by Mark F. Boyd.
- No. 14. Six sites near the Chattahoochee River in the Jim Woodruff Reservoir area, Florida, by Ripley P. Bullen.
- Bulletin 170. Excavations at La Venta, Tabasco, 1955, by Philip Drucker, Robert F. Heizer, and Robert J. Squier. With appendixes by Jonas E. Gullberg, Garniss H. Curtis, and A. Starker Leopold. viii+312 pp., 63 pls., 82 figs. March 1959.
- Bulletin 171. The North Alaskan Eskimo: A study in ecology and society, by Robert F. Spencer. vi+490 pp., 9 pls., 2 figs., 4 maps. May 1959.

PUBLICATIONS OF THE ASTROPHYSICAL OBSERVATORY

The editorial work of the Smithsonian Astrophysical Observatory continued under the immediate direction of Ernest E. Biebighauser. The year's publications are as follows:

SMITHSONIAN CONTRIBUTIONS TO ASTROPHYSICS

Volume 2

- No. 11. The statistics of meteors in the earth's atmosphere, by Gerald S. Hawkins and Richard B. Southworth. Pp. 349-364, 5 figs. Aug. 5, 1958.
- No. 12. Granulation and oscillations of the solar atmosphere, by Charles Whitney. Pp. 365-376, 2 figs. July 29, 1958.
- No. 13. Optical properties of Saturn's rings: I. Transmission, by Allan F. Cook, II, and Fred A. Franklin. Pp. 377-383, 3 figs. Nov. 14, 1958.

Volume 3

- No. 1. The regression of the node of the quadrantids, by Gerald S. Hawkins and Richard B. Southworth. Pp. 1-5, 2 figs. Oct. 1, 1958.
- No. 2. Catalogs of meteor radiants, by Gerald S. Hawkins. Pp. 7-8, 3 figs. Sept. 26, 1958.
- No. 3. Papers on the solar constant: "The Constancy of the Solar Constant," by Theodore E. Sterne and Nannielou Dieter, 1 fig.; "On Sterne and Dieter's paper, 'The Constancy of the Solar Constant,'" by C. G. Abbot, 9 figs.; and "The solar constant," by L. B. Aldrich and W. H. Hoover. Pp. 9-24. Dec. 24, 1958.
- No. 4. Some sunspot and flare statistics, by Barbara Bell and Harold Glazer. Pp. 25-38, 3 figs. May 18, 1959.
- No. 5. The Doppler widths of solar absorption lines, by Barbara Bell and Alan Meltzer. Pp. 39-46. May 13, 1959.

PUBLICATIONS OF THE NATIONAL COLLECTION OF FINE ARTS

- Profiles of the time of James Monroe, 1758-1958. 13 pp., 1 pl. (Publ. 4348.) [Oct. 24] 1958.
- Henry Ward Ranger centennial exhibition, 1858-1958. 30 pp., 1 pl. (Publ. 4349.) [Dec. 1] 1958.
- Turn-of-the-century paintings from the William T. Evans collection. 8 pp. [Apr. 23] 1959.
- Smithsonian Institution Traveling Exhibitions, 1959-1960 catalog. 40 pp.

PUBLICATIONS OF THE FREER GALLERY OF ART

- The lohans and a bridge to heaven, by Wên Fong. Occas. Pap., vol. 3, No. 1, 64 pp., 18 pls., 1 fig. (Publ. 4305.) [Aug. 21] 1958. (\$1.00.)
- The Freer Gallery of Art of the Smithsonian Institution. 16 pp., 8 pls., 3 figs. Rev. ed. 1958.

REPORTS OF THE AMERICAN HISTORICAL ASSOCIATION

The annual reports of the American Historical Association are transmitted by the association to the Secretary of the Smithsonian Institution and are by him communicated to Congress, as provided in the act of incorporation of the association. No reports were issued during the year.

REPORT OF THE NATIONAL SOCIETY, DAUGHTERS OF THE AMERICAN REVOLUTION

The manuscript of the 60th Annual Report of the National Society, Daughters of the American Revolution, was transmitted to Congress, in accordance with law, on January 7, 1959.

OTHER ACTIVITIES

During the year the Institution acquired, through a generous gift of the author, the remaining stock of the book "Composition of Scientific Words," by Dr. Roland W. Brown, former geologist of the U.S. Geological Survey. The volume, 882 pages in size, is subtitled "A Manual of Methods and a Lexicon of Materials for the Practice of Logotechnics." Published by the author in 1956, it is now being distributed by the Smithsonian.

The chief of the division continued to represent the Smithsonian Institution on the board of directors of the Greater Washington Educational Television Association, Inc., of which the Institution is a member.

Respectfully submitted.

PAUL H. OEHSER,

Chief, Editorial and Publications Division.

Dr. LEONARD CARMICHAEL,

Secretary, Smithsonian Institution.

Other Activities

LECTURES

In 1931 the Institution received a bequest from James Arthur, of New York City, a part of the income from which was to be used to endow an annual lecture on some aspect of the sun. The 25th Arthur lecture was delivered in the auditorium of the Natural History Building on the evening of October 23, 1958, by Dr. Leo Goldberg, director of the Observatory of the University of Michigan. This illustrated lecture, on the subject "Astronomy from Artificial Satellites," will be published in full in the general appendix of the Annual Report of the Board of Regents of the Smithsonian Institution for 1959.

Dr. Homer A. Thompson, professor of classical archeology, Institute for Advanced Study, Princeton, N.J., delivered a lecture on "Athenian Twilight" in the auditorium of the Natural History Building on the evening of December 2, 1958. This was sponsored jointly by the Smithsonian Institution and the Archaeological Institute of America.

Under the joint sponsorship of the Smithsonian Institution, the Anthropological Society of Washington, and the Netherland-America Foundation, Dr. J. Victor de Bruyn, adviser to the Netherlands Government on New Guinea affairs, lectured on "New Guinea Papuans Today and Tomorrow," on March 4, 1959, in the Natural History Building auditorium.

Grover Loening, aeronautical engineer and manufacturer and member of the advisory board of the National Air Museum, presented a lecture on "Lessons from the History of Flight" in the auditorium of the Natural History Building on May 18, 1959. This lecture is to be published in the general appendix of the Annual Report of the Board of Regents of the Smithsonian Institution for 1959.

H. Alan Lloyd, F.S.A., F.B.H.I., M.B.E., gave a lecture on "Pre-Renaissance Clocks and Their Influence" on May 20, 1959, in the auditorium of the Freer Gallery of Art, under the joint sponsorship of the Smithsonian Institution and the National Association of Watch and Clock Collectors.

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

SMITHSONIAN MUSEUM SERVICE

The Smithsonian Museum Service was established on October 21, 1958. G. Carroll Lindsay was appointed acting curator of the Service on the same date. He had served as assistant curator of ethnology from 1956 to 1957 and as associate curator of cultural history since 1957.

The Museum Service, operating under the Office of the Secretary, acts to coordinate the extension of the museum activities of the Institution with particular attention to the historic development of these activities and their relationship to the development of the entire Institution from its founding to the present time. The activity of the Museum Service includes the administration of Smithsonian cooperation with the volunteer docents of the Junior League of Washington, D.C. A more complete report of this activity for the 1958-59 season is carried in the report of the U.S. National Museum.

The Museum Service also provided assistance to professional and subprofessional individuals and groups visiting the museums of the Institution. Arrangements were made through the Museum Service for Smithsonian participation in the Joint Workshop on Use of Community Resources sponsored by the University of Maryland and George Washington University. Through the facilities of this workshop a 5-day program outlining the history of the Institution and the work of the various Smithsonian museum and research bureaus was presented to 41 graduate students from the participating universities. Assistance was also rendered to other college and university groups visiting the Institution, and to individuals from the United States and abroad, visiting or planning to visit the Smithsonian in a professional capacity.

The Museum Service carried out the arrangements for various Smithsonian public functions and events, including lectures and the opening of the new halls and exhibits. Mailing lists for invitations to these functions and events of the Institution were enlarged and reorganized, and the Smithsonian *Calendar of Events*, a monthly listing of exhibit openings, lectures, and other special events of the Institution, was prepared and distributed.

BIO-SCIENCES INFORMATION EXCHANGE

The Bio-Sciences Information Exchange, an agency operated under the Smithsonian Institution but financed by other Government agencies, is a clearinghouse for research in the life sciences.

Abstracts of current research are registered by investigators engaged in biological, medical, and psychological research and in limited aspects of research in the social sciences. Through an extensive system of subject indexing, these abstracts are provided upon request and

without charge to researchers in research institutions. Through this simple mechanism, the Exchange maintains a communication system which precedes publication and prevents unknowing duplication. For granting agencies and properly constituted committees it prepares extensive surveys of research in broad areas.

Owing to the worldwide interest in scientific information and to the increased funds for research in the bio-sciences, the Exchange has been authorized to install an electronic computer. During the year arrangements for the purchase of the machine and initial plans for its operation have been completed.

The Department of Defense has joined the other Federal agencies supporting the Exchange and has appointed Dr. Orr E. Reynolds, director, Office of Science, Office of the Director of Research and Engineering, as its representative on the governing board.

AVIATION EDUCATION INSTITUTE

The Institution cooperated with American University in conducting the First Aviation Education Institute for Science Teachers at the National Air Museum during the period July 1 to August 8, 1958. The project was made possible by a grant from the Link Foundation. Five teachers from the Washington, D.C., area completed the 6-week course and received university credits. The Aviation Education Institute is conducted at the Smithsonian's National Air Museum because of the unique facilities there, which include the National Aeronautical Collections, a wealth of historical information in the Museum's library and reference files, and the research guidance offered by Director Philip S. Hopkins and his curatorial staff.

Report of the Executive Committee of the Board of Regents of the Smithsonian Institution

For the Year Ended June 30, 1959

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 INSTITUTION

PARENT FUND

The original bequest of James Smithson was £104,960 8s 6d—\$508,318.46. Refunds of money expended in prosecution of the claim, freight, insurance, and other incidental expenses, together with payment into the fund of the sum of £5,015, which had been withheld during the lifetime of Madame de la Batut, brought the fund to the amount of \$550,000.

The gift of James Smithson was "lent to the United States Treasury, at 6 per centum per annum interest" (20 USC. 54) and by the Act of March 12, 1894 (20 USC. 55) the Secretary of the Treasury was "authorized to receive into the Treasury, on the same terms as the original bequest of James Smithson, such sums as the Regents may, from time to time see fit to deposit, not exceeding, with the original bequest the sum of \$1,000,000."

The maximum of \$1,000,000 which the Smithsonian Institution was authorized to deposit in the Treasury of the United States was reached on January 11, 1917, by the deposit of \$2,000.

Under the above authority the amounts shown below are deposited in the United States Treasury and draw 6 percent interest:

	<i>Unrestricted funds</i>	<i>Income</i>
James Smithson.....	\$727, 640	\$43, 658. 40
Avery	14, 000	840. 00
Habel	500	30. 00
Hamilton	2, 500	150. 00
Hodgkins (general)	116, 000	6, 960. 00
Poore	26, 670	1, 600. 20
Rhees	590	35. 40
Sanford	1, 100	66. 00
	<hr/>	<hr/>
Total	889, 000	53, 340. 00

	<i>Restricted funds</i>	<i>Income</i>
Hodgkins (specific) -----	\$100,000	\$6,000.00
Reid -----	11,000	660.00
	<hr/>	<hr/>
Total -----	111,000	6,660.00
	<hr/>	<hr/>
Grand total -----	1,000,000	60,000.00

In addition to the \$1,000,000 deposited in the Treasury of the United States there has been accumulated from income and bequests the sum of \$3,658,636.78 which has been invested and is carried on the books of the Institution as the Consolidated Fund, a policy approved by the Regents at their meeting on December 14, 1916.

CONSOLIDATED FUND

(Income for the unrestricted use of the Institution)

Fund	Investment 1959	Income 1959
Abbott, W. L., special-----	\$20,443.51	\$1,036.06
*Avery, Robert S., and Lydia-----	54,200.83	2,746.89
Gifts, royalties, gain on sale of securities-----	378,877.09	19,201.73
Hachenberg, George P., and Caroline-----	5,518.63	279.71
*Hamilton, James-----	553.91	28.07
Hart, Gustavus E.-----	668.36	17.16
Henry, Caroline-----	1,659.55	84.12
Henry, Joseph, and Harriet A.-----	67,265.84	3,409.04
*Hodgkins, Thomas G. (general)-----	41,567.14	2,106.63
Morrow, Dwight W.-----	106,110.34	5,377.69
Olmsted, Helen A.-----	1,099.40	55.73
*Poore, Lucy T., and George W.-----	223,330.00	11,207.69
Porter, Henry Kirke-----	392,988.77	19,916.85
*Rhees, William Jones-----	649.21	32.91
*Sanford, George H.-----	1,221.51	61.92
*Smithson, James-----	1,675.21	84.90
Witherspoon, Thomas A.-----	177,082.45	8,974.62
Total-----	<hr/> \$1,474,911.75	<hr/> \$74,621.72

*In addition to funds deposited in the United States Treasury.

CONSOLIDATED FUND

(Income restricted to specific use)

Fund	Investment 1959	Income 1959
Abbott, William L., for investigations in biology-----	\$143,272.84	\$7,254.54
Arthur, James, for investigations and study of the sun and annual lecture on same-----	54,878.86	2,781.31
Bacon, Virginia Purdy, for traveling scholarship to investigate fauna of countries other than the United States-----	68,748.24	3,484.16
Baird, Lucy H., for creating a memorial to Secretary Baird-----	33,038.26	1,674.39
Barney, Alice Pike, for collection of paintings and pastels and for encourage- ment of American artistic endeavor-----	39,356.91	1,994.65
Barstow, Frederick D., for purchase of animals for Zoological Park-----	1,371.87	69.51

CONSOLIDATED FUND—Continued

Fund	Investment 1959	Income 1959
Canfield Collection, for increase and care of the Canfield collection of minerals.	\$52,482.58	\$2,659.86
Casey, Thomas L., for maintenance of the Casey collection and promotion of researches relating to Coleoptera.....	17,199.81	871.72
Chamberlain, Francis Lea, for increase and promotion of Isaac Lea collection of gems and mollusks.....	38,641.81	1,958.36
Dykes, Charles, for support in financial research.....	59,084.00	2,994.10
Eickemeyer, Florence Brevoort, for preservation and exhibition of the photographic collection of Rudolph Eickemeyer, Jr.....	14,915.03	755.93
Hanson, Martin Gustav and Caroline Runice, for some scientific work of the Institution, preferably in chemistry or medicine.....	12,198.67	618.21
Higbee, Harry, Memorial Fund, for general use of the Institution after the period of ten years from date of gift (1957).....	763.94	36.81
Hillyer, Virgil, for increase and care of Virgil Hillyer collection of lighting objects.....	9,018.34	457.04
Hitchcock, Albert S., for care of the Hitchcock Agrostological Library.....	2,165.26	109.75
Hrdlička, Aleš and Marie, to further researches in physical anthropology and publication in connection therewith.....	59,259.98	2,858.46
Hughes, Bruce, to found Hughes alcove.....	26,265.73	1,331.15
Loeb, Morris, for furtherance of knowledge in the exact sciences.....	119,591.06	6,060.94
Long, Annette and Edith C., for upkeep and preservation of Long collection of embroideries, laces, and textiles.....	745.07	37.74
Maxwell, Mary E., for care and exhibition of Maxwell collection.....	26,914.61	1,364.06
Myer, Catherine Walden, for purchase of first-class works of art for use and benefit of the National Collection of Fine Arts.....	27,717.08	1,404.72
Nelson, Edward W., for support of biological studies.....	30,515.84	1,546.55
Noyes, Frank B., for use in connection with the collection of dolls placed in the U.S. National Museum through the interest of Mr. and Mrs. Noyes.....	1,318.33	66.81
Pell, Cornelia Livingston, for maintenance of Alfred Duane Pell collection.....	10,171.36	515.48
Petrocelli, Joseph, for the care of the Petrocelli collection of photographic prints and for the enlargement and development of the section of photography of the U.S. National Museum.....	10,172.28	346.62
Rathbun, Richard, for use of division of U.S. National Museum containing Crustacea.....	14,594.68	739.66
*Reid, Addison T., for founding chair in biology, in memory of Asher Tunis.	24,468.96	1,237.04
Roebbling Collection, for care, improvement, and increase of Roebbling collection of minerals.....	165,608.24	8,393.11
Roebbling Solar Research.....	31,633.91	1,982.79
Rollins, Miriam and William, for investigations in physics and chemistry...	180,655.59	8,929.44
Smithsonian employees' retirement.....	33,368.40	1,722.74
Springer, Frank, for care and increase of the Springer collection and library...	24,607.44	1,247.14
Strong, Julia D., for benefit of the National Collection of Fine Arts.....	13,719.89	695.31
Walcott, Charles D. and Mary Vaux, for development of geological and paleontological studies and publishing results of same.....	657,407.55	33,444.26
Walcott, Mary Vaux, for publications in botany.....	79,429.98	4,025.53
Younger, Helen Walcott, held in trust.....	97,121.02	4,692.96
Zerbee, Frances Brincklé, for endowment of aquaria.....	1,301.61	65.98
Total.....	\$2,183,725.03	\$110,428.83

*In addition to funds deposited in the United States Treasury.

FREER GALLERY OF ART FUND

Early in 1906, by deed of gift, Charles L. Freer, of Detroit, gave to the Institution his collection of Chinese and other Oriental objects of art, as well as paintings, etchings, and other works of art by Whistler, Thayer, Dewing, and other artists. Later he also gave funds for construction of a building to house the collection, and

finally in his will, probated November 6, 1919, he provided stocks and securities to the estimated value of \$1,958,591.42, as an endowment fund for the operation of the Gallery. The fund now amounts to \$8,902,456.42.

SUMMARY OF ENDOWMENTS

Invested endowment for general purposes.....	\$2, 294, 725. 03
Invested endowment for specific purposes other than Freer endowment	2, 363, 911. 75
Total invested endowment other than Freer.....	4, 658, 636. 78
Freer invested endowment for specific purposes.....	8, 902, 456. 42
Total invested endowment for all purposes.....	13, 561, 093. 20

CLASSIFICATION OF INVESTMENTS

Deposited in the U.S. Treasury at 6 percent per annum, as authorized in the U.S. Revised Statutes, sec. 5591.....	\$1, 000, 000. 00
Investments other than Freer endowment (cost or market value at date acquired) :	
Bonds	\$1, 498, 643. 09
Stocks	2, 142, 849. 59
Real estate and mortgages.....	5, 756. 00
Uninvested capital.....	11, 388. 10
Total investments other than Freer endowment.....	3, 658, 636. 78
Investments of Freer endowment (cost or market value at date acquired) :	
Bonds	\$5, 258, 223. 18
Stocks	3, 642, 181. 72
Uninvested capital.....	2, 051. 52
Total investments.....	8, 902, 456. 42
Total investments.....	13, 561, 093. 20

ASSETS

Cash :	
United States Treasury current account.....	\$1, 317, 923. 50
In banks and on hand.....	313, 938. 41
	1, 631, 861. 91
Less uninvested endowment funds.....	13, 439. 62
	\$1, 618, 422. 29
Travel and other advances.....	4, 426. 77
Cash invested (U.S. Treasury notes).....	1, 328, 878. 18
	\$2, 951, 727. 24

ASSETS—Continued

Investments—at book value:

Endowment funds:

Freer Gallery of Art:

Stocks and bonds----- \$8,900,404.90

Uninvested cash----- 2,051.52

\$8,902,456.42

Investments at book value other than Freer:

Stocks and bonds (Consolidated Fund)----- 3,543,261.44

Uninvested cash----- 11,388.10

Special deposit in U.S.

Treasury at 6 percent interest----- 1,000,000.00

Other stocks and bonds-- 98,231.24

Real estate and mortgages----- 5,756.00

4,658,636.78

\$13,561,093.20

16,512,820.44

UNEXPENDED FUNDS AND ENDOWMENTS

Unexpended funds:

Income from Freer Gallery of Art endowment----- \$568,658.87

Income from other endowments:

Restricted----- \$442,629.88

General----- 467,271.34

909,901.22

Gifts and contributions----- 1,473,167.15

2,951,727.24

Endowment funds:

Freer Gallery of Art----- \$8,902,456.42

Other:

Restricted----- 2,294,725.03

General----- 2,363,911.75

13,561,093.20

Total----- 16,512,820.44

CASH BALANCES, RECEIPTS, AND DISBURSEMENTS DURING FISCAL YEAR 1959 ¹

	Restricted funds		Unrestricted funds	Gifts and grants	Total
	General	Freer			
RECEIPTS:					
Income from investments:					
Freer fund.....		\$388,886.44			\$388,886.44
Consolidated fund.....	\$96,817.32		\$74,677.90		171,495.22
Loan to U.S. Treasury.....	6,660.00		53,340.00		60,000.00
Real estate and mortgages.....	326.78				326.78
Special funds—stocks and bonds.....	4,950.96		34,434.37		39,385.33
Total income from investments.....	108,755.06	388,886.44	162,452.27		660,093.77
Publications.....	2,002.13	10,887.09	75,376.24	\$912.70	89,178.16
Research grant income.....			46,883.38		46,883.38
Special gifts and fees:					
Gifts and contributions.....	10,120.00	5,000.00	222.05		15,342.05
Special service fees.....	174.71	101.04	14,413.55	105,180.29	119,869.59
Refund of advances.....			6,318.00		6,318.00
Employees' withholdings (net).....			594.18		594.18
Total special gifts and fees.....	10,294.71	5,101.04	21,547.78	105,180.29	142,123.82
Reinvestment (required by provision of donor).....	7,955.07		2,185.47		10,140.54
Gifts and grants ²				2,668,368.36	2,668,368.36
Total income.....	129,006.97	404,874.57	308,445.14	2,774,461.35	3,616,788.03
Sales of securities:					
Endowment funds:					
Freer fund.....		2,217,664.19			2,217,664.19
Consolidated fund.....	321,900.75		175,627.45		497,528.20
Other stocks and bonds.....	25,822.26				25,822.26
Total endowment funds sales.....	347,723.01	2,217,664.19	175,627.45		2,741,014.65
Investment of current funds in U.S. Government bonds.....			190,000.00		190,000.00
Total receipts.....	476,729.98	2,622,538.76	674,072.59	2,774,461.35	6,547,802.68
DISBURSEMENTS:					
Administrative salaries.....		34,360.45	87,843.80		122,204.25
Other salaries.....	7,812.66	133,888.80			141,701.46
Total salaries.....	7,812.66	168,249.25	87,843.80		263,905.71
Purchases for collection.....	28,322.76	220,268.00	1,439.50		250,030.26
Research and explorations and related administrative expense:					
Salaries ³			32,426.58	1,042,473.72	1,074,900.30
Travel.....	1,762.81	4,019.29	2,992.22		8,774.32
Equipment and supply.....	416.27		8,387.37		8,803.64
Other ³	2,295.15		8,513.11	1,252,423.78	1,263,232.04
Total research and explorations and related administrative expense.....	4,474.23	4,019.29	52,319.28	2,294,897.50	2,355,710.30
Publications.....	7,774.93	5,505.47	74,969.17		88,249.57

¹ This statement does not include Government appropriations under administrative charge of the Institution.

² Includes receipts for IGY program.

³ Includes disbursements for IGY program.

CASH BALANCES, RECEIPTS, AND DISBURSEMENTS DURING FISCAL
YEAR 1959¹—Continued

	Restricted funds -		Unre- stricted funds	Gifts and grants	Total
	General	Freer			
DISBURSEMENTS—Continued					
Buildings, equipment, and grounds:					
Buildings and installations.....		\$10,058.53	\$1,079.80		\$11,138.33
Court and grounds maintenance.....		306.54			306.54
Technical laboratory.....		385.28			385.28
Total buildings, equipment, and grounds.....		10,750.35	1,079.80		11,830.15
Contractual services:					
Custodian and legal fees.....	\$5,649.84	11,852.36	4,301.05		21,803.25
Supplies and expenses:					
Meetings, special exhibits.....		8,529.48	6,018.12		14,547.60
Lectures.....	430.12	1,128.10			1,558.22
Photographs and reproductions.....		5,271.12	415.05		5,686.17
Library.....		2,847.31	1,111.02		3,958.33
Stationery and office supplies.....			175.17		175.17
Postage, telephone, and telegraph.....			467.00		467.00
Stamp machines.....			1,831.00		1,831.00
Total supplies and expenses.....	430.12	17,776.01	10,017.36		28,223.49
Total expenses.....	54,464.54	438,420.73	231,969.96	\$2,294,897.50	3,019,752.73
Purchases of securities:					
Endowment funds:					
Freer fund.....		2,231,471.33			2,231,471.33
Consolidated fund.....	342,455.07		186,841.79		529,296.86
Other stocks and bonds.....	25,608.39				25,608.39
Total endowment funds.....	368,063.46	2,231,471.33	186,841.79		2,786,376.58
Investment of current funds in U.S. Government bonds.....			189,986.70		189,986.70
Total disbursements.....	422,528.00	2,669,892.06	608,798.45	2,294,897.50	5,996,116.01
Excess receipts over disbursements.....	54,201.98	(47,353.30)	65,274.14	479,563.85	551,686.67
Cash balance June 30, 1958.....					1,080,175.24
Cash balance June 30, 1959.....					1,631,861.91

The practice of maintaining savings accounts in several of the Washington banks and trust companies has been continued during the past year, and interest on these deposits amounted to \$7,501.11.

Deposits are made in banks for convenience in collection of checks, and later such funds are withdrawn and deposited in the United States Treasury. Disbursement of funds is made by check signed by the Secretary of the Institution and drawn on the United States Treasury.

The Institution gratefully acknowledges gifts and grants from the following:

- American Council of Learned Societies, gift to defray travel expenses of Dr. Ralph Solecki to visit Paris to assist in the preparation of an international manual on salvage archeology.
- American Institute of Biological Sciences, gift to defray travel expenses of Dr. Ernest A. Lachner.
- Atomic Energy Commission, additional grants for the purpose of conducting a biochemical investigation of photomorphogenesis in green plants.
- Anonymous donor, gift to establish the "Special Astrophysical Observatory Fund."
- Anonymous donor, gift for the repair and maintenance of a coach.
- Bredin, Mr. and Mrs. J. Bruce, additional gift for the Smithsonian-Bredin Expeditions Fund.
- Carter Oil Company, additional grant for a research project on echinoid spines.
- Chase, Mrs. Agnes, additional gift for copying the index to grass names.
- Department of the Air Force, additional grants for research entitled "Study of Atmospheric Entry and Impact of High Velocity Meteorites."
- Department of the Air Force, additional grants for research directed toward the study of the rate of accretion of interplanetary matter by the earth.
- Department of the Army, grants for research entitled "Procurement of Satellite Tracking and Orbit Determination Program."
- Fénykövi, J. J., gift for the unrestricted use of the Smithsonian Institution.
- Hart, Gustavus E., bequest for the diffusion of useful knowledge among men and especially for the prevention of disease in human beings.
- Henderson, E. P., gift to establish the "Meteorite Fund."
- Kevoorkian, H., grant to the Freer Gallery of Art.
- Link, E. A., additional gift for historical research (marine archeology).
- Link Foundation, gift to be used for special publications dealing with aviation and the Smithsonian Institution collections.
- Likens, W. H., gift for the Smithsonian Institution's unrestricted funds.
- Fred Maytag Family Foundation, gift for historical research (marine archeology).
- National Geographic Society, additional grant to complete the excavations and related work at the archeological site in Jackson County, Alabama.
- National Geographic Society, grant for an expedition to British Guiana for the purpose of collecting live specimens of the hoatzin and other birds and mammals.
- National Science Foundation, additional grant for the support of research entitled "Studies of Type Specimen of Ferns."
- National Science Foundation, additional grant for the support of research entitled "Monographic Studies of Tingidae and Presmidae (Hemiptera)."
- National Science Foundation, grant for the support of research entitled "Systematic Studies of South American Microlepidoptera."
- National Science Foundation, grant for the support of research entitled "Aboriginal History of the Peruvian Coast."
- National Science Foundation, additional grant for the support of research entitled "Monograph of Fresh Water Calanoid Copepods."
- National Science Foundation and National Aeronautics and Space Administration, grants for an optical tracking and scientific analysis program for the United States earth satellite program.
- National Science Foundation, additional grant for the support of research entitled "Morphology and Paleoecology of Permian Brachiopods."
- National Science Foundation, grant for the support of research entitled "Taxonomic Study of the Phanerogams of Colombia."

- National Science Foundation, grant for the support of research entitled "Data Reduction-Earth Albedo Observations During the International Geophysical Year Meteorology Program."
- National Science Foundation, grant for the support of research on the metabolic aspects of the digestion of wax.
- National Science Foundation, grant for the support of research entitled "Seminole Culture."
- National Science Foundation, grant for the support of research entitled "Prehistoric Man in Shanidar Valley."
- National Science Foundation, additional grant for the support of research entitled "Taxonomy of the Bamboos."
- Office of Naval Research, additional grants to perform psychological research studies.
- Office of Naval Research, additional grant to perform aeronautical research studies.
- Office of Naval Research, additional grants to provide expert consultants to advise the Navy Research Advisory Committee.
- Office of Naval Research, additional grant to assist work in progress on the preparation of a synoptic catalog of the mosquitoes of the world.
- Office of Naval Research, grants to conduct studies of helminth parasites of Egypt and other Middle Eastern areas.
- Petrocelli, Mrs. Mary O., bequest to establish the "Joseph Petrocelli Memorial Fund."
- Research Corporation, grant for the support of research entitled "Spectrophotometric Investigation of the Photomorphogenic Pigment System."
- Rocca, B. T., gift for the unrestricted use of the Smithsonian Institution.
- Snyderman, I., gift to establish the "Numismatic Fund."
- St. Petersburg Shell Club, gift to defray expenses of Dr. Harald Rehder in connection with travel to St. Petersburg.
- United States Department of Agriculture, grant for the preparation of a catalog of mosquitoes.
- University of the State of New York, gift to defray travel expenses of Dr. Herbert Friedmann while attending the conference on Systematic Museums as Resources for Basic Research.
- Wenner-Gren Foundation, grant to aid participation in celebration of Hrdlička 90th Anniversary, Prague, 1959.
- For support of the Bio-Sciences Information Exchange :
- Atomic Energy Commission.
 - Department of the Air Force.
 - Department of the Army.
 - Department of the Navy.
 - National Science Foundation.
 - Public Health Service.
 - Veterans Administration.

Included in the above list of gifts and contributions are reimbursable contracts.

The foregoing report relates only to the private funds of the Institution.

The following appropriations were made by Congress for the Government bureaus under the administrative charge of the Smithsonian Institution for the fiscal year 1959 :

Salaries and Expenses.....	\$7, 587, 800. 00
National Zoological Park.....	953, 800. 00

The appropriation made to the National Gallery of Art (which is a bureau of the Smithsonian Institution) was \$1,790,100.00.

In addition, funds were transferred from other Government agencies for expenditure under the direction of the Smithsonian Institution as follows:

Working Funds, transferred from the National Park Service, Interior Department, for archeological investigations in river basins throughout the United States.....	\$162, 000. 00
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The Institution also administers a trust fund for partial support of the Canal Zone Biological Area, located on Barro Colorado Island in the Canal Zone.

AUDIT

The report of the audit of the Smithsonian Private Funds follows:

WASHINGTON, D. C., *September 28, 1959.*

THE BOARD OF REGENTS,

SMITHSONIAN INSTITUTION, *Washington 25, D.C.*

We have examined the statement of private funds of Smithsonian Institution as of June 30, 1959 and the related statement of private funds cash receipts and disbursements for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

Land, buildings, furniture, equipment, works of art, living and other specimens and certain sundry property are not included in the accounts of the Institution; likewise, the accompanying statements do not include the National Gallery of Art and other departments, bureaus, and operations administered by the Institution under Federal appropriations. The accounts of the Institution are maintained on the basis of cash receipts and disbursements, with the result that the accompanying statements do not reflect income earned but not collected or expenses incurred but not paid.

In our opinion, subject to the matters referred to in the preceding paragraph, the accompanying statement of private funds presents fairly the assets, unexpended funds and endowments of the private funds of Smithsonian Institution at June 30, 1959; further, the accompanying statement of private funds cash receipts and disbursements, which has been prepared on a basis consistent with that of the preceding year, presents fairly the cash transactions of the private funds for the year then ended.

PEAT, MARWICK, MITCHELL & Co.

Respectfully submitted.

/s/ ROBERT V. FLEMING
 /s/ CLARENCE CANNON
 /s/ CARYL P. HASKINS

Executive Committee.

SMITHSONIAN INSTITUTION LIBRARIES



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