

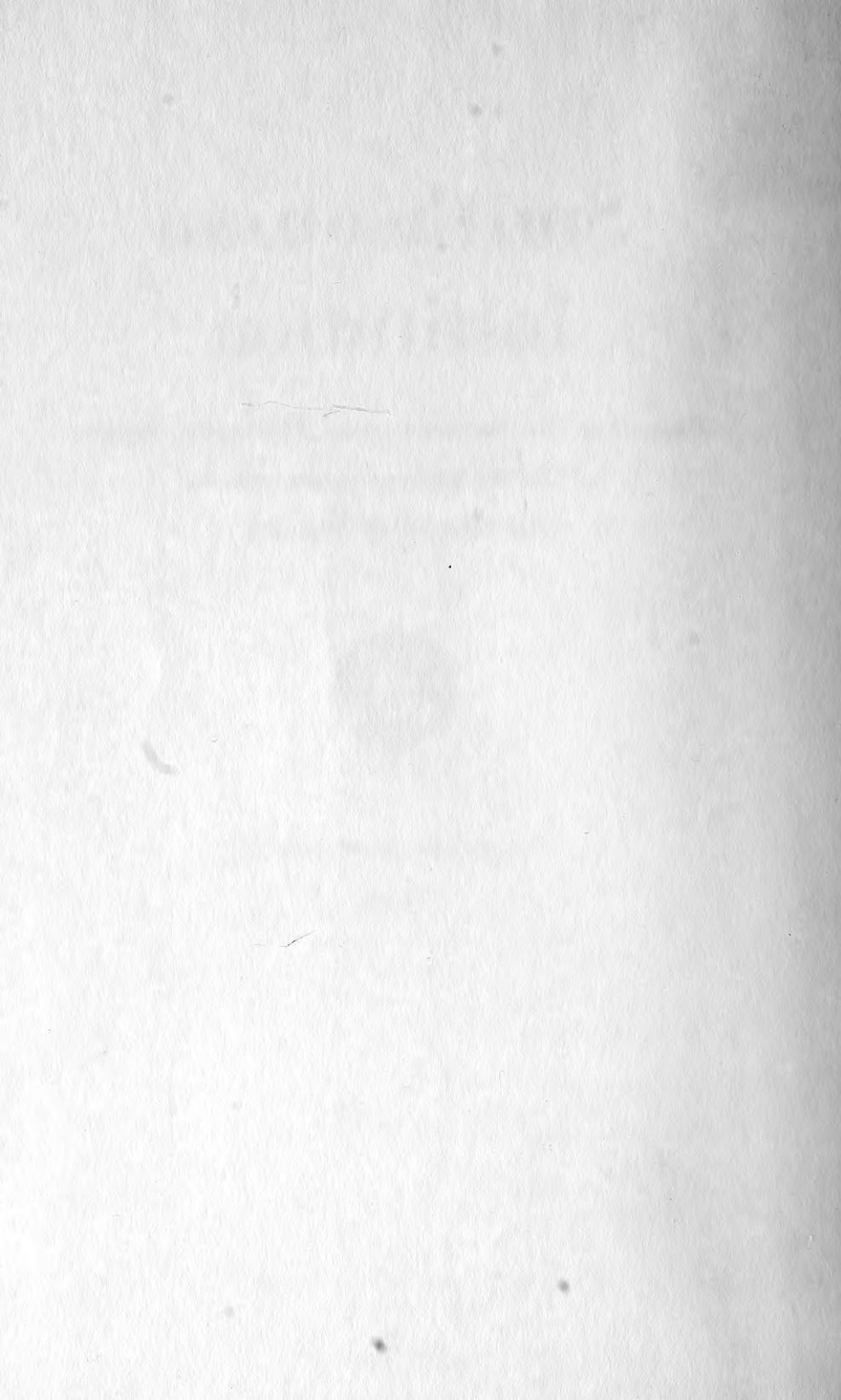
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# Smithsonian Institution

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



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# Smithsonian Institution

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



*For the year ended June 30*

1956

Smithsonian Institution

Report of the Secretary of the Smithsonian Institution  
for the year 1955

**Smithsonian Publication 4268**

UNITED STATES  
GOVERNMENT PRINTING OFFICE  
WASHINGTON : 1956

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# THE SMITHSONIAN INSTITUTION

June 30, 1956

*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.

JOHN FOSTER DULLES, Secretary of State.

GEORGE M. HUMPHREY, Secretary of the Treasury.

CHARLES E. WILSON, Secretary of Defense.

HERBERT BROWNELL, Jr., Attorney General.

ARTHUR E. SUMMERFIELD, Postmaster General.

FRED A. SEATON, Secretary of the Interior.

EZRA TAFT BENSON, Secretary of Agriculture.

SINCLAIR WEEKS, Secretary of Commerce.

JAMES P. MITCHELL, Secretary of Labor.

MARION B. FOLSOM, 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.

LEVERETT SALTONSTALL, Member of the Senate.

H. ALEXANDER SMITH, Member of the Senate.

OVERTON BROOKS, Member of the House of Representatives.

CLARENCE CANNON, Member of the House of Representatives.

JOHN M. VORYS, Member of the House of Representatives.

ARTHUR H. COMPTON, citizen of Missouri.

EVERETTE L. DEGOLYER, citizen of Texas.

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. E. GRAF, J. L. KEDDY.

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

*Treasurer.*—T. F. CLARK.

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

*Librarian.*—MRS. LEILA F. CLARK.

*Superintendent of buildings and grounds.*—L. L. OLIVER.

*Chief, personnel division.*—J. B. NEWMAN.

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

*Chief, photographic laboratory.*—F. B. KESTNER.

## UNITED STATES NATIONAL MUSEUM

*Director.*—A. REMINGTON KELLOGG.

*Assistant Director.*—F. A. TAYLOR.

*Planning officer.*—J. C. EWERS.

*Chief exhibits specialist.*—J. E. ANGLIM.

*Chief exhibits preparator.*—W. L. BROWN.

*Registrar.*—HELENA M. WEISS.

## DEPARTMENT OF ANTHROPOLOGY:

F. M. Setzler, head curator.

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

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

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

## DEPARTMENT OF ZOOLOGY:

W. L. Schmitt, head curator.

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

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

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

*Division of Fishes:* L. P. Schultz, curator; E. A. Lachner, associate curator.

*Division of Insects:* J. F. G. Clarke, curator; O. L. Cartwright, W. D. Field, Grace E. Gance, associate curators.

*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:* A. C. Smith, curator; E. C. Leonard, L. B. Smith, E. H. Walker, Velva E. Rudd, associate curators.

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

*Division of Grasses:* Ernest R. Sohns, associate curator.

*Division of Cryptogams:* C. V. Morton, acting curator; P. S. Conger, associate curator.

## DEPARTMENT OF GEOLOGY:

G. A. Cooper, acting head curator; J. H. Benn, museum geologist.

*Division of Mineralogy and Petrology:* G. S. Switzer, E. P. Henderson, associate curators.

*Division of Invertebrate Paleontology and Paleobotany:* G. A. Cooper, curator; A. R. Loeblich, Jr., David Nicol, associate curators.

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

## DEPARTMENT OF ENGINEERING AND INDUSTRIES:

R. P. Multhauf, acting head curator.

*Division of Engineering:* R. P. Multhauf, curator.

Section of Civil and Mechanical Engineering: R. P. Multhauf, in charge.

Section of Tools: R. P. Multhauf, in charge.



## DEPARTMENT OF ENGINEERING AND INDUSTRIES—Continued

*Division of Engineering—Continued*

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

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

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

Section of Horology: S. H. Oliver, associate curator.

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

*Division of Crafts and Industries:* W. N. Watkins, curator; E. C. Kendall, associate curator.

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

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

Section of Manufactures: E. C. Kendall, associate curator.

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

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

*Division of Graphic Arts:* Jacob Kainen, curator.

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

## DEPARTMENT OF HISTORY:

M. L. Peterson, acting head curator.

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

*Division of Civil History:* Mrs. Margaret W. Brown Klapthor, associate curator.

*Division of Numismatics:* M. L. Peterson, acting curator.

*Division of Philately:* F. R. Bruns, Jr., associate curator.

## BUREAU OF AMERICAN ETHNOLOGY

*Director.*—M. W. STIRLING.

*Associate Director.*—F. H. H. ROBERTS, Jr.

*Anthropologist.*—H. B. COLLINS, Jr.

*Ethnologist.*—W. C. STURTEVANT.

RIVER BASIN SURVEYS.—F. H. H. ROBERTS, Jr., *Director*.

## ASTROPHYSICAL OBSERVATORY

*Director.*—F. L. WHIPPLE.

*Assistant Director.*—J. S. RINEHART.

*Table Mountain, Calif., field station.*—F. A. GREELEY, A. G. FROLAND, S. L. ALDRICH, physicists.

## DIVISION OF RADIATION AND ORGANISMS:

*Chief.*—R. B. WITHROW.

*Plant physiologists.*—W. H. KLEIN, MRS. ALICE P. WITHROW, LEONARD PRICE, V. B. ELSTAD, C. C. MOH.

*Biochemist.*—J. B. WOLFF.

## NATIONAL COLLECTION OF FINE ARTS

*Director.*—T. M. BEGGS.

*Curator of ceramics.*—P. V. GARDNER.

*Chief, Smithsonian Traveling Exhibition Service.*—MRS. ANNEMARIE H. POPE.

## FREER GALLERY OF ART

*Director.*—A. G. WENLEY.

*Assistant Director.*—J. A. POPE.

*Assistant to the Director.*—B. A. STUBBS.

*Associate in Near Eastern art.*—RICHARD ETTINGHAUSEN.

*Associate in technical research.*—R. J. GETTENS.

*Assistant in research.*—H. P. STERN.

## NATIONAL AIR MUSEUM

*Advisory Board:*

LEONARD CARMICHAEL, *Chairman.*

Maj. Gen. JOHN P. DOYLE, *U. S. Air Force.*

Rear Adm. JAMES S. RUSSELL, *U. S. Navy.*

GROVER LOENING.

*Head curator.*—P. E. GARBER.

*Associate curator.*—W. M. MALE.

## NATIONAL ZOOLOGICAL PARK

*Director.*—W. M. MANN.

*Assistant Director.*—E. P. WALKER.

*Veterinarian.*—T. H. REED.

## CANAL ZONE BIOLOGICAL AREA

*Resident Naturalist.*—C. B. KOFORD.

## INTERNATIONAL EXCHANGE SERVICE

*Chief.*—D. G. WILLIAMS.

## NATIONAL GALLERY OF ART

*Trustees:*

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

JOHN FOSTER DULLES, Secretary of State.

GEORGE M. HUMPHREY, 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. LAMMOT BELIN.

*Secretary-Treasurer.*—HUNTINGTON CAIRNS.

*Director.*—JOHN WALKER.

*Administrator.*—ERNEST R. FEIDLER.

*General Counsel.*—HUNTINGTON CAIRNS.

*Chief Curator.*—(vacancy).

*Assistant Director.*—MACGILL JAMES.

*Honorary Research Associates, Collaborators, and Fellows*

## Anthropology

Mrs. Arthur M. Greenwood  
N. M. Judd  
T. W. McKern

Betty J. Meggers  
W. W. Taylor, Jr.  
W. J. Tobin

## Zoology

Paul Bartsch, Mollusks  
A. G. Böving  
L. L. Buchanan, Coleoptera  
M. A. Carriker, Insects  
R. S. Clark, Zoology  
R. A. Cushman, Hymenoptera  
D. C. Graham, Biology  
C. T. Greene, Diptera  
A. B. Howell, Mammals  
W. L. Jellison, Insects  
W. M. Mann, Hymenoptera

J. P. Moore, Marine Invertebrates  
C. F. W. Muesebeck, Insects  
Benjamin Schwartz, Helminthology  
Mrs. Harriet Richardson Searle, Marine  
Invertebrates  
C. R. Shoemaker  
R. E. Snodgrass, Insects  
Alexander Wetmore, Birds  
Mrs. Mildred S. Wilson, Copepod  
Crustacea

## Botany

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

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

## Geology

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

Mrs. Helen N. Loeblich, Invertebrate  
Paleontology  
S. H. Perry, Mineralogy  
J. B. Reeside, Jr., Invertebrate Paleon-  
tology  
W. T. Schaller, Mineralogy

## Engineering and Industries

F. L. Lewton, Crafts and Industries

## History

P. A. Straub, Numismatics

## Bureau of American Ethnology

Frances Densmore  
J. P. Harrington  
R. F. Heizer  
Sister M. Inez Hilger

R. S. Solecki  
R. J. Squier  
J. R. Swanton  
A. J. Waring, Jr.

## Astrophysical Observatory

C. G. Abbot

## Freer Gallery of Art

Grace Dunham Guest  
Max Loehr

Katherine N. Rhoades

## Canal Zone Biological Area

C. C. Soper

James Zetek



# Report of the Secretary of the Smithsonian Institution

LEONARD CARMICHAEL

For the Year Ended June 30, 1956

*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, 1956.

## GENERAL STATEMENT

Botanists have learned in their study of the rings in the cross sections of trees that all years are not equally favorable for growth. When sun and moisture are just right, development is best. In the life of the Smithsonian Institution, the one hundred and tenth ring, which is covered by this report, shows what is probably an unparalleled period of healthy growth in this old and honored institution.

## Museum of History and Technology Assured

Last year it was possible to report that \$2,288,000 had been appropriated to plan the already authorized new Museum of History and Technology building for the Smithsonian. This year the additional \$33,712,000 has been appropriated to make possible the building of this great and most urgently needed new museum structure.

The established site for this building is an admirable one. It is in the Mall area of the Capital, near other Smithsonian buildings, and is bounded on the north by Constitution Avenue, on the east by 12th Street, on the south by Madison Drive, and on the west by 14th Street. It is expected that the construction of the foundation of the building will begin in the spring of 1957, and it is hoped that the building will be completed in 1960.

The Smithsonian Regents selected the New York firm of McKim, Mead & White as architects for the building. Under its direction the development of the necessarily elaborate plans for the structure is progressing in a most promising manner. These plans are being worked out so as to meet the requirements for the new building that have been set by the staff of the Smithsonian Institution on the

basis of detailed study of similar buildings and especially on the basis of the knowledge of the objects to be displayed in it.

The Joint Committee on Construction of a Building for the Museum of History and Technology for the Smithsonian Institution, of which our Regent Senator Clinton P. Anderson is chairman, and our Regent John M. Vorys, House of Representatives, is secretary, has devoted much careful attention to the architectural problems presented by the building. When the new structure becomes a reality, the Nation will owe a deep debt of gratitude to the wisdom and effective assistance that this committee has provided in the development of the new museum. The full membership of the committee is as follows:

Clinton P. Anderson, Senator from New Mexico.  
Leverett Saltonstall, Senator from Massachusetts.  
H. Alexander Smith, Senator from New Jersey.  
Stuart Symington, Senator from Missouri.  
Edward Martin, Senator from Pennsylvania.  
Clarence Cannon, Representative from Missouri.  
Overton Brooks, Representative from Louisiana.  
Robert E. Jones, Jr., Representative from Alabama.  
John M. Vorys, Representative from Ohio.  
Laurence Curtis, Representative from Massachusetts.

Now that the Museum of History and Technology building is becoming a reality, we must remember that even this great structure is but one step, although a very important one, in providing our Nation with suitable modern buildings in which to house and display its unequalled collections that tell the story of the rise to greatness of the United States of America.

#### Other Buildings Needed

Of all the urgent additional building needs of the Smithsonian, that which has highest priority is the expansion of the Natural History Museum. In 1930 the two wings needed for this building were authorized by the Congress. This was done because at that time—a quarter of a century ago—the crowding of the Nation's great Natural History Museum had come to seem intolerable. In the intervening years, conditions in this building have become progressively worse. Now world-famous study collections must be piled to the ceiling in the hallways of certain parts of this building. It is most sincerely to be hoped that during the present year funds may be appropriated for this long-delayed, although already authorized, addition to the plant of the Institution.

As indicated in my report a year ago, by a special gift of private funds an architectural study of an adequate building for the National Air Museum was made last year. The site that had been tentatively allocated to the Smithsonian for this building, on Independence Avenue at 10th Street, near other Smithsonian structures, now has

been declared unavailable to the Institution. Other promising locations, however, are ready for consideration. The National Air Museum today maintains, mostly in storage for the future, effective displays of the world's most comprehensive collection of historic aircraft, including innumerable devices and pieces of scientific apparatus that are related to this important phase of modern life. It is hoped that funds may soon be provided to make possible a suitable building for the National Air Museum in close proximity to the other units of the Smithsonian.

The Congress, in 1846, authorized the establishment, within the Smithsonian organization, of an art gallery, which later was designated as the National Collection of Fine Arts. The important works of art in the custody of this bureau are now inappropriately housed in the Natural History Museum. A new and proper building to accommodate this notable collection and to make possible the acceptance of other available collections in the fine and decorative arts was authorized by the Congress in 1938. In spite of many efforts, however, the private funds that were expected to finance the planning and erection of this building have not been secured. Each year pressure from the public to make this building a reality becomes greater. Soon some positive action in regard to this problem must be taken.

Congressional proposal has been discussed in the public press for the establishment, possibly as a new and separate bureau of the Smithsonian Institution, of a National Portrait Gallery. It has been suggested that this collection be housed in the old Patent Office Building. This handsome building is now occupied by offices of the Civil Service Commission, but it is not too well suited for a modern office building. It is believed that this architectural monument of early Washington could be transformed without too great cost into an admirable gallery to house collections of portraits of Americans who have contributed importantly to our country. The possibility that the National Collection of Fine Arts could also be housed in this building deserves study.

Besides the buildings mentioned above, additional structures are urgently needed by the Smithsonian Institution at the National Zoological Park. There is also continued discussion by interested members of the public of the need for the erection of a National Planetarium in connection with the Smithsonian's Astrophysical Observatory. Such a building would have great educational value for the millions of citizens who come each year to Washington.

#### Rebuilding of Exhibits Continues

The program for the renovation of the exhibits in the old existing Smithsonian buildings, which has been discussed previously, continued

during the period covered by this report. On March 22, 1956, the new Bird Hall of the Natural History Museum was opened to the public. It has been described by one internationally known ornithological expert as the most effective and most instructive museum display of birds in the world. Dr. Herbert Friedmann, curator of birds in the United States National Museum of the Smithsonian Institution, is an artist as well as a scientist, and he and his associates developed this hall in such a way as to make it not only beautiful and eye-arresting but also instructive. The notable success of this hall, with its many new display features, illustrates a function of the Smithsonian Institution that is not always remembered. This is an age in which museums are becoming very common throughout the country. Leadership at the Smithsonian in the development of effective museum displays is thus especially important because, as the world's largest museum in number of cataloged objects, it almost automatically sets for many other museums a pattern for guidance in developing new and small museums throughout the country. There is broad advantage, therefore, when the Smithsonian leads the way in new museum display ideas as it has done in the Bird Hall and in the other recently opened halls that are transforming the old exhibitions of the Institution.

During the year progress was made in the renovation of the second section of the American Indian Hall, the Engineering Power Hall, and the Health Hall. The notable artistic work required for the backgrounds of the new North American Mammal Hall was produced under special contracts. Part of the Printing Art Hall in the old Smithsonian Building was renovated and is now open to the public. The lights that have been installed in this hall are, so far as is known, the first artificial illumination of any kind ever to be used in this section of the Institution. Progress was also made in preparing a hall displaying the style of life of the early American colonies.

Under the difficult conditions already referred to, improvements in displays were made both in the National Collection of Fine Arts and in the National Air Museum. Many of the plaster casts, which were in far too great a variety of scales and which have long confused the visitor on entering the Rotunda of the Natural History Museum, have been placed on exhibit elsewhere or are in storage.

Rehabilitation of the structures of the older Smithsonian buildings went on during the year covered by this report. Painting of the remaining halls and courts in the Arts and Industries Building, started last year, was completed. It is believed that some of this painting, such as that on the underportions of the roofs, is possibly the first since the building was completed in 1878. New and safer entrance and exit doors were installed in this building.



Nine halls of the Natural History Building were also repainted, and a contract was let for the urgently needed repair of the roof of this great structure. The ancient so-called "converter" heating system of this building was modernized and made more economical. Steam lines in various buildings, which were in a dangerous condition, were replaced.

Work on the air-conditioning of the Freer Gallery of Art was begun. The air-conditioning of this building will protect the priceless objects of art contained in the Freer collections which were deteriorating under the extremes of temperature and humidity of Washington. Also, possibly for the first time since this building was opened, the gallery has been completely repainted, and its library has been renovated and provided with adequate lighting fixtures. Modern rest rooms for the public were opened in the Natural History Building and in the old Smithsonian Building.

#### Research in Astrophysics

It is always important to remember that Smithson, in establishing his institution, and the Congress, in founding it, directed that it should not only "diffuse knowledge" but also "increase knowledge." During the current year, effective research has continued in all the scientific and artistic departments of the Institution. A particularly notable development, as in indicated in the detailed report that follows (p. 65) has taken place in the program of the Smithsonian Astrophysical Observatory.

Astrophysics has long been one of the principal research activities of the Institution. With the retirement a year ago of Loyal B. Aldrich as head of this bureau, it became clear that, because of the growing importance of astrophysics in national defense as well as in pure science, the future program of this bureau required careful study. With the assistance of Mr. Aldrich, authorities in this field were consulted and it was agreed that the time was ripe to expand both the bureau's facilities and programs. The Smithsonian was fortunate in securing as director Dr. Fred L. Whipple, then chairman of the Department of Astronomy at Harvard University. The scientific headquarters of the Observatory have been moved from temporary buildings behind the old Smithsonian Building to more adequate quarters in immediate association with the Harvard College Observatory in Cambridge, Mass. By this physical change, the Astrophysical Observatory of the Smithsonian Institution, without compromising its independence, has gained the advantage of close association with an active group of scientists in the mathematical and physical as well as astronomical sciences. Without such association, modern advances in astrophysics are severely handicapped.

### Dr. Finley Retires

The National Gallery of Art, a bureau of the Smithsonian, has had a notable year. The art world has been saddened by the fact that at the close of June, the Director of the National Gallery, Dr. David E. Finley, whose unremitting labor has done so much to make this institution world famous, reached retirement age. It is most gratifying to announce, however, that this important post has been filled by the promotion of John Walker, Chief Curator of the Gallery, to the post of Director. Mr. Walker has been connected with the Gallery from its beginning and brings to his new post an outstanding international reputation as a student of art.

### Financial Support

Grants continue to be made to the Smithsonian by private foundations, by individuals, and by other agencies in support of specific service functions, such as the Bio-Sciences Information Exchange, and many research projects. One of the most interesting of these grants names the Smithsonian Institution as the agency to organize throughout the world the program of observing the artificial earth satellites that are to be launched under the auspices of the International Geophysical Year. The fact that the Smithsonian Institution was selected for this important function attests the recognition accorded to it by the scientists who are responsible for this great and novel project.

Detailed reports of all the ten bureaus under the direction of the Smithsonian Institution follow. In addition, there are included a report on the Smithsonian Library (p. 193) and a report of the Editorial and Publications Division (p. 197) with a complete list of the publications issued during the year. These publications have had a most enthusiastic reception by the scientific and learned world.

In concluding this general introduction to the 1956 Smithsonian Annual Report, it is impossible to resist an expression of deep appreciation to the Regents of the Institution for all that they have done during the current year to advance the welfare of the Smithsonian. The executive committee of the Board of Regents has been most active and effective in the difficult tasks of managing the details of the private funds of the Institution. In many other ways the Regents, not only as a corporate body but also as individuals, have made possible the really memorable advances in the Smithsonian that are recorded in this report of the operations of its one-hundred and tenth year.

### 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 Eng-

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

#### THE BOARD OF REGENTS

The affairs of the Institution are administered by a Board of Regents whose membership consists of "the Vice President, the Chief Justice of the United States, and three members of the Senate, and three members of the House of Representatives; together with six other persons, other than members of Congress, two of whom shall be resident in the city of Washington and the other four shall be inhabitants of some State, but no two of them of the same State." One of the Regents is elected Chancellor of the Board. In the past the selection has fallen upon the Vice President or the Chief Justice.

The past year brought the resignation of a highly valued member of the Board, Dr. Vannevar Bush, who had been a Regent since April 5, 1940. He was also a member of the executive committee of the Board and in this capacity, too, rendered distinguished and outstanding service to the Institution.

The Board is honored to welcome as new members the following: Everette Lee DeGolyer, to succeed Harvey N. Davis, deceased; Crawford Hallock Greenewalt, to succeed Vannevar Bush, resigned; and Caryl Parker Haskins, to succeed Owen Josephus Roberts, deceased.

The annual informal dinner meeting of the Board was held in the main hall of the Smithsonian Building on the evening of January 12, 1956, amid various exhibits showing phases of the work being carried on at present. Brief talks on their special fields of research and activities were made by two staff members: Dr. T. Dale Stewart and Dr. Fred L. Whipple.

The regular annual meeting of the Board was held on January 13, 1956. At this meeting the Secretary presented his published annual report on the activities of the Institution and its bureaus; and Robert V. Fleming, chairman of the executive and permanent committees of the Board, presented the financial report for the fiscal year ended June 30, 1955.

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 Nixon; members from the Senate: Clinton P. Anderson, Leverett Saltonstall, H. Alexander Smith; members from

the House of Representatives: Overton Brooks, Clarence Cannon, John M. Vorys; citizen members: Arthur H. Compton, Everette Lee DeGolyer, Robert V. Fleming, Crawford H. Greenewalt, Caryl P. Haskins, and Jerome C. Hunsaker.

#### 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 204.

#### APPROPRIATIONS

Funds appropriated to the Institution for its regular operations for the fiscal year ended June 30, 1956, total \$4,166,000, obligated as follows:

Management.....	\$77,906
United States National Museum.....	1,386,023
Bureau of American Ethnology.....	59,248
Astrophysical Observatory.....	121,102
National Collection of Fine Arts.....	47,635
National Air Museum.....	120,334
International Exchange Service.....	90,946
Canal Zone Biological Area.....	14,326
Maintenance and operation of buildings.....	1,826,376
Other general services.....	422,104
<b>Total .....</b>	<b>4,166,000</b>

In addition, the Institution received an appropriation of \$2,288,000 for the preparation of plans and specifications for the new Museum of History and Technology.

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

From the District of Columbia for the National Zoological Park.....	\$690,900
From the National Park Service, Department of the Interior, for the River Basin Surveys.....	92,360

#### VISITORS

Visitors to the Smithsonian group of buildings during the year reached an all-time high of 4,145,591, which was approximately a quarter of a million more than the previous year. April 1956 was the month of largest attendance, with 667,752; May 1956 second, with 597,566; June 1956 third, with 489,999. Largest attendance for a single day was 54,466 for March 31, 1956. Table 1 gives a summary of the attendance records for the five buildings. These figures, when added to the 3,788,229 estimated visitors at the National Zoological Park and 1,013,246 recorded at the National Gallery of Art, make a total number of visitors at the Smithsonian of 8,947,066.

TABLE 1.—Visitors to certain Smithsonian buildings during the year ended June 30, 1956

Year and month	Smithsonian Building	Arts and Industries Building	Natural History Building	Aircraft Building	Freer Building	Total
<i>1955</i>						
July.....	72,782	191,975	93,645	62,162	10,392	430,956
August.....	79,521	195,036	100,443	62,002	11,021	448,023
September.....	47,146	110,582	64,918	37,020	7,914	267,580
October.....	39,978	107,259	70,290	29,331	6,553	253,411
November.....	33,959	76,639	59,150	26,801	5,371	201,920
December.....	20,632	44,485	40,088	20,058	3,209	128,472
<i>1956</i>						
January.....	22,059	54,566	43,515	21,325	3,604	145,069
February.....	30,761	66,471	58,645	26,793	4,756	187,426
March.....	52,088	148,340	84,211	36,145	6,633	327,417
April.....	132,642	284,232	155,494	82,412	12,972	667,752
May.....	101,112	231,049	135,236	69,102	11,017	597,566
June.....	83,368	235,846	101,839	58,058	10,834	489,999
Total.....	716,048	1,796,480	1,007,578	531,209	94,276	4,145,591

A special record was kept during the year of groups of school children visiting the Institution. These figures are given in table 2:

TABLE 2.—Groups of school children visiting the Smithsonian Institution, 1955–1956

Year and month	Number of groups	Number of children
<i>1955</i>		
July.....	37	1,054
August.....	139	4,379
September.....	94	2,585
October.....	313	10,559
November.....	389	12,392
December.....	167	4,717
<i>1956</i>		
January.....	190	5,086
February.....	369	10,621
March.....	1,231	41,655
April.....	2,501	94,569
May.....	3,833	152,961
June.....	1,194	44,609
Total.....	10,457	385,187

## LECTURES

In 1931 the Institution received a bequest from James Arthur, of New York City, a part of the income from which was to be used for an annual lecture on some aspect of the study of the sun. The twenty-third Arthur lecture was delivered in the auditorium of the Natural History Building on the evening of April 26, 1956, by Dr. Donald H.

Menzel, director of the Harvard College Observatory, Cambridge, Mass. This illustrated lecture, on the subject "The Edge of the Sun," will be published in full in the general appendix of the Annual Report of the Board of Regents of the Smithsonian Institution for 1956.

John K. Marshall, of the Peabody Museum, Cambridge, Mass., showed his color film "The Hunters—African Bushmen" before a large audience in the Natural History Building auditorium on the evening of February 9, 1956. This showing was under the joint sponsorship of the Smithsonian Institution and the Anthropological Society of Washington.

Prof. Millar Burrows, chairman of the Department of Near Eastern Languages, Yale University Graduate School, delivered his lecture on "The Dead Sea Scrolls" before an overflow audience in the Natural History Building on the evening of February 29, 1956. This lecture was sponsored jointly with the Archaeological Institute of America.

Dr. Gunnar Thorson, of the Zoological Museum, Copenhagen, Denmark, on the evening of May 10, 1956, lectured on the subject "The Relationship Between Prey and Predator on the Sea Bottom" in the auditorium of the Natural History Building. This was one of a series of lectures that this distinguished foreign scientist delivered in America that season.

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

#### BIO-SCIENCES INFORMATION EXCHANGE

The Bio-Sciences Information Exchange continued during the year under the directorship of Dr. Stella L. Deignan. This agency operates within the Smithsonian Institution under funds made available to the Institution by other governmental agencies. By performing the unique function of effecting an exchange of information on work just beginning or not yet published, it serves as a clearinghouse for current research in the biological, medical, and psychological sciences. Its services are provided, free of charge, to investigators associated with recognized research institutions in the United States and abroad.

The body of information within the Exchange now consists of brief abstracts of over 10,000 active research projects and of a somewhat greater number of summary statements on investigations which are no longer current. The studies registered with the Exchange are for the most part being carried out in laboratories in the United States.

Requests for information on work in scientific fields come to the Exchange from granting agencies, committees, and from individual investigators. For the first two groups, detailed surveys of current work in broad fields are provided; for the individual investigator the service is limited to information on work on one or a series of specifi-

cally defined problems. The purpose is not that of a reference library to provide guidance to publications, but to place investigators in contact with others having immediate and similar interests.

During the fiscal year 1956 replies to over 900 requests for subject information were supplied by the Exchange. Among these were requests for rosters of scientists to be used in planning symposia, conferences, and international scientific meetings, and calls from scientists abroad who were planning itineraries for visiting United States laboratories, as well as from investigators planning problems and wishing to know of others in related fields.

A primary purpose of the Exchange is to prevent the inadvertent duplication of support by granting agencies of a field of research or of an investigator. To carry out this responsibility, the Exchange prepares, at the request of government and nongovernment granting agencies, résumés of the support of men, research institutions, and departments of such institutions. Approximately 7,500 such reports were prepared during the year.

Because a large proportion of the research registered is supported by grants and contracts, the Exchange prepares for its cooperating agencies and, within the limits of its charter, for other qualified groups, statistical information on the amount and distribution of research support. As a correlation to liaisons with granting agencies, it provides also a considerable body of information on the general policies of granting agencies. As staff and time permit, this information is employed to aid scientists in locating possible sources of support.

#### JUNIOR LEAGUE DOCENT ACTIVITIES

In the fall of 1955, through the cooperative assistance of the Junior League of Washington, a program was inaugurated for a volunteer docent or educational guide service in Smithsonian exhibition halls for elementary school children in the Greater Washington area. Such a service has long been needed at the Institution. The project is one of many voluntary programs undertaken by members of the Junior League.

This program is under the immediate supervision of Frank M. Setzler, head curator of the National Museum's department of anthropology, who undertook the task in addition to his regular duties. Representing the Junior League are Mrs. Robert Nelson, Jr., chairman of the project, and Mrs. Alexander Chilton, vice chairman. They organized the volunteers and met frequently with the Secretary, Mr. Setzler, and other Museum officials concerned with procedures and scripts.

To begin the program, two of the recently modernized exhibition halls were selected—the Hall of American Indians and the First

Ladies Hall. The professional staff of the Smithsonian Institution prepared the scripts used by the docents. All the drudgery of organizing the tours, notifying the various elementary school systems in the District and those in the adjoining counties of Maryland and Virginia, and making all tour arrangements with the school teacher and respective docent, was graciously assumed by Mrs. Nelson and Mrs. Chilton.

On January 25, 1956, the first trial was held in the American Indian Hall, and the first official scheduled tours began February 20. The following Junior Leaguers served as docents in the American Indian Hall: Mrs. George Goodrich, Mrs. William McClure, Mrs. Robert McCormick, Miss Mary McNeil, Mrs. John Manfuso, Mrs. John Mashburn, Mrs. Robert Nelson, Mrs. Bolling Powell, Mrs. Walter Slowinski, and Mrs. George Wyeth.

During the final stages of completing the First Ladies Hall, a script was prepared emphasizing in this unique display graphic portrayals of interesting episodes in our American history. The program for fifth- and sixth-grade pupils was inaugurated on March 29, 1956. The following served as docents in the First Ladies Hall: Mrs. Alexander Chilton, Mrs. William Evers, Mrs. Walter Graves, Mrs. Harold Hull, Mrs. John W. Kern, III, Miss Mary L. Krayenbuhl, Mrs. Peter MacDonald, Mrs. Jay B. L. Reeves, and Mrs. John Schoenfeld.

In reviewing the number of tours and children accommodated in this short period, I am extremely pleased with the response and yet somewhat chagrined that the Institution has not been able in the past to offer more of this kind of service. The numerous requests for it only accentuate the acute need for this type of educational program. Moreover, it becomes especially desirable as we continue to modernize our exhibition halls. During the 3-month period in the American Indian Hall the Junior League completed 58 tours, escorting over 3,000 third- and fourth-grade pupils. During the 2½-month period in the First Ladies of the White House Hall, 44 tours guided over 1,500 elementary school classes.

One of the most encouraging features resulting from a final conference before the summer vacation period began was the manifest enthusiasm on the part of the Junior Leaguers to continue this school guide service in the aforementioned two halls and to extend the program to other new halls as they are completed and opened to the public.

In many ways the project has been the culmination of several years of hopes, desires, and plans for assisting school children in understanding the Smithsonian's new and modernized exhibition halls. I feel confident that the members of the Board of Regents join with me in expressing gratitude to the members of the Junior League



Docent Service and those members of our professional staff who participated in the establishment of one more educational program within the Smithsonian Institution.

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

*National Museum.*—Accessions to the national collections showed a normal growth, slightly more than 900,000 specimens being added during the year. The total catalog entries in all departments now number 43,756,010. Some of the year's outstanding accessions included: In anthropology, collections of ethnological material from the Sudan, Peru, and New Zealand, fine lots of pottery and ceramic tiles, a collection of Mexican jadeite, a series of pathological human bones from Illinois, and a group of early Eskimo skeletons; in zoology, valuable collections of mammals from Siam and Africa, a Ross seal from the Antarctic, a giant sea bass from the Marshall Islands, a collection of over 230,000 termites, and more than 10,000 invertebrates from the Antarctic; in botany, the James Smith Memorial Collection of fossil diatoms from the Philippines and important lots of plants from Brazil, New Guinea, Australia, Idaho, and Alaska; in geology, an exhibit of synthetic diamonds, 11 meteorites new to the Museum, several thousand miscellaneous but important invertebrate fossils including many type specimens, a notable collection of fossil fishes and reptiles from Kansas, and an example of a very rare Middle Eocene bowfin from Wyoming; in engineering and industries, an unusual number of turbine and other power machines; and in history, additions to the collection of White House state china, more than 30,000 philatelic specimens lent by former Postmaster General James A. Farley, including original, autographed sketches of stamps made by President Franklin D. Roosevelt.

Members of the staff conducted fieldwork in Peru, Europe, Canada, Palau Archipelago, Libya, West Indies, Panama, and many parts of the United States.

The exhibits-modernization program was successfully continued, and the new Bird Hall was opened to the public.

*Bureau of American Ethnology.*—The staff members of the Bureau continued their researches and publication in ethnology and archeology: Dr. Stirling his Panamanian studies, Dr. Roberts his work as Director of the River Basin Surveys, Dr. Collins his archeological fieldwork in the Hudson Bay area, and Dr. Drucker his Mexican studies.

*Astrophysical Observatory.*—Scientific headquarters of the Observatory were moved to Cambridge, Mass., at the beginning of the year. Broadened research programs of the agency now include not only strictly solar research but also meteoritic studies and studies of the

higher atmosphere. The Observatory is also participating in the new Satellite Tracking Program of the International Geophysical Year. The division of radiation and organisms continued its research on the role of light in regulating growth in higher plants.

*National Collection of Fine Arts.*—The Smithsonian Art Commission accepted for the Gallery 1 oil painting, 3 miniatures, a German antique cabinet, a collection of 31 pieces of glassware, 2 ceramic pieces, and 3 bronze busts. The Gallery held 13 special exhibits during the year, while the Smithsonian Traveling Exhibition Service circulated 72 exhibitions, 71 in the United States and 1 abroad.

*Freer Gallery of Art.*—Purchases for the collections of the Freer Gallery included Chinese bronzes, paintings, and pottery; Japanese lacquer work, metalwork, and painting; Indian and Syrian metalwork; Coptic painting; and Persian pottery. The Gallery continued its program of illustrated lectures in the auditorium by distinguished scholars in Eastern art.

*National Air Museum.*—All the Museum's stored materials have now been moved to the storage facility at Suitland, Md. During the year 118 specimens in 45 separate accessions were added to the aeronautical collections, including the first Pitcairn autogiro constructed in America, a Stearman-Hammond airplane of the 1930's, the Curtiss Robin monoplane *Ole Miss*, which established an endurance record in 1935, an original amphibious aircraft of 1909-12, and a Bell P-39 Airacobra, besides many scale models and other aeronautical accessories and equipment.

*National Zoological Park.*—The Zoo accessioned 1,710 individual animals during the year, and 2,155 were removed by death, exchange, or return to depositors. The net count at the close of the year was 2,965. Noteworthy among the additions were a pair of European wisents, a rare dwarf Bolivian armadillo, an olingo from Colombia, fine examples of gelada baboons, and a Guianan crested eagle. In all, 252 creatures were born or hatched at the Zoo during the year—77 mammals, 43 birds, and 132 reptiles. Visitors totaled 3,788,229.

*Canal Zone Biological Area.*—Mr. Zetek, longtime resident manager, retired at the end of May. He is succeeded by Dr. Carl B. Koford. The year's visitors to the island totaled 440, of whom about 50 were scientists using the station's facilities for special researches.

*International Exchange Service.*—As the official United States agency for the exchange of governmental, scientific, and literary publications between this country and other nations, the International Exchange Service handled during the year 1,161,855 packages of such publications, weighing 803,056 pounds, about the same as last year. Consignments were made to all countries except China, North Korea,

Outer Mongolia, Communist-controlled areas of Viet-Nam and Laos, and the Haiphong Enclave.

*National Gallery of Art.*—The Gallery received 477 accessions during the year, by gift, loan, or deposit. Ten special exhibits were held, and 23 traveling exhibitions of prints from the Rosenwald Collection were circulated to other galleries and museums. Exhibitions from the "Index of American Design" were given 42 bookings in 20 States and the District of Columbia. Nearly 46,000 persons attended the various tours conducted by Gallery personnel, and the 42 Sunday-afternoon lectures in the auditorium attracted 9,470. The Sunday-evening concerts in the east garden court were continued.

*Library.*—A total of 78,715 publications were received by the Smithsonian library during the year. In all, 237 new exchanges were arranged. Among the gifts were several private collections of valuable material, both of books and periodicals. At the close of the year the holdings of the library and all its branches aggregated 956,157 volumes, including 586,447 in the Smithsonian Deposit in the Library of Congress but excluding unbound periodicals and reprints and separates from serial publications.

*Publications.*—Seventy-four new publications appeared under the Smithsonian imprint during the year (see Report on Publications, p. 197, for full list). Outstanding among these were "The Bromeliaceae of Brazil," by Lyman B. Smith; "The Last Cruise of H. M. S. *Loo*," by Mendel L. Peterson; "Chazyan and Related Brachiopods" (2 vols.), by G. Arthur Cooper; "The Honey-Guides," by Herbert Friedmann; "The Dîné: Origin Myths of the Navaho Indians," by Aileen O'Bryan; and "Chinese Porcelains from the Ardebil Shrine," by John Alexander Pope. In all, 424,389 copies of printed matter were distributed during the year.

# Report on the United States National Museum

SIR: I have the honor to submit the following report on the condition and operations of the United States National Museum for the fiscal year ended June 30, 1956:

## COLLECTIONS

During the year 905,473 specimens were added to the national collections and distributed among the six departments as follows: Anthropology, 19,371; zoology, 409,127; botany, 32,616; geology, 48,900; engineering and industries, 4,292; history, 391,167. This increase is smaller than last year, when the unusual increase resulted from the accession of several million small fossils. This year's total is a more normal annual accretion. Most of the accessions were received as gifts from individuals or as transfers from Government departments and agencies. The Annual Report of the Museum, published as a separate document, contains a detailed list of the year's accessions, of which the more important are summarized below. Catalog entries in all departments now total 43,756,010.

*Anthropology.*—Among the outstanding accessions received in the division of ethnology is a collection of specimens from the environs of Nasir on the Sabat River in South Sudan, East Africa, presented by Rev. A. MacRoy, an American missionary. These come from an area hitherto unrepresented in the national collections. An interesting object is a much-worn leopard skin, a traditional court accessory, on which the witness sits while giving evidence during a trial. A perjurer would be subject to dire consequences if he gave false evidence while sitting on this leopard skin. Rings perforating one corner indicate the number of occasions the skin has been used by witnesses. Another item, significant of the culture of the Nuer, is a fighting bracelet of brass, generally worn on the right wrist by men and women alike.

While building a railroad in about 1910, Alexander J. Norris collected objects used in the daily life of the Arawak Indians living in the colony of Perené in the watershed of the Río Perené (upper Ucayali River), and from the Quechua Indians in the vicinity of Cuzco, Peru. These ethnological specimens consist of hunting and fishing weapons, woven ponchos, and various objects of personal adornment,

presented by Mr. and Mrs. Joseph C. Green. Another acquisition of note, a stylistically carved wooden treasure box, "waka," originally presented to President Calvin Coolidge by the assembled chiefs of the Arawa, was transferred from the Department of State. The Arawa, a federation of Maori tribes living on the east coast of New Zealand's North Island, claim descent from members of the *Arawa*, the legendary voyaging canoe that brought the Maori to New Zealand. A notable collection of ceramic tiles given to the division by E. Stanley Wires, ranges from early Moorish, Spanish, and Dutch tiles to American types of recent manufacture. They are the result of Mr. Wires's lifetime interest in the history of tile manufacturing. Through the efforts of Mr. Wires, the tile collection was further enhanced by a pair of ceramic tile panels with animal designs in relief, sculptured by the late Frederick G. R. Roth and presented by his widow.

Other donations to the ethnological collections include a total of 170 examples of Rockwood and other late nineteenth century and early twentieth century pottery assembled by the late Dr. Edwin Kirk and presented by his widow, Mrs. Page Kirk; 17 examples of stoneware and pottery made by country potters in Maryland, Pennsylvania, and West Virginia, given by Clyde N. Fahrney; and numerous glass and ceramic specimens together with documented papers and account books presented by Miss Madeleine Wilkinson.

The division of archeology received a collection of 187 polished jadeite and other stone objects from La Venta, Tabasco, Mexico, as a permanent loan from the Museo Nacional, Mexico. These include beads, celts, figurines, ear-spool parts, and other objects representing the prehistoric Olmec culture of southeastern Mexico. A group of conch-shell segments elaborately carved with anthropomorphic and ceremonial art motifs in the style of the late prehistoric Southern Cult, from the Spiro Mound, near Spiro, Okla., was received as an indefinite loan from the Lightner Museum of Hobbies, St. Augustine, Fla. A large collection of pre-Spanish Peruvian artifacts consisting of carved wood, metal, textiles, stone, and pottery, collected about 1910 in Peru by Alexander J. Norris, was presented as a gift by his daughter, Mrs. Joseph C. Green, and her husband. A large collection of archeological material excavated from prehistoric sites on Hokkaido Island, Japan, was generously donated by Lt. Col. Howard MacCord, who has added many unusual objects to the collections.

A series of pathological human bones from Calhoun and Jersey Counties, Ill., was donated to the division of physical anthropology by Dr. P. F. Titterington. Many of the examples of pathology are unusual and extremely interesting from the standpoint of the history of disease. All the material relates to a late prehistoric period. A collection of 85 skulls received from the Wistar Institute of Philadelphia

includes material no longer obtainable and fills some gaps in the national collections. Outstanding in this series is a group of early Eskimo skeletons collected by the W. B. Van Valin-John Wanamaker Expedition, University of Pennsylvania Museum, 1917-19. These Eskimo skeletons were found at Point Barrow, Alaska, and represent the bearers of the well-known "Old Bering Sea Ivory Culture."

*Zoology.*—One of the most valuable and largest single accessions, comprising 600 specimens collected by Robert E. Elbel in Siam, was received in the division of mammals. Included was an especially good series of squirrels and carnivores from localities not previously represented in the collections. Several noteworthy African mammal collections included 250 specimens from Libya collected by Dr. H. W. Setzer; 61 specimens from the Belgian Congo obtained by Dr. Waldo L. Schmitt in the course of the Smithsonian-Bredin Expedition; and smaller collections made in the Gold Coast by Donald Lamm and in Kenya by John P. Fowler. From Ponapé in the Caroline Islands, a team headed by Dr. J. T. Marshall, Jr., investigating the ecology of the local rat populations under the auspices of the Pacific Science Board, sent in a collection of 103 mammals. Another welcome addition consists of a skeleton of a large sperm whale and the types of three baleen whales presented by the Academy of Natural Sciences of Philadelphia. Worthy of notice also are the approximately 300 small mammals collected by Dr. C. O. Handley, Jr., and John L. Paradiso at selected sites in the Middle Atlantic States. Among the individual accessions of outstanding interest is a Ross seal brought back by the U. S. Navy's Antarctic expedition. Other interesting additions include a rare big-eared bat (*Idionycteris phyllotis*) from Arizona, a rock wallaby from the introduced colony on the island of Oahu in the Hawaiian group, the type of a new shrew from North Carolina obtained by Dr. Albert Schwartz, and the type of a new bog lemming from Kentucky sent in by Dr. R. W. Barbour.

The more important of the year's ornithological accessions consist of 145 bird skins from the Gold Coast and 137 bird skins from Burma, both lots collected by Donald W. Lamm. Two deposits were received by the Institution: 890 skins, 12 skeletons, 2 alcoholic specimens, 5 sets of eggs, and a nest from Panama collected by Dr. A. Wetmore; 261 skins and 32 skeletons of birds collected in Northern Rhodesia by E. L. Haydock. A transfer from the U. S. Fish and Wildlife Service increased the Museum's North American collection by 1,400 bird skins.

Through Dr. Hobart M. Smith, the division of reptiles and amphibians received from the University of Illinois the gift of 25 paratypes of Mexican reptiles and amphibians. Other noteworthy gifts include 104 reptiles and amphibians from Germany and Cuba donated by Jerry

D. Hardy, and 478 reptiles and amphibians from Virginia collected by William L. Witt.

In recent years the division of fishes has received a number of very valuable private collections. This year the largest accession, 2,550 specimens, the remainder of the collection of the late Dr. William C. Kendall, was transferred from the University of Maine. Through Dr. J. M. Carpenter, of the University of Kentucky, the division also received 914 South American fishes, forming the collection of the late Dr. William Ray Allen. Other types of fishes were received from the California Academy of Sciences; Dr. William A. Gosline, of the University of Hawaii; the Chicago Natural History Museum; the University of Hawaii; and Herbert R. Axelrod, editor of the "Tropical Fish Hobbyist." Among 53 Pacific fishes transferred to the Museum by the Atomic Energy Commission was a giant sea bass (*Promicrops lanceolatus*), the first record for the Marshall Islands. A gift from the University of California yielded 634 fishes from the eastern Pacific. From the Smithsonian-Bredin Expedition to the Belgian Congo, 550 fishes collected by Dr. Waldo L. Schmitt were added to the collections. Worthy of mention also is the fine series of 1,246 Alabama fresh-water fishes received in exchange from Dr. J. S. Dendy, of the Alabama Polytechnic Institute.

By transfer from branches of the U. S. Department of Agriculture the division of insects received three valuable collections: The largest single accession in the past decade or more, consisting of over 230,000 termites transferred from the Forest Service upon the recommendation of Dr. T. E. Snyder, one of the world's leading authorities on these destructive insects; over 13,000 miscellaneous specimens from the Cereal and Forage Insects Laboratory, Lafayette, Ind.; and nearly 70,000 specimens from the Entomology Research Branch. Among the year's notable gifts were the 4,400 specimens consisting of 4,127 examples (including immature stages) of the family Psychidae (Lepidoptera) and 273 hymenopterous parasites reared from them, donated by Dr. Frank Morton Jones; the personal collection of Dr. F. W. Poos, comprising 3,433 miscellaneous North American insects; an important lot of 1,553 midges (*Culicoides*) from Hawaii, given the Museum by Dr. W. W. Wirth; 3,577 reared flies of the family Drosophilidae from the Department of Zoology, University of Texas; and the second most important collection to come from Thailand, 3,331 insects collected by Robert E. Elbel with the aid of a grant from the Casey Fund.

Outstanding among the collections received in the division of marine invertebrates were 1,709 fresh-water crustaceans and other invertebrates obtained by the Smithsonian-Bredin Expedition to the Belgian Congo and 267 Australian decapod crustaceans purchased through the Richard Rathbun Fund from S. Kellner of Sydney.

Other valuable gifts included the personal collection of Associate Curator Charles E. Cutress, consisting of 1,056 coelenterates and other invertebrates from the Hawaiian and Marshall Islands, New Zealand, Oregon, and Florida; 2,326 miscellaneous marine invertebrates from the University of California, through Dr. Theodore H. Bullock; 75 porcellanid crabs from the Institut Français d'Afrique Noire, Dakar, through Dr. Théodore Monod; 300 isopods of the genus *Limnoria* from Dr. Robert J. Menzies, Lamont Geological Observatory, Palisades, N. Y., and 96 specimens of the nearly extinct shrimp *Barbouria cubensis* (von Martens) from Dr. Miguel L. Jaume, Museo y Biblioteca de Zoología de la Habana, Cuba. As an exchange, 37 copepods from the Indian Ocean were received from the Zoological Survey of India, Calcutta. Two comprehensive collections received as transfers—one from the U. S. Fish and Wildlife Service, comprising 1,269 crustaceans and other invertebrates from survey vessel collections in the Gulf of Mexico and off the southeastern United States, the other from the U. S. Navy Hydrographic Office—brought to the national collections plankton samples and other invertebrates amounting to more than 10,000 specimens from the Antarctic.

The division of mollusks was fortunate in receiving considerable material from regions poorly represented in its collections. An exchange from the Bernice P. Bishop Museum yielded 531 specimens from the Bonin Islands; 600 marine mollusks from Kuwait at the head of the Persian Gulf were sent in by Harrison M. Symmes; and 447 land and marine mollusks from Libya were collected for the Museum by Dr. Henry W. Setzer. Fine series of North American shells were received: 4,150 specimens from Arkansas including some paratypes from Henry E. Wheeler; 262 miscellaneous mollusks, including 4 holotypes of the new species of the genus *Conus*, donated by Dr. Jeanne S. Schwengel. For the helminthological collections Dr. Edwin J. Robinson, Jr., contributed the types of two new species of trematodes, and Prof. Helen I. Ward sent in the holotype of a new acanthocephalan. A specimen of the rare deep-water coral *Pocillopora modumanensis* Vaughan was donated to the coral section by the Bernice P. Bishop Museum.

*Botany.*—Notable gifts to the National Herbarium were 1,298 specimens of Brazilian plants, many from remote areas, contributed by the Instituto Agronomico do Norte, Belém, Brazil; and 823 grasses given by the Welsh Plant Breeding Station, University College of Wales, as voucher material of cytogenetic studies of *Lolium* and *Festuca*. A fine collection consisting of 420 slides and 56 photomicrographs of fossil diatoms from the Summulong Shale of the Philippine Islands was presented by Col. William D. Fleming. This accession was assembled by the late James Smith, of Pasadena, Calif., and will



be kept intact as a unit to be known as the James Smith Memorial Collection. C. V. Morton obtained 1,066 specimens of plants on his collecting trip to the Sawtooth Wilderness Area, Idaho.

Significant material from the Guayana Highland area, Venezuela, included 1,341 specimens sent by the New York Botanical Garden in exchange or with a request for identifications; and 330 specimens received from the Chicago Natural History Museum as a gift for names.

A valuable collection of 1,000 Brazilian plants collected by Amaro Macedo was purchased by the Museum. More than 900 plants of Fiji and New Caledonia collected by H. S. McKee were acquired in part by purchase, in part for identification, and in part in exchange from the Botanical Gardens, Department of Agriculture, Sydney, Australia.

Among the numerous exchanges were 1,285 plants of New Guinea and Australia received from the Commonwealth Scientific and Industrial Research Organization, Canberra, Australia; and 1,769 specimens from the Academy of Natural Sciences of Philadelphia, including a number of historic importance from the United States and Latin American countries.

Two transfers were received from the Department of the Interior: 578 plants of Alaska collected by Victor H. Cahalane from the National Park Service; and 1,197 plants of Micronesia collected by F. R. Fosberg from the Geological Survey.

*Geology.*—Specimens of great scientific and historical value, made by the General Electric Co. and described by them as the first synthetic diamonds, make up one of the most unusual and interesting items added to the mineral collection in recent years. Among other fine and rare minerals received as gifts are: From Prof. A. Schoep a specimen of his new species likasite, a complex copper nitrate from the Belgian Congo; from Prof. F. Heide crystals of his new iron-boracite (ericaitite) from the South Harz District, Germany; and several large masses of jadeite from a newly discovered locality in Guatemala, collected for the Museum by James Dupont.

Among the 564 specimens added to the Roebling collection were some of outstanding exhibition quality, including an 18-inch pink tourmaline crystal from Mozambique, a flawless peridot crystal from Burma weighing 455 carats, and a magnificent group of unusually large autunite crystals from the Daybreak mine near Spokane, Wash. From the lead-zinc mines of Trepca, Yugoslavia, came a series of select crystallized specimens of pyrrhotite, sphalerite, and arsenopyrite. A magnificent specimen of the rare paradamite from the Ouelja mine, near Mapimi, Mexico, recently described as a new species by Dr. George Switzer, was obtained as an exchange.

Among the important specimens credited to the Canfield collection is a large specimen of brilliant green crystals of the copper silicate diopside from French Equatorial Africa, and a large opal mass with brilliant fire from Virgin Valley, Nev.

Several unusual gems from Burma acquired by purchase from the Chamberlain fund for the Isaac Lea collection include a violet-colored spinal (30 carats), yellow danburite (18 carats), and yellow diopside (5 carats).

Eleven meteorites new to the collection, purchased through the Roebbling fund, are: Cashion, Okla., Achilles, Kans., Bununu, Nigeria, Giroux, Canada, Clover Springs, Ariz., Lombard, Mont., Briggsdale, Colo., Livingston, Mont., Ovid, Colo., Taiban, N. Mex., and Rifle, Colo.

Important gifts received in the division of invertebrate paleontology and paleobotany include types and figured specimens of Upper Cambrian brachiopods received from Dr. W. C. Bell, University of Texas; 4,500 specimens of Tertiary mollusks from Los Angeles County, Calif., presented by Mrs. Effie Clark; and 2,000 specimens of Lower Devonian fossils from Orange County, N. Y., given by Robert Finks of Brooklyn College. Important gifts of Foraminifera are: 94 type specimens from Venezuela donated by W. H. Blow; 28 type slides of Paleocene species from New Jersey given by Dr. J. Hofker; and 315 type slides from the Jurassic, Cretaceous, Paleocene, and Eocene of Egypt presented by Dr. Rushdi Said.

The invertebrate fossil collections were further enhanced through field trips made possible from Walcott funds. Dr. A. R. Loeblich, Jr., and Dr. N. F. Sohl of the U. S. Geological Survey collected 32 microsamples from the early Tertiary of New Jersey. Dr. G. A. Cooper and R. J. Main brought back 12 foraminiferal samples and 2,000 specimens of Cretaceous mollusks from Texas. Purchases made with Walcott funds added to the collections 896 Tertiary Foraminifera and Ostracoda from Czechoslovakia through Dr. V. Pokorny, and 2,000 type Foraminifera from the Upper Cretaceous of Spain from Dr. J. R. Bataller.

More than 200 specimens of fossil fishes and reptiles from the Upper Cretaceous chalk of Kansas were collected for the division of vertebrate paleontology by Dr. D. H. Dunkle and G. D. Guadagni. Other notable accessions include a skeleton of the largest of the Permian pelycosaurs, *Cotylorhynchus*, received from the University of Oklahoma; 26 specimens of Mesozoic and Tertiary fishes of Europe and the Near East from the Carnegie Museum; and specimens of the Devonian arthrodire *Dinichthys*, and the shark *Cladoselache*, from the Cleveland Museum of Natural History. Particularly valuable to the study collections were: The subholostean fish *Ptypholepus* and the holostean

*Semionotus*, from the Upper Triassic in nearby Virginia, presented by Shelton Applegate of the University of Virginia; the lower jaws and skeletal portions of the rare Miocene porpoise *Phocageneus*, found by Rowland A. Fowler at Fairhaven Cliffs in Maryland; and a skull of the porpoise *Rhabdosteus*, collected also from Fairhaven Cliffs by Dr. Remington Kellogg, F. L. Pearce, and G. D. Guadagni. The first representation of an interesting fish, a suite of *Leptolepis nevadensis*, collected by Dr. Thomas B. Nolan from the Lower Cretaceous of Nevada, was transferred from the U. S. Geological Survey. The exceedingly rare Middle Eocene bowfin *Paramiatus gurleyi*, from the famous fossil fish quarries in the Green River formation near Fossil, Wyo., was purchased by Walcott funds.

*Engineering and Industries.*—A large collection of hydraulic machines from the pioneer turbine inventors Uriah Boyden, James B. Francis, and A. M. Sevain are welcome additions in the section of heavy machinery. These were presented by the Proprietors of Locks and Canals on Merrimac River, Lowell, Mass. Other important power machines received are an Otto and Langen gas engine, gift of the firm of Klöckner-Humboldt-Deutz, Germany; the first De Laval steam turbine exhibited in the United States, lent by the De Laval Steam Turbine Co.; the first steam engine built by M. W. Baldwin (1829) and a Corliss steam engine, gifts of the Franklin Institute; and a model of the world's first hydroelectric central station at Appleton, Wis., lent by the Wisconsin-Michigan Power Co. Further notable additions are: The steam velocipede built by Sylvester H. Roper about 1869 and the steam tricycle built by George A. Long about 1880, lent by John H. Bacon; the astronomic transit constructed by Repsold about 1860, from the U. S. Naval Observatory. From the Smithsonian Astrophysical Observatory examples were received of some of the important instruments developed by that bureau, such as Abbot's pyheliometer and the vacuum bolometer.

Among the outstanding examples of the graphic arts are a lithograph, "Three Figures," by Georges Rouault, and a stencil print, "Compotier," by Pablo Picasso, presented by Mrs. Robert S. Schwab. Thirteen original pictorial photographs by Edward Weston were purchased through the Eickemeyer Fund.

Received in the division of medicine and public health are examples of recent advances in the field of medicine consisting of vials of poliomyelitis vaccine produced for the 1954 field trials by Wyeth Laboratories, Eli Lilly & Co., and Pitman-Moore Co., and hearing-aid apparatus made by the Sonotone Corp., Otation, Inc., and Telex, Inc.

In the fields of woods and textiles, notable specimens received are a double length of an early nineteenth century damask tablecloth, made

on a draw loom, gift of Mrs. Katherine Estey Cross, deceased, through her daughter, Mrs. John A. Bartlett, and a group of woods from Florida, Texas, and Mexico, received from Orville A. Oaks.

*History.*—Since the Museum has in its exhibition and study groups the only collection of White House china of any size, a concentrated effort has been made to expand this collection. Specimens of the state service designed for use in the newly decorated White House dining-room at the end of the Truman administration and continued in use as the state china during the Eisenhower administration were received as gifts from Lenox, Inc. Received as a gift from the Polk Memorial Association, Nashville, Tenn., is a dessert plate from the state china used in the White House during the Polk administration. The largest single donor of White House china was Col. Theodore Barnes, who presented a plate and a dessert cup from the official White House china of the Lincoln administration and two dessert plates from the state service of the Hayes administration.

Mrs. Dwight D. Eisenhower presented miscellaneous costume materials, including the pin she wore as an ornament on her wedding dress which is exhibited in the Museum. A magnificent garnet-red velvet dress worn by Rose Elizabeth Cleveland, sister of President Grover Cleveland and First Lady of the White House from his inauguration in 1885 until his marriage in 1886, was presented by Miss Constance H. Wood, niece of Miss Cleveland.

The division of military history received as a bequest of Albert G. McChesney a fine officer's sword of the period of the War of 1812 with a finely engraved scabbard and blued and gilded steel blade.

The most important additions to the philatelic collections are original sketches for stamp designs by the late President Franklin D. Roosevelt and autographed or initialed by him. These items were among 30,817 specimens lent by former Postmaster General James A. Farley. The Fish and Wildlife Service, Department of the Interior, transferred a complete set of 22 die proofs of the Migratory Bird Hunting (Duck) stamps believed to be the only complete set of die proofs outside the Bureau of Engraving and Printing. A worldwide collection of 71,726 varieties was received from Mrs. Theodore S. Palmer, in accordance with the will of her late husband, Dr. Theodore S. Palmer.

Outstanding accessions received in the division of numismatics are: 2 ten-thaler pieces of Brunswick-Luneburg struck in 1660; 2 gold coins of Albania and Egypt, presented by Paul A. Straub; and a series of 232 coins lent by the American Numismatic Association as an addition to their collection of twentieth-century foreign coins.

## EXPLORATION AND FIELDWORK

To acquaint the exhibits staff engaged in preparing the displays which will be shown in the Cultural History Hall (No. 26) with the relationship of styles of furniture to types of architecture and the use of materials in the craftsmanship of the Colonial period, C. Malcolm Watkins, associate curator of ethnology, John E. Anglim, chief exhibits specialist, and Rolland O. Hower, exhibits specialist, in September 1955 visited a number of museums and historic houses in Massachusetts. Mr. Watkins devoted the last three days in December 1955 and the first four days in January 1956 to a search for documentary data on the history of the seventeenth-century "Bookhouse" installed in the Cultural History Hall (No. 26). He also selected and packed the Wires collection of tiles at Wellesley Hills for transportation to the U. S. National Museum. Before returning to Washington, Mr. Watkins examined the furniture, including Pennsylvania Dutch material, and paintings which Mrs. Arthur M. Greenwood is prepared to present for installation in the Cultural History Hall.

Dr. Clifford Evans, associate curator of archeology, studied the archeological collections of the University of Florida at Gainesville and collaborated with Dr. John M. Goggin on the analysis of specimens from Trinidad which have an important bearing on Dr. Evans's British Guiana excavations.

During November 1955 Dr. T. Dale Stewart, curator of physical anthropology, studied portions of the Todd Skeletal Collection at Western Reserve University, Cleveland.

Dr. Marshall T. Newman, associate curator of physical anthropology, conferred at Boston during November 1955 with members of the staffs of the Blood Grouping Laboratory of the Children's Hospital, the Climatic Research Laboratory, and the Nutritional Biochemical Laboratories of the Massachusetts Institute of Technology relative to suitable procedures to be followed in conducting physical and other studies on the Indians at Hacienda Vicos and elsewhere in the Callejon de Huaylas, Peru. On March 16, 1956, Dr. Newman departed for Lima, Peru, to inaugurate a research project financed by a grant from the National Science Foundation.

Following several preliminary survey visits in March 1956, Frank M. Setzler, head curator of anthropology, began excavations on April 2 at the site of Marlborough, Va., which was established as a port and county seat for Stafford County by acts of the Virginia Assembly dated 1691 and 1705 and which was abandoned sometime in the eighteenth century. Marlborough was located at Marlboro Point on the southern tip of Potomac Neck, a peninsula formed by Accokeek Creek on the west, Potomac Creek on the south, Potomac River on the east, and Aquia Creek on the north; the site is about 13 miles east of

Fredericksburg. The investigation is being carried on in collaboration with Prof. Oscar H. Darter, department of history, Mary Washington College, and C. Malcolm Watkins, associate curator of ethnology, U. S. National Museum, under a grant from the American Philosophical Society. The excavations have revealed the foundation of a house of large size which seems definitely to have been the one occupied by John Mercer during the first half of the eighteenth century. This determination is based mainly on documentary records together with the cultural objects found, such as wine bottles bearing seals with Mercer's initials and the date 1737. A number of smaller house sites, probably dependencies of the main house, have been found, and in moving the earth a large amount of cultural material of the period was discovered. The excavations also revealed a series of walls, extending for hundreds of feet, which appear to represent lot lines and may indicate the layout of the original town shown on two existing surveys dated 1691 and 1731.

At the University of Michigan during the first week of February 1956, Dr. Egbert H. Walker, associate curator of phanerogams, conferred with Dr. W. H. Wagner relative to certain species of ferns found on Okinawa and the southern Ryukyu Islands, which will be included in his flora of that region. Subsequently he worked with Dr. F. G. Meyer and Dr. J. Ohwi at the Missouri Botanical Garden, St. Louis, in the editing of a manuscript translation of a Flora of Japan.

Edward C. Keudall, associate curator of crafts and industries, systematically studied the historical agricultural implements displayed in the Centennial of Farm Mechanization at Michigan State University, East Lansing, in August 1955. Consultations were held with representatives of agricultural implement manufacturers for the purpose of procuring historically important implements to illustrate chronological stages in the mechanization of farming.

Dr. Robert P. Multhauf, acting head curator of engineering and industries, consulted with Orville R. Hagans, horologist of "Clock Manor," Denver, regarding the repair of clocks in the national collections. At San Francisco during August 1955 he studied the exhibits in the Maritime Museum and conferred with the director, Karl Kortum, regarding the contemplated extensive display of land transportation. Continuing his search for an old Pelton turbine for the Power Hall, Dr. Multhauf conferred with Richard Goynes, owner of the Miners Foundry, Nevada City, Calif., where these turbines were reportedly first manufactured. A wooden-wheel type which may represent one of the oldest Pelton turbines still in existence was located. During the last week of October 1955 Dr. Multhauf visited several sites in New England in an effort to locate old water turbines for display in the reconstructed Power Hall. Nine old sites where water

turbines were formerly operated were visited. The collection of measuring instruments at Old Sturbridge Village was studied. Brief visits were made also to the Patent Museum at Plymouth, N. H., the Shelburne Museum at Shelburne, Vt., in which are displayed large carriage and tool collections, and the small museum maintained by the Proprietors of the Locks and Canals of Merrimack River, Lowell, Mass.

Data and ideas that contributed materially to the planning of the new health hall were obtained by George Griffenhagen, curator of medicine and public health, during a European trip August 11 to September 23, 1955. Pharmaceutical and other medical collections were reviewed in London, particularly the medical museums in the Wellcome Building, the British Museum, and the Victoria and Albert Museum. The recently installed apothecary shop restoration at Leeds and the pharmaceutical antiquities in the Castle Museum and the Yorkshire Museum were examined. At Paris, Dr. Maurice Bouvet, president of the World Union of Societies of Pharmaceutical History, devoted a day to the showing of materials in his personal collection and in the Faculty of Pharmacy. At Basel Mr. Griffenhagen was shown the Castiglione collection of pharmaceutical majolica belonging to Hoffmann La Roche, and subsequently he viewed the pharmaceutical antiquities in the Schweizer Pharmazie Historische Museum and the Historisches Museum. At Waldenbuch, Germany, the Dörr Pharmaceutical Museum collection was the primary point of interest. After visiting the Deutsches Museum at Munich, Mr. Griffenhagen proceeded to Garmisch-Partenkirchen to examine an original Roentgen X-ray tube as well as the private collection of pharmaceutical antiques of Franz Winkler. Particular attention was paid to the pharmaceutical antiques and apothecary shop restorations in the Germanisches National Museum at Nuremberg and the Deutsches Apotheke Museum at Bamberg. Officials of the German Health Museum, Cologne, were consulted in regard to arrangements for the procurement of a transparent woman for the Hall of Health. The Rijksmuseum and the Medical-Pharmaceutical Museum in Amsterdam and the Rijksmuseum voor de Geschiedenis der Natuurwetenschappen in Leiden were visited. Following his return to London, Mr. Griffenhagen reviewed the special exhibits displayed at the meeting of the Federation Internationale Pharmaceutique.

Precise specifications for exhibits required in the planning for the Hall of Health were requested from Dr. Bruno Gebhard, director, Cleveland Health Museum, by George Griffenhagen and Benjamin Lawless, exhibits specialist, during October 1955. Old prints which will be reproduced in medical history panels were studied in the Rare Book Division of the Armed Forces Medical Library. Mr. Griffen-

hagen continued on to Chicago for consultations with the staff of the American Medical Association and with Dr. Max Thorek, founder of the Museum and Hall of Fame of the International College of Surgeons. Madison, Wis., was included in this trip for consultations with Dr. George Urdang and Alex Berman of the American Institute of the History of Pharmacy in regard to several projects related to the planning of exhibits.

For the purpose of advancing the planning for the Hall of Health, Messrs. Griffenhagen and Lawless, during the period February 5-10, 1956, traveled to Boston to study the health exhibits in the Science Museum, the Ether Dome and the Museum of the Massachusetts General Hospital, and the Museum of the Massachusetts College of Pharmacy. At New York visits were made to the New York Historical Society for materials to be incorporated in the Food and Drug Administration exhibit, to the Hall of Man in the American Museum of Natural History, to the Hispanic Society of America Museum for data relating to Spanish majolica, to the Wood Library-Museum of Anesthesiology to examine anesthesia equipment and to inspect the medical-instrument collection of Dr. Bruno Kisch. Data relating to Italian majolica were sought at the Metropolitan Museum. The secretary of the American College of Cardiology, Dr. Philip Reichert, gave permission for the loan of examples of stethoscope and manometer for display in the Gallery of Medical History. Data relating to health exhibits were obtained from the Lankenau Hospital Health Museum, Philadelphia. The giant heart exhibit at the Franklin Institute was studied, and visits were made also to the Pennsylvania Hospital and the Philadelphia College of Physicians to inspect the historical collections.

At New York, during October 1955, Frank A. Taylor, Assistant Director, and Dr. Multhauf studied the Atomic Energy Commission exhibit which had been shown at Geneva. In addition to a series of plexiglass models of atomic-energy powerplants and devices for the handling and chemical analysis of radioactive materials, exhibits relating to the uses of atomic energy in medicine, agriculture, and other fundamental activities occupied about half of the floor space.

Dr. Multhauf and Mr. Kendall during November 1955 proceeded to the Pennsylvania State University and to the Priestley Museum at Northumberland, Pa., to locate and examine laboratory equipment used by Joseph Priestley and to arrange for the return to the National Museum of Priestley materials that had been lent to that museum.

Planning of the projected exhibits for the Museum of History and Technology was advanced by the comparative studies made by Dr. Multhauf, during the three weeks' tour of European museums, March 18 to May 6, 1956. He was advised that the Museo Nazionale della



Scienza e della Tecnica, Milan, Deutsches Museum, Munich, Technische Museum, Vienna, and Science Museum, London, are undertaking enlargement of existing facilities and that similar plans had been made for the Conservatoire National des Arts et Métiers, Paris. This activity conveys some indication of the present lively interest in the history of technology in Europe. The museums in Munich and Milan are housed in buildings heavily damaged by war, but since repaired. The exhibits techniques at Munich were very effective and represent a marked improvement over the prewar museum. Many novel techniques were noted which can be adopted advantageously. The following museums feature physical science and the history of science: Palais de la Découverte, Paris; Museo di Storia della Scienza, Florence; Liebig Museum, Giessen; Scientific Collections, Landesmuseum, Kassel; Museum of History of Science, Leiden; Teyler's Museum, Haarlem; Whipple Museum, Cambridge; History of Science Museum, Oxford; and Berzelius Museum, Stockholm. The Palais de la Découverte is a unique example of a museum that aims to instruct in the principles of science from the simplest to its most abstruse aspects through pushbutton and demonstration exhibits. The above-listed museums possess unusual materials representing the science of the seventeenth and eighteenth centuries. Of the three marine museums visited, the Scheepvaarts Museum, Amsterdam, exhibits many unique navigational instruments, books, and maps. The Musée de Marine, Paris, has been renovated recently, but seems to have sacrificed maritime history to the exigencies of exhibits technique. In the Greenwich Naval Museum, England, the history of the British Navy is effectively and logically shown in spacious rooms.

Print storage methods and exhibition furniture were inspected by Jacob Kainen, curator of graphic arts, in California institutions during March 1956. On the same trip his research on the life and work of John Baptist Jackson was advanced by examination of chiaroscuro color prints in the Achenbach Foundation for Graphic Arts in San Francisco. The collection of eighteenth-century color prints in the M. H. de Young Memorial Museum and late nineteenth- and twentieth-century color prints in the San Francisco Museum of Art, as well as reference works in the library of the Art Room of the San Francisco Public Library, were consulted. Jackson prints and other pertinent material were inspected in the Los Angeles County Museum, as well as the collections of fine and decorative arts. Early books printed in color were examined in the Huntington Library and Art Gallery in San Marino.

Dr. George S. Switzer, associate curator of mineralogy and petrology, inspected the John B. Jago mineral collection in San Francisco, Calif., during July 1955 and conferred with the owner regarding his

plans for its future disposition. In November 1955 he made a selection of minerals at Easthampton, Mass., for the Roebling collection and also conferred with the staff of the department of mineralogy of Harvard University.

In the interest of enhancing the usefulness of the national collection of meteorites, E. P. Henderson, associate curator of mineralogy and petrology, and F. E. Holden, physical science aide, were engaged from September 6 to October 8, 1955, in inspecting the collections of the Institute of Meteorites at the University of New Mexico, the museum at Meteor Crater, Ariz., the Meteorite Museum at Sedona, Ariz., the Museum at Fort Hayes, Kans., and Texas Christian University at Fort Worth, Tex. Private collections owned by A. R. Allen, Trinidad, Colo., H. O. Stockwell, Hutchinson, Kans., and Oscar Monnig, Fort Worth, Tex., were also studied. Data and photographs of meteorites for research and reference purposes not otherwise available were obtained by these visits. Five meteorites were presented for the national collections by H. O. Stockwell, two unrepresented iron meteorites by Oscar Monnig, and one large iron meteorite by H. H. Nininger.

Prospecting in the field for suitable fish and amphibian fossils for inclusion in the planned Hall of Lower Vertebrates was conducted by Dr. David H. Dunkle, associate curator of vertebrate paleontology, and G. D. Guadagni, preparator, during the summer of 1955. While en route to Kansas, arrangements were made at the Carnegie Museum, Pittsburgh, for the transfer on an exchange basis of specimens of European Mesozoic holostean fishes and of late Cretaceous and Eocene teleosts. In northwestern Ohio a worthwhile collection of disassociated fish bones was obtained at the level of contact between the middle Devonian Praut limestone and the base of the black upper Devonian Ohio shales formation. Through the cooperation of George F. Sternberg, curator of the Museum at Fort Hays State College, arrangements had been made for a camping site on the R. W. Haverfield ranch in southwestern Gove County. From the upper Cretaceous Niobrara chalk formation in badlands locally known as Hell's Bar and later in other exposures on one of the Ben Christie ranches such typical fishes as *Cimolichthys*, *Portheus*, *Syllaemus*, *Enchodus*, *Protosphyraena*, *Gillicus*, and *Kansanius* were excavated. One of the most unusual recoveries were entire schools of the small acanthopterygian fish *Kansanius*, found preserved on the insides of giant shells of the clam *Inoceranus*.

In continuation of the search for exhibition specimens, Dr. Dunkle, accompanied by Franklin L. Pearce, in charge of the divisional preparatory staff, proceeded on October 27, 1955, to Norman, Okla., where advice was received from Dr. Carl Branson, of the Oklahoma Geological Survey and School of Geology, and Dr. Stephen Borhegyi,

director of the Oklahoma University Museum, regarding the location of exposures of the Permian Hennessey formation that had previously yielded skeletons of the large pelycosaur *Cotylorhynchus*. Although five specimens of this unique reptile were located, only one incomplete young individual merited the work involved in excavation. As a result arrangements were made with the University Museum to obtain a skeleton on an exchange basis. Dr. Dunkle's party then traveled to Richard's Spur, Okla., where 11 bags of Permian bone-bearing matrix were removed from solution fissures in Ordovician limestone. Arriving in Austin, Tex., on November 10, 1955, they were given an opportunity by Dr. John A. Wilson to examine the vertebrate fossil collections at the University of Texas. Preliminary conversations were held regarding some basis for exchange of materials. On November 15 and 16, 1955, a brief reconnaissance of the upper Cretaceous beds of the Big Bend area, Texas, was made under the guidance of David Jones, assistant superintendent of the Big Bend National Park, with a view to evaluating the possibilities for procurement of dinosaurs which will ultimately be needed for display. An exchange of upper Devonian marine fossils between this Institution and the Cleveland Museum of Natural History was completed April 16-20, 1956, by Dr. Dunkle. Skeletal materials representing a very large shark, *Cladoseleache*, and the arthrodire *Dinichthys* were selected and delivered to the Museum.

Inasmuch as the Museum lacked a suitable representation of upper Devonian fishes, Dr. Dunkle conducted fieldwork in the fresh-water sediments exposed along the shores of Escuminac Bay at Maguasha, Province of Quebec, Canada. These sediments yield well-preserved specimens of lungfishes, fringed-finned fishes, antiarch, and, less commonly, acanthodians, arthrodire, and palaeoniscoids, all of which are important in any synoptic display in the exhibition hall. Prior to commencing fieldwork, cooperative help had been obtained from the National Museum of Canada, Ottawa, and the Royal Ontario Museum, Toronto. While en route to Canada, Dr. Dunkle visited the Dartmouth College Museum to make preliminary arrangements for an exchange of upper Silurian ostracoderms. In Canada, consultations were held with Dr. I. W. Jones, director, Quebec Geological Survey, and with Abbe Laverdirere, chairman, Department of Geology, Laval University, Quebec City. On the return trip early Mississippian palaeoniscoid fishes were sought at Albert Mines, as well as at the well-known Devonian occurrences at Cambellton, both localities in New Brunswick. This trip extended from May 21 to June 30, 1956.

The Walcott bequest financed the trip to a locality near Burnet, Tex., where Dr. David Nicol, associate curator of invertebrate paleontology, and Robert J. Main, Jr., aide in that division, obtained fossil

mollusks from exposures of the Glenrose formation. At Lipan, Tex., samples of the Pennsylvanian Dickerson shale were collected. This trip extended from July 28 to August 13, 1955.

Income from the same bequest provided funds for the paleontological fieldwork of Dr. G. A. Cooper, curator of invertebrate paleontology and paleobotany. At Fort Worth, Tex., he took charge of the Smithsonian truck and accompanied by Mr. Main proceeded to Ardmore, Okla., where they spent three days collecting Pennsylvanian invertebrate fossils. From Ardmore they traveled to Muskogee and Pryor for material from beds of Mississippian age. At Neosho, Mo., they collected Mississippian productid brachiopods, Pennsylvanian fossils at Bartlesville, Okla., and subsequently Permian fossils in Cowley County, Kans. Other materials were collected in Kansas and Nebraska, and a large collection of Mississippian fossils was made near Harrison, Ark. This field party returned to Washington September 17, 1955. A profitable discussion of problems involved in his Permian studies on the Glass Mountain fauna was held with Dr. Carl Dunbar, Peabody Museum, Yale University, by Dr. Cooper in February 1956. An arrangement was made to secure by exchange some examples of Greenland Permian invertebrates.

Dr. A. R. Loeblich, Jr., associate curator of invertebrate paleontology, devoted four days, April 10-13, 1956, to the collection of Paleocene and Cretaceous Foraminifera in New Jersey in strata that are of disputed age. The material obtained was not previously represented in the national collections.

Mrs. Margaret Brown Klapthor, associate curator of civil history, was invited to lecture at the historic-housekeeping course sponsored by the National Trust and the New York State Historical Association at Cooperstown, N. Y., the last week in September 1955. During October 1955, while attending the meeting of the National Trust at Nashville, Tenn., Mrs. Klapthor acquired for the national collections a dessert plate of the Polk White House china, Mrs. Polk's lace fan, and a pair of spectacles owned by President Polk.

During late August and early September 1955, Mendel L. Peterson, acting head curator of history, inspected all existing specimens of early artillery now preserved at Albany, N. Y., the Saratoga battlefield, Fort William Henry, The Citadel on the ramparts, Fort Ticonderoga, and the Plains of Abraham battlefield in Quebec, Canada, for the purpose of advancing the completion of his report on the marking and decoration of these military objects. Transportation furnished by Life Magazine enabled Mr. Peterson to proceed to Bermuda to investigate a collection of objects of probable early seventeenth-century origin recovered from a sunken ship presumably of French registry which had been wrecked there. The ordinary imple-

ments of shipboard use were French, while the gold bar, cakes of gold, gold buttons, and silver coins were Spanish.

From June 21 to November 24, 1955, Frederick M. Bayer, associate curator of marine invertebrates, participated in a biological survey of the coral reef and other marine habitats found in the Palau Islands Archipelago, sponsored jointly by the Office of Naval Research, the Pacific Science Board of the National Academy of Sciences, the George Vanderbilt Foundation of Stanford University, and the Trust Territory of the Pacific Islands, and directed by Dr. R. R. Harry of Stanford University. An ecological resurvey was made of Iwayama Bay, Koror Island, to supplement the survey made 20 years previously by members of the Japanese Palao Tropical Biological Station. Circumscribed problems of more specific interest, such as epizootic associates of gorgonian corals, parasitic mollusks, crustaceans associated with coelenterates, sea anemones and their biological associates, and the relationship of hole-dwelling gobies with burrowing shrimps, were selected for thorough investigation. The team cooperated in obtaining information on the injurious, poisonous, and noxious animals of the reef complex. In September Dr. Harry and Mr. Bayer visited Japan to consult with former members in regard to the research of the Palau station and to trace the location of biological collections obtained there before War II. They returned to Koror on October 7 and terminated fieldwork there on November 15.

Dr. Harald A. Rehder, curator of mollusks, was given a detail September 19-29, 1955, to pack up and arrange for transportation of a collection of mollusks at the New York State Museum that had been transferred to the Museum on an exchange basis.

Dr. David H. Johnson, acting curator of mammals, and John L. Paradiso, aide, were engaged from September 12 to 15, 1955, in moving and loading whale skeletons at the Academy of Natural Sciences of Philadelphia for transfer to the Museum.

Under an Office of Naval Research contract, Dr. Henry W. Setzer, associate curator of mammals, left Washington on September 16, 1955, for Tripoli, Libya, to conduct the field study requested by Naval Medical Research Unit No. 3. Fieldwork was carried on from 18 different camps ranging from Tripoli to Derma and to Sebha Oasis in the interior. Ectoparasites and mammals were collected.

As part of a long-term project on the zoogeography of the southern Appalachian Highlands, Dr. Charles O. Handley, Jr., associate curator of mammals, devoted the period from September 12 to 26, 1955, to collecting mammals near Mountain Lake, Giles County, Va. Taxonomic problems involving southern African and neotropical mammals necessitated an examination of pertinent comparative specimens by Dr. Handley at the Chicago Natural History Museum, January

16-20, 1956. During April 1956 Dr. Handley, with Mr. Paradiso as assistant, made a collection of small mammals in the generally neglected salt-marsh areas of the Middle Atlantic States. Particular effort was made to secure material at Back Bay in southeastern Virginia, Assateague Island off Delmarva Peninsula, and Oceanville in southern New Jersey.

A grant from the American Philosophical Society enabled Dr. J. F. Gates Clarke, curator of insects, to obtain larvae and rear moths of the family Oecophoridae and to determine the host specificity of these moths and their relationship to plants of the family Umbelliferae. Specimens were collected and host observations were made at 71 stations mainly in Wyoming, Utah, Idaho, Oregon, and Washington, as well as at scattered localities in Montana, North Dakota, Wisconsin, Minnesota, and Michigan.

Dr. Ernest A. Lachner, associate curator of fishes, was awarded a fellowship by the John Simon Guggenheim Foundation for the purpose of advancing his research studies on tropical marine and North American fresh-water fishes. Examination of type specimens and other pertinent material will be made at various European museums. Dr. Lachner left Washington for London on March 8, 1956.

Mr. and Mrs. Bruce Bredin, of Greenville, Del., presented funds to the Smithsonian Institution to finance a collecting expedition. These funds were used to finance a Caribbean field study. The Smithsonian party comprised Dr. Waldo L. Schmitt, leader, Dr. A. C. Smith, Dr. J. F. Gates Clarke, and Dr. Fenner A. Chace, Jr. The expedition left Trinidad on March 13, 1956, for visits to Grenada, several of the Grenadines, and Martinique. Other stops included anchorages at Dominica, Guadeloupe, Barbuda, Redonda, Nevis, St. Christopher, Virgin Gorda, and Tortola, and terminated at St. Croix. A number of interesting observations of shore fauna, including shrimp commensal with anemones, and windrows of red-crab megalops on the beach were made. Several thousand crustaceans were collected by Drs. Schmitt and Chace, as well as crinoids, starfish, sea-urchins, sea-hares, and cephalopods. On arrival at Trinidad Dr. Smith, curator of phanerogams, proceeded directly to the field station of the New York Zoological Society at Simla, Arima Valley, where he spent five days collecting plants on the crest and slopes of the northern range and preparing the material. Botanical collections were made on 11 islands, and more than 4,000 specimens were prepared for herbarium study. Dr. Clarke, curator of insects, traveled from Washington to Dominica by airplane and collected insects there in the interval between March 8 and 28 and then joined the party on the schooner at Roseau. Some 20,000 insects were obtained. V. E. B. Nicholson, captain of the *Freelance*, the schooner used by the expedition, was ex-

tremely helpful to members of this party and materially assisted in the collection of marine animals. Drs. Clarke and Smith departed for Washington from St. Croix, Virgin Islands, by air on April 19 and 20, respectively. Drs. Schmitt and Chace sailed from St. Croix on the *Alcoa Runner* on April 23.

Between September 2 and 26, 1955, W. L. Brown, chief zoological exhibits preparator, visited Glacier and Yellowstone National Parks to procure photographs and other background data for authentic habitat settings for the grizzly-bear and elk groups. Alpine fir, limber pine, various grasses, flowers, soils, and rocks were secured for the bear group. At Gardiner, Mont., sage bushes and grasses were selected and shipped for inclusion in the elk unit.

On December 2, Dr. Alexander Wetmore, research associate and former Secretary of the Smithsonian Institution, reached Panamá for a further season of fieldwork concerned with the distribution of the birdlife of the Isthmus. Work during the first month was devoted to studies on the Río Chagres, from a base at the Juan Mina field station of the Gorgas Memorial Laboratory for Tropical Medicine, and other investigations in and near the Canal Zone, including a few days on Taboga and nearby islands. At the beginning of January, through the interest of Dr. Alejandro Méndez P., director of the Museo Nacional of Panamá, and of His Excellency Alejandro Remón C., Minister of Government and Justice, Col. Bolívar Vallarino, Comandante Jefe of the Guardia Nacional, kindly gave the necessary permission and instructions for a month's stay on Coiba Island. This, the largest island on the Pacific coast of Central America, has been the location of the penal colony of the Republic of Panamá since 1919. With the friendly cooperation of Col. J. W. Oberdorf, commanding officer, Albrook Air Base, transportation to Coiba and return on completion of the work were arranged in an Air Force crashboat. On arrival at the Colonia Penal on January 6, Dr. Wetmore and his two assistants were assigned quarters by Capt. J. A. Souza, in command, and were given all needed assistance in their work, which continued until February 6. The island is covered with high gallery forest, with mangrove swamps at the mouths of the numerous rivers. Clearings for pasture and cultivation have been cut back of the convict work camps, which are located along the Bahía de Damas and on the eastern side north to Punta Aguja. The interior of the island, which rises to an elevation of 1,400 feet, remains in its primitive condition, without trails except in limited areas. Birds are common and of good variety, though many of the familiar forest species of the mainland do not occur in spite of conditions favorable to them. The heavy rainfall is reflected in darker coloration in various of the smaller kinds, several of which are new to science, some being remarkably distinct from

their mainland representatives. Following return to the mainland, work continued until the end of February, with San Félix in eastern Chiriquí as a base. Collections made here over a considerable area between the seacoast and the inland mountains offer many valuable data in plotting distribution. Most of the original forest has been cut to provide pastureland, so the information secured is of special importance since soon all forest areas will be gone. After some further observations at Barro Colorado Island and on the savannas near Pacora, work for the season terminated on March 10.

#### EXHIBITION

Modernization of selected exhibition halls was continued in 1956 by a Congressional allotment of \$411,500. Construction by outside contractors began in the Power Hall in July 1955. Contracts were awarded for the second American Indian Hall in April 1956 and the Health Hall in May 1956; construction was commenced in these halls in May and June 1956, respectively. During March 1956, the new Bird Hall and the east side of the North American Mammal Hall were completed and opened for public inspection.

The new Bird Hall, after months of planning by Curator Herbert Friedmann, was officially opened to the public on March 22, 1956, at an evening reception sponsored jointly by the Smithsonian Institution and the Audubon Society of the District of Columbia. John E. Graf, Assistant Secretary of the Smithsonian Institution, reviewed the program for modernization of exhibits, and Irston R. Barnes, president of the District of Columbia Audubon Society, commented on the interest shown by ornithologists in the methods employed for presentation of topical exhibits. Guy Emerson, honorary president of the National Association of Audubon Societies, complimented the Institution and Dr. Friedmann on the successful completion of this hall and cut the ribbon, thereby officially opening the hall.

In the hall of North American Mammals, habitat groups for the puma, wolf, pronghorn antelope, and white-tailed deer were opened to the public. Four previously completed groups were again shown to visitors after being shut off by construction work for more than a year.

During the current fiscal year, 37 new exhibit units, miniature dioramas, and life-size lay figures are being developed in the second Indian hall. These units will portray the manner of living of Indian tribes that formerly occupied the forested eastern third of the United States; the nomadic hunting tribes of the Great Plains; the salmon-fishing and totempole-building Indians of the Northwest Pacific coast; and the Arctic Eskimo of Greenland and Alaska. The over-all plans for this hall and the case layouts were prepared by Associate Curator John C. Ewers in collaboration with Exhibits Specialist John E.



Anglim and his staff. The installation of the exhibits portraying colonial life in eastern North America is proceeding satisfactorily in Hall 26. Six period rooms have been installed. Of these the Reuben Bliss parlor (1754) is the oldest. Among others are a late Georgian colonial parlor from Sussex, Va., an early nineteenth-century school-room, and a farmhouse bedroom of about 1800.

Plans were completed in the division of mineralogy and petrology for the layout of the Mineral Hall. Exhibits to illustrate the origin, properties, and mode of occurrence of minerals will be prepared, in addition to displays of the major minerals of the world. Outstanding examples of uncut crystals of the more important gem minerals, as well as series of cut and polished gems, will be utilized to make an informative presentation of this phase of mineralogy.

The hall for display of fossil plants and invertebrates will provide the visitor with some conception of what fossils are, how they are preserved, and their role as geological time indicators. Reconstructed assemblages of fossil animals and plants from some of the geologic periods will be utilized to portray the ecological associations that made possible their mode of life.

Selection and preparation of specimens of lower vertebrates for display in Hall 3 are being actively continued in the laboratory of vertebrate paleontology. Associate Curator Dr. David H. Dunkle was successful in his search for upper Cretaceous marine fishes in the Niobrara chalk of western Kansas, and for upper Devonian fishes in the fresh-water sediments of the Province of Quebec, Canada. Other lower vertebrates were acquired on an exchange basis to complete the developmental series in the systematic exhibits.

A display case containing manmade diamonds sorted in compartments in accordance with size was presented on May 3, 1956, by Dr. C. G. Suits, vice president of General Electric Co., to Dr. Leonard Carmichael, Secretary of the Smithsonian Institution, for inclusion in the gem exhibit in the Natural History Building. At the presentation ceremony Dr. Suits introduced the technical team responsible for the development of the process that made manufacture feasible.

An exhibit illustrating the history of iron and steel production in the United States was opened on January 11, 1956, in the Arts and Industries Building by Secretary Carmichael and John C. Long, of the Bethlehem Steel Co. This exhibit traces in 10 units the development of the industry from the discovery of iron ore to the high-alloy steels of today. Outstanding features of the exhibit are a group of early artifacts from the excavations at Jamestown, Va.; a section of the massive Hudson River chain swung into place near West Point, N. Y., on April 16, 1778, to prevent the British from sailing to the upper river; and rare examples of American iron and steel work from the nineteenth century.

Modernization of the Power Hall was delayed several months by a shortage of steel, but it is now nearing completion. Models of types of power machinery no longer available for acquisition have been constructed and a number of machines hitherto unrepresented in the national collections have been acquired.

Four of the older makes of automobiles have been refurbished during the past fiscal year. The 1903 Cadillac, the 1903 Oldsmobile, and the 1913 Ford were reconditioned through the courtesy of the Cadillac, Oldsmobile, and Ford companies. The 1901 Autocar was reconditioned by the Autocar Division of the White Motor Co. The return of these cars to the exhibition floor markedly improved this portion of the section of land transportation.

The gallery exhibit of the section of scientific instruments now consists of 12 units devoted to various fields, beginning with weights and measures and ending with astrophysics. Each case is designed to tell the story of the mechanical development of some instrument. The section devoted to typewriters, phonographs, and calculating machines was greatly improved by repainting and lettering, as was the section of manufactures by the installation of special lighting fixtures. Loom products of the early nineteenth century weaver Peter Stauffer, the small hand sewing machine, and the safety factor of after-dark pedestrian garments were featured in new display units in the section of textiles.

Of the 35 new exhibit units illustrating photomechanical printing, in the chapel of the Smithsonian Building, 26 were completed during the past year. Selected examples of photogravure, rotogravure, relief halftone and the halftone screen, collotype, photolithography, and offset lithography are included in the display. The special monthly exhibits by contemporary printmakers and photographers were continued in addition to short-term displays of materials drawn from the collections.

Individual exhibit units for the Hall of Health have for the most part been designed, the contents have been selected, and descriptive text for many of the labels has been written. Construction work on this hall has commenced. A series of 30 oil paintings depicting the history of pharmacy lent by Parke, Davis & Co. was formally opened for public view on September 30, 1955, at a ceremony attended by Secretary Carmichael, George A. Bender, Robert A. Thom, the artist, and Dr. Robert P. Fischelis, secretary of the American Pharmaceutical Association.

Eleven new exhibits were installed in the gallery of Medical History during the year. An informative display unit labeled "Vitamins for Health, Growth of Life," prepared for the exhibit series of the division of medicine and public health by Merck & Co., was

accepted from Dr. W. H. McLean by Secretary Carmichael on February 1, 1956. The 10 principal vitamins are shown inside revolving transparent globes. Outstanding historical facts on vitamin development are illustrated. Display panels entitled "Dr. Wiley's Crusade," "Fifty Years of Progress in Food and Drug Protection," and "How Food and Drug Administration Protects You Today" were formally presented for public view on May 4, 1956, at a ceremony attended by Bradshaw Mintner, the Assistant Secretary of the Department of Health, Education, and Welfare, Dr. George P. Larrick, Commissioner of the Food and Drug Administration, Mrs. Harvey W. Wiley, Mrs. Grace Drexler Nichols, executive director of the General Federation of Women's Clubs which supported Dr. Wiley's crusade, and Secretary Carmichael. These three panels commemorate the fiftieth anniversary of the enactment of the Federal Food and Drug legislation.

Substantial progress was made during the year on the installation of the uniform and insignia display on the West Hall gallery. Glass screens were placed over the fluorescent lights to protect the materials from fading, printed labels were prepared for many of the specimens, and various items of personal adornment were installed.

The United States section of the National Postage Stamp Collection was completely remounted and placed in the floor frames for public viewing during the past fiscal year. Special displays of postal materials were made available to the Fifth International Philatelic Exhibition, held in the new Coliseum in New York, April 28–May 6, 1956, and at the American Stamp Dealer's Association shows in New York, Chicago, and Los Angeles.

#### VISITORS

During the fiscal year 1956 there were 3,520,106 visitors to the Museum buildings, an average daily attendance of 10,028. This is an increase of 207,236 over the total in the previous fiscal year. Included in this total are 385,187 school children, who arrived in 10,457 separate groups. Among the visitors this year were special groups such as the 4-H Club and the Safety Patrol. The month of April 1956 drew the largest crowd with 572,368 visitors. May 1956 was the second largest with 517,447 and June 1956 was third with 421,107. Attendance records for the buildings show the following numbers of visitors: Smithsonian Building, 716,048; Arts and Industries Building, 1,796,480; and Natural History Building, 1,007,578.

#### BUILDINGS AND EQUIPMENT

A contract between the Government and the architectural firm of McKim, Mead & White for the design of the Museum of History and

Technology building was signed on March 16, 1956. A program of the requirements for the building based on many years of study by the Smithsonian staff was presented to the architects, and the work of designing a building that will effectively serve the Museum and the public is progressing well. Schedules of work anticipate that working drawings will be sufficiently advanced to permit bids to be asked for the construction of the building in the spring of 1957. Legislation appropriating \$33,712,000 for the construction of the building passed both the House and the Senate in the second session of the 84th Congress. This legislation (Public Law 573) was signed by the President on June 13, 1956. The total amount appropriated for this building is \$36,000,000.

The Secretary designated Frank A. Taylor, Assistant Director of the United States National Museum, staff liaison with the architects. The Planning Office was established to develop plans and requirements for the building and its exhibits. John C. Ewers, associate curator in the division of ethnology, was promoted to planning officer, and J. H. Morrissey, architect of the Public Buildings Service, was assigned to the Smithsonian by the General Services Administration to assist in the planning.

#### CHANGES IN ORGANIZATION AND STAFF

Frank A. Taylor, previously head curator of the department of engineering and industries, was promoted to Assistant Director of the Museum on August 7, 1955.

Charles E. Cutress, Jr., a coelenterate specialist, was appointed associate curator in the division of marine invertebrates, effective January 3, 1956.

The department of history lost through death on February 20, 1956, the valuable services of Stuart M. Mosher, associate curator of numismatics.

John C. Ewers, associate curator of the division of ethnology, was transferred to the office of the assistant director to serve as planning officer for the Museum of History and Technology, effective February 26, 1956.

G. Carroll Lindsay was appointed assistant curator, division of ethnology, effective February 20, 1956.

During January and February 1956, a reorganization of the exhibits staff was effected with the promotion of John E. Anglim to chief exhibits specialist, R. O. Hower and Benjamin Lawless to exhibits specialists, and William L. Brown to chief zoological exhibits specialist.

Dr. William F. Foshag, head curator of the department of geology since August 1948, and a member of the staff of that department from June 1919, died May 21, 1956, of a heart attack at his home in West-

moreland Hills, Md. During the 37 years since graduation from the University of California with a degree in chemistry, Dr. Foshag advanced knowledge of the minerals of Mexico particularly and of the world. Borax minerals claimed his interest for several years. While assigned for work in Mexico during World War II, he witnessed the early stages in the origin of the Parícutin Volcano and followed its growth until activity subsided.

Four members of the honorary scientific staff were lost through death during the fiscal year. Dr. Theodore S. Palmer, a member of the staff of the Bureau of Biological Survey, U. S. Department of Agriculture, for 44 years and an associate in zoology of the National Museum since August 1, 1933, died at his home in Washington, D. C., on July 23, 1955, at the age of 87. Dr. Frank L. Hess, custodian of rare metals and rare earths in the division of mineralogy and petrology since December 11, 1917, died August 29, 1955, in Washington, D. C., at the age of 83. Prior to 1925 Dr. Hess had been employed by the U. S. Geological Survey, and from that time until his retirement in 1944, by the Bureau of Mines. William B. Marshall, assistant curator in the division of mollusks until his retirement in 1934 and associate in zoology since May 1, 1934, died in Washington, D. C., on December 18, 1955, at the age of 91. Gerrit S. Miller, Jr., curator of the division of mammals for 42 years and research associate of the Smithsonian Institution since January 1, 1941, died in Washington on February 24, 1956, at the age of 84.

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, office work, and other operations of the Bureau of American Ethnology during the fiscal year ended June 30, 1956, conducted in accordance with the Act of Congress of April 10, 1928, as amended August 22, 1949, which directs the Bureau "to continue independently or in cooperation anthropological researches among the American Indians and the natives of lands under the jurisdiction or protection of the United States and the excavation and preservation of archeologic remains."

## SYSTEMATIC RESEARCHES

Dr. M. W. Stirling, Director of the Bureau, remained in Washington during the major portion of the fiscal year. In addition to regular administrative duties, he continued studies on the archeological collections made in Panama during 1952 and 1953. In May and June he made two brief inspection trips to Russell Cave in Jackson County, Alabama, where Carl Miller conducted archeological excavations under the auspices of the Bureau and financed by the National Geographic Society. The services of Mr. Miller were lent to the Bureau by the River Basin Surveys for six weeks, the duration of this work. The excavations, which reached a depth of 14 feet in the cave floor, gave evidence of a fairly continuous occupation which extended from approximately A. D. 1650 to the early Archaic. Samples from the 14-foot level yielded a carbon-14 date of 8160 B. P. (before the present)  $\pm$  300.

The beginning of the fiscal year found Dr. Frank H. H. Roberts, Jr., Associate Director of the Bureau and Director of the River Basin Surveys, on an inspection trip in the Missouri Basin. He visited survey and excavation parties working in the Oahe Reservoir basin in North Dakota and South Dakota and the Fort Randall Reservoir area, also in South Dakota. After his return to Washington he devoted practically full time to the management of the River Basin Surveys program and in reviewing and revising a number of manuscript reports on the results of investigations in various areas. In October Dr. Roberts went to Clarksville, Mo., to attend the annual fall meeting of the Missouri Archeological Society. He spoke at one of the sessions on the subject "The Inter-Agency Archeological Salvage

Program." From Clarksville he proceeded to the field headquarters at Lincoln, Nebr., where he reviewed the results obtained by the field parties, working in the Missouri Basin during the summer and early fall months. Following his return to Washington he participated in the annual meeting of the Committee for the Recovery of Archeological Remains. During the winter and early spring months Dr. Roberts worked on the manuscript of an article summarizing the activities and the results of the archeological salvage program for the 10 years that it has been operating. In May he went to the Lincoln office to assist in the preparation of plans for the summer's fieldwork in the Missouri Basin. He was in the Washington office at the end of the fiscal year.

During the first two months of the fiscal year Dr. Henry B. Collins, anthropologist, with three assistants conducted archeological fieldwork on Southampton and Walrus Islands in Hudson Bay. The work was sponsored by the Smithsonian Institution and the National Museum of Canada and was supported in part by a grant from the American Philosophical Society. The party, consisting of Dr. Collins, Dr. J. N. Emerson, University of Toronto, William E. Taylor, Jr., National Museum of Canada, and James V. Wright, anthropology student at the University of Toronto, left Montreal by R. C. A. F. aircraft on June 8, 1955, and arrived at Coral Harbour, Southampton Island, the following day. On June 13 they went by Eskimo dog team over the sea ice to Native Point, an abandoned Eskimo village site 40 miles down the coast, where they camped for the summer. Native Point (Tunermiut) was the principal settlement of the Sadlermiut, the aboriginal Eskimo tribe of Southampton Island, the last of whom died there in an epidemic in the winter of 1902-3. The site consists of the ruins of 75 semisubterranean stone and sod houses in addition to a dozen old "quarmats" or autumn houses built by the Aivilik Eskimos who have camped there in recent years. Hundreds of stone graves, cairns, and meat caches lie along the beach near the site and on the old shorelines in every direction for miles around. Excavation of house ruins, middens, and graves at the main Sadlermiut site and two smaller sites nearby supplemented the work of the previous year and provided an adequate picture of the material culture and way of life of the Sadlermiut Eskimos. The Sadlermiut are commonly thought to have been descended from the Thule Eskimos who migrated from Alaska to Canada and Greenland some seven or eight hundred years ago. However, from the work on Southampton and Walrus Islands it seems more likely that the Sadlermiut had merely been influenced in some ways by the Thule culture and that they were actually the descendants of the prehistoric Dorset Eskimos, who were the other, and principal, object of study by the expedition.

The main Dorset site at which excavations were made lies a mile to the east of the Sadlermiut site. It is situated on the gently sloping surface of a 70-foot high headland which had once fronted the sea but which now lies half a mile back from the present beach. The site consists of shallow midden deposits, covered by a low, sparse growth of vegetation, extending for an area of well over 20 acres, one of the largest Dorset sites known. The site was designated T 1, from Tunermiut, the Eskimo name for Native Point. A second, later Dorset site was found near the Sadlermiut site and called T 2. A third Dorset site, T 3, slightly later than T 1, was found on the old beach line immediately below it, at an elevation of 40 feet above sea level. Samples of charred bone excavated at the T 1 site in 1954 were submitted to the University of Pennsylvania Carbon-14 Laboratory and found to be  $2060 \pm 230$  years old. The thousands of stone, ivory, and bone artifacts found at T 1 and T 3, though conforming in general to the basic Dorset culture pattern, were in many respects specifically different from those found at other Dorset sites in Canada and Greenland. Flint implements, which were far more abundant than any other artifacts, were small and delicately chipped, like Dorset implements generally, but most of them differed in form from previously known Dorset types, and some of them were unlike anything known from America. The majority of the blades would be described as microlithic, and some of them in shape and technique were similar to microlithic types from pre-Eskimo sites in Alaska and Mesolithic sites in the Old World. The cultural material from T 1 and T 3 seems to represent an older, simpler stage leading up to the classic Dorset culture; it should probably be referred to as formative or proto-Dorset. All faunal remains from the excavations were preserved. The thousands of bird bones and occasional fish bones and mollusks were brought back to the Smithsonian for identification. The mammal bones were counted and as many as possible identified in the field. As a result of the bone count some striking differences were observed in the food economy of the Sadlermiut and Dorset Eskimos.

Five days in July were devoted to excavations at an abandoned village site on Walrus Island. The houses, which had been made of massive blocks of granite, proved to be Dorset rather than Sadlermiut as expected, and provided the first adequate information on the house types of the Dorset Eskimos. The artifacts from the houses were typical or classic Dorset, different from and later than those from the proto-Dorset site T 1 at Native Point. Plants, fossils, and insects, including ectoparasites on birds and lemmings, were also collected during the summer.

Two preliminary reports on the Southampton and Walrus Island work were prepared by Dr. Collins, one for the Annual Report of the



National Museum of Canada and the other for Anthropological Papers of the University of Alaska. "Archaeological Research in the American Arctic," a general article describing the current status of Arctic archeology, was published in *Arctic Research*, Special Publication No. 2 of the Arctic Institute of North America. Dr. Collins continued to serve as a member of the Board of Governors of the Arctic Institute of North America and of its committee on research. As chairman of the Directing Committee of Arctic Bibliography, he continued to supervise the preparation of this work, a comprehensive annotated bibliography which lists and summarizes the contents of publications in all fields of science relating to the Arctic and sub-Arctic regions of the world. Volume 6 of the Bibliography, 1,208 pages, was issued by the Government Printing Office in April 1956, and material for volume 7, of approximately the same size, was turned over to the printer in June. Funds for the preparation of an eighth volume were obtained from the Departments of the Army, Navy, and Air Force, and the Defense Research Board of Canada. As a member of the Permanent Council and the Organizing Committee of the International Congress of Anthropological and Ethnological Sciences, Dr. Collins participated in the work of planning for the fifth session of the Congress to be held in Philadelphia, September 1-9, 1956. At the close of the fiscal year Dr. Collins was in Europe, making a survey of Mesolithic materials in museums for their possible bearing on the Eskimo problem.

At the beginning of the fiscal year Dr. Philip Drucker was in Mexico finishing up his fieldwork at La Venta, studying the material collected there and comparing it with the collections in the Museo Nacional at Mexico City. It was through Dr. Drucker's intercession that the U. S. National Museum received a collection of 187 polished jadeite and other stone objects from La Venta as a loan from the Museo Nacional of Mexico. Upon his return to Washington in September he completed the writing of his share of the final report on the La Venta excavations, and also completed and submitted for publication his manuscript on the Native Brotherhood Societies of Alaska and British Columbia. On December 9, 1955, Dr. Drucker resigned from the Bureau.

#### RIVER BASIN SURVEYS

(Prepared by FRANK H. H. ROBERTS, JR., Director, from data submitted by staff members)

Throughout the year River Basin Surveys continued its program for salvage archeology in areas to be flooded or otherwise destroyed by the construction of large dams. As in previous years, the work was 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 a number of

State and local institutions. An increase in funds for the fiscal year made possible more extensive investigations than in the preceding year. During 1955-56 the program of the River Basin Surveys was financed by a transfer of \$92,360 from the National Park Service and a grant of \$12,000 from the Idaho Power Co. The funds from the National Park Service were for use in the Missouri Basin. A carryover of \$3,663 from the previous year made the total available for operations in the Missouri Basin \$96,023. The grant from the Idaho Power Co. was to provide for the excavation of sites along the Snake River in Oregon-Idaho which will be flooded by the construction of that company's Brownlee and Hells Canyon dams. The latter funds were the first for work outside the Missouri Basin made available to the River Basin Surveys in several years.

Investigations in the field during the year consisted of surveys and excavations. Most of the efforts were concentrated in the digging of sites. Because of a slight delay in receiving the new Federal funds, it was the middle of July before parties were sent out from the field headquarters at Lincoln, Nebr. On July 15 a survey party began investigations in the Tiber Reservoir. On July 18 a second party started digging at a fortified village site near the mouth of the Cheyenne River in the Oahe Reservoir area, and on July 20 a third party started operations in the vicinity of the Oahe Dam near Pierre, S. Dak. In May a historic-sites party began excavations at the location of an early trading post in the area of the outlet channel below the Oahe Dam. Early in June a second party returned to the Cheyenne site and resumed excavations at that locality. Later a third party proceeded to a village site near Whitlocks Crossing in the Oahe Reservoir basin and started investigations where no previous work had been done. On June 2 a survey party began operations in the Big Bend Reservoir area near Fort Thompson, S. Dak., and on June 12 an excavating party began digging a site in the Lovewell Reservoir area in northern Kansas. Late in June a party proceeded to Robinette, Oreg., where it established camp and initiated excavations in one of the Snake River sites. All these parties were continuing their investigations at the close of the fiscal year. During the year no paleontological studies were made in any of the areas by the River Basin Surveys. However, some fossil collecting was done by State institutions.

As of June 30, 1956, reservoir areas where archeological surveys and excavations had been made since the Salvage Program got under way in 1946 totaled 244 in 27 States; also four canal areas and one lock project had been investigated. The survey parties have located and reported 4,365 archeological sites, and of that number 862 have been recommended for limited testing or excavation. The term "excavation" in this connection implies digging approximately 10 percent of

a site. Preliminary appraisal reports have been issued for all the reservoirs surveyed, and in cases where additional reconnaissance has resulted in the finding of other sites supplemental reports have been prepared. During the last fiscal year four such reports were written and were distributed in a single mimeographed pamphlet. Throughout the years since the initiation of the program 181 reports have been distributed. The discrepancy between that figure and the total number of reservoirs visited is due to the fact that in several instances the information obtained from a whole series of proposed reservoir projects occurring in a basin or subbasin has been included in a single report.

By the end of the fiscal year 329 sites in 46 reservoir basins scattered over 17 different States had either been tested or partially dug. Only a single site was excavated in some of the reservoir areas, while in others a whole series was studied. Thus far at least one example of each type of site recorded in the preliminary surveys has been examined. The results of certain phases of the excavations have appeared in various scientific journals and in the bulletins of the Bureau of American Ethnology and the Miscellaneous Collections of the Smithsonian Institution. During the year River Basin Surveys Paper No. 8, which is to be Bulletin 166 of the Bureau of American Ethnology, was sent to the printer, and at the close of the year galley proofs of the publication were being read by the author. Two detailed technical reports on the results of earlier work were completed during the year and are ready for publication.

The reservoir projects that have been surveyed for archeological remains as of June 30, 1956, were distributed as follows: Alabama, 1; California, 20; Colorado, 24; Georgia, 5; Idaho, 11; Illinois, 2; Kansas, 10; Kentucky, 2; Louisiana, 2; Minnesota, 1; Mississippi, 1; Montana, 15; Nebraska, 28; New Mexico, 1; North Dakota, 13; Ohio, 2; Oklahoma, 7; Oregon, 27; Pennsylvania, 2; South Dakota, 10; Tennessee, 4; Texas, 19; Virginia, 2; Washington, 11; West Virginia, 2; and Wyoming, 22.

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

During the year the River Basin Surveys continued to receive helpful cooperation from the National Park Service, the Bureau of Reclamation, the Corps of Engineers, the Geological Survey, and various State and local institutions. Transportation and guides were furnished in a number of instances, and mechanical equipment made available by the construction agency speeded the work at a number of locations. Temporary headquarters as well as living accommodations were made available at several projects. Detailed maps of the reservoirs under investigation were supplied by the agency concerned and helpful information was provided whenever it was needed. The National Park Service continued to function as the liaison between the various agencies both in Washington and in the field and through its regional offices obtained information about the locations for dams and reservoirs as well as data concerning construction priorities. The National Park Service was also chiefly responsible for the preparation of estimates and justifications and in procuring funds for carrying on the program. Had it not been for the enthusiastic assistance of the personnel in all the cooperating agencies, it would not have been possible for the River Basin Surveys to have accomplished so much for the year.

General direction and supervision of the program were continued by the main office in Washington. The field headquarters and laboratory at Lincoln, Nebr., was in direct charge of the work in the Missouri Basin. All the materials collected in the Missouri Basin were processed at the Lincoln laboratory and subsequently two large lots of specimens were transferred to the U. S. National Museum. Through the cooperation of the Washington State Museum at Seattle, the Snake River party was provided with a base of operations. The general direction of the activities in that area, however, was from the Washington office.

*Washington office.*—The main headquarters of the River Basin Surveys at the Bureau of American Ethnology continued throughout the year under the direction of Dr. Frank H. H. Roberts, Jr. Carl F. Miller, archeologist, was based on that office and assisted the director in general administrative duties from time to time. William M. Bass was added to the staff on June 18 as a temporary physical anthropologist.

Mr. Miller reported to the Lincoln office shortly after the beginning of the fiscal year and worked in the Missouri Basin until late in September, when he returned to the Washington office. His activities during the summer are covered in the Missouri Basin portion of this report. After his return to Washington he prepared a series of brief reports on the results of his fieldwork and then turned his attention to his unfinished report on his previous investigations at the John H.

Kerr (Buggs Island) Reservoir in Virginia. In April Mr. Miller was transferred to the regular staff of the Bureau of American Ethnology for the purpose of carrying on investigations in a cave in Jackson County, Ala., where the deposits contained a long sequence of Indian cultural history. He returned from Alabama in June and resumed his duties as a member of the River Basin Surveys staff. He proceeded to Lincoln, Nebr., and on June 21 left for South Dakota where he began excavations at a site in the Oahe Reservoir area. During the months in the Washington office Mr. Miller spoke before a number of Boy Scout troops and acted as scientific consultant to a number of high-school students who were participating in a science contest in Alexandria, Va. During the year Mr. Miller's manuscript "Reevaluation of the Eastern Siouan Problem, with Particular Emphasis on the Virginia Branches—the Occaneechi, the Saponi, and the Tutelo," which was a byproduct of his study of the data pertaining to the John H. Kerr Reservoir, was sent to the printer and will appear as Anthropological Paper No. 52 in Bulletin 164 of the Bureau of American Ethnology.

After joining the River Basin Surveys Mr. Bass began a study of the human skeletal material that had been collected in the Missouri Basin and transferred to the U. S. National Museum. His work was well under way at the end of the year.

*Columbia Basin.*—After a lapse of several years the River Basin Surveys resumed investigations in the Columbia Basin late in the fiscal year. On June 11 Dr. Warren W. Caldwell joined the staff as archeologist. He left Seattle, Wash., on June 22 and proceeded with a party to Robinette, Oreg., where camp was established and excavations were started in a cave not far from the town of Robinette. The latter is built on a series of Indian sites, and tests were to be made also at various places in the town. The party was actively engaged in its investigations at the close of the year.

A report, "Excavations in the McNary Reservoir Basin near Umatilla, Oregon," by Dr. Douglas Osborne, was sent to the printer toward the end of the fiscal year. It will appear as River Basin Surveys Paper No. 8, Bulletin 166 of the Bureau of American Ethnology. The report covers investigations made during a previous year when the River Basin Surveys was operating a full-scale program along the Columbia River.

*Missouri Basin.*—The Missouri Basin project continued to operate throughout fiscal 1956 from the field headquarters and laboratory at 1517 "O" Street, Lincoln, Nebr. Except for periods of one week in August and two weeks in September, when he was detailed to the Department of Justice to assist in an Indian Lands Claim case, G. Hubert Smith served as archeologist-in-charge from July 1 to Janu-

ary 10. On the latter date Dr. Robert L. Stephenson, chief, returned from academic leave and resumed direction of the project. Activities during the year included all four phases of the Salvage Program: (1) survey; (2) excavation; (3) analysis; and (4) reporting. Phases 2 and 3 received the greatest attention however.

At the beginning of the fiscal year the Missouri Basin project had a permanent staff of eight, six assigned to the Lincoln office and two to the Washington office. Since the chief was in leave status there actually were only seven on active duty. Dr. Waldo R. Wedel, archeologist, and George Metcalf, field assistant, were detailed to the Missouri Basin project from the U. S. National Museum during July and August. In July, August, September, and October there were 20 temporary student and local nonstudent employees working in the field. Their services were gradually terminated as excavations were brought to a close, and by November 5 only the permanent staff remained. During the winter and early spring months a clerk-stenographer, a photographer, and a part-time records custodian were employed. These permanent additions to the staff continued on duty throughout the remainder of the year. In addition, a temporary part-time draftsman and a temporary part-time photographer assisted in the laboratory on various occasions. Wedel and Metcalf were again detailed to the Missouri Basin project on June 5 and were working for it at the close of the fiscal year. One temporary field assistant entered on duty May 28 and another on June 11. Both were with field parties at the end of the year. A temporary physical anthropologist was appointed on June 18 and was assigned to the Washington office to prepare reports on the skeletal materials from various Missouri Basin sites. The archeologist assigned to the Washington office returned to the Missouri Basin on June 20 and was on duty there at the end of the fiscal year. Also, 29 temporary student and local nonstudent laborers were employed in the field. Thus at the close of the year there were 11 permanent employees, 2 employees detailed to the Surveys, 2 temporary field assistants, 1 temporary physical anthropologist, and 29 temporary laborers on the staff of the Missouri Basin project.

During the year eight River Basin Surveys field parties operated in the Missouri Basin, three in the period July–October and five in the period May–June. One party in the July–October period and one in the May–June period were occupied in survey and site-testing activities. One party in the May–June period was engaged in the excavation of a historic site. The other five were excavating in prehistoric and protohistoric Indian village sites. Other fieldwork in the Missouri Basin during the year included six field parties from State institutions working under agreements with the National Park Service

and in cooperation with the Smithsonian Institution. Three of these parties were in the field in the July-October period and three in the May-June period.

In the Tiber Reservoir area a small field party directed by Carl F. Miller conducted excavations along the Marias River in north-central Montana from July 19 to August 16. Various sites located by previous Smithsonian Institution parties in the area were revisited and excavations were conducted at site 24TL26. This site proved to be of Woodland affiliation with some possible earlier and later sporadic occupation. Other sites visited by previous parties and recommended for further study have been destroyed by periodic flooding in the area, and on the completion of the 1955 season no further work was recommended for the reservoir.

In the Pactola Reservoir basin, the Carl F. Miller party conducted investigations on Rapid Creek in Pennington County, S. Dak., August 19-24. A brief survey had been made there in 1948 by a Smithsonian Institution field party, but heavy vegetation prevented adequate investigation at that time. Miller's party failed to find any archeological materials and no further work was recommended for the area.

In the Merritt Reservoir basin, the Carl F. Miller party conducted investigations on the Snake River and Boardman's Creek in Cherry County, Nebr., from August 26 to September 2. Sites recorded by a previous Smithsonian Institution party were revisited, sampled, and analyzed. Two of these had largely been covered by windblown sand, one was test excavated, and two yielded Woodland and later materials. Several blowouts were examined where chipped-stone artifacts were recovered. No further work was recommended for this area until such time as construction activities might bring to light new material.

In the Glendo Reservoir area, on the North Platte River in Platte County, Wyo., the Carl F. Miller party continued its field season from September 5 to 13. Investigations there consisted of a reexamination of sites located by an earlier Smithsonian Institution field party and recording of two new sites. One site, 48PL15, remains as the principal locality for further examination in the Glendo Reservoir area, and work will be started there early in the new fiscal year.

In the Oahe Reservoir area, the Carl F. Miller party concluded its field season at the Buffalo Pasture site (38ST6) in Stanley County, S. Dak., a short distance above the dam construction area. With the aid of a bulldozer a trench 11 feet wide, 367 feet long, and about 3½ feet deep was cut across a portion of the site in order to expose the stratigraphy from the present surface to sterile deposits below any cultural remains. There had been extensive digging at the Buffalo Pasture site during a previous season when the remains of several

earth lodges were uncovered and the encircling moat and remnants of the palisade were studied, but it was not until the big trench was cut that the site was determined to represent a single occupation. The trench bisected the depressions of four circular lodges and exposed some 20 refuse-filled cache pits which were cleaned out by hand. An excellent series of specimens, including a large pottery vessel, was recovered while the operations were under way.

The second field party in the Oahe Reservoir area in the 1955 field season was a Smithsonian Institution group directed by Richard P. Wheeler. This party conducted excavations from July 20 to November 5 at the Leavitt site (39ST215) and at the Breeden site (39ST16), formerly known as the Mathison site. The Leavitt site proved in part to represent an early historic Indian occupation related directly to the occupation at the Philip Ranch site, excavated in 1951 and reported in Bulletin 158 of the Bureau of American Ethnology, and in part to an older late prehistoric period. The site produced materials that assist greatly in the interpretation of both phases in the Oahe area. Especially important was the recovery of 15 human burials. One of them was particularly interesting because the skeleton was that of a large male with a lead musket ball embedded in the dorsal surface of the right pelvic bone. The individual had been shot in the back, possibly while running away from an assailant. There was nothing to indicate immediate death, but the man had not lived long because the bone surrounding the ball had not started to heal. Iron and brass bracelets, as well as glass beads, were found in several of the graves. At the Breeden site there was evidence for at least three occupations. The earliest was older than the first one at the Leavitt site and produced four deeply buried rectangular house remains indicative of the Monroe Focus which is thought to date at approximately A. D. 1200-1300. The later occupations have not been sufficiently identified to correlate definitely with other known cultures but they did have circular house structures. One has been attributed tentatively to the La Roche Focus, which is estimated by some to be A. D. 1600-1700, and the other to the historic Teton Dakota of about 1825 to 1875.

The third Smithsonian Institution party in the Oahe area in the 1955 season was directed by Dr. Waldo R. Wedel, assisted by George Metcalf. Working from July 18 to August 31, that party continued investigations at the Cheyenne River site (39ST1) which were begun by Dr. Wedel in 1951 for the River Basin Surveys. The site, a multi-component one, is located near the juncture of the Cheyenne River with the Missouri. Excavation of a large rectangular pit house, begun in 1951 and identified with the earliest of three occupations, was completed in 1955, and a 70-foot section of the stockade line forming part of the defensive works for the last (third) occupation was un-



covered. Much of the fill removed from the rectangular house pit consisted of sherds, bone, and other refuse material attributable to an intermediate late prehistoric occupation for which no houses have yet been opened on the site. The 1955 work apparently confirms earlier inferences that the site represents three separate occupations, the earliest probably postdating circa A. D. 1300, the latest antedating 1800 and in all likelihood attributable to the Arikara. At the close of the season Dr. Wedel recommended further investigations during the 1956 season in order to ascertain the nature of the dwellings left by the second occupation which it has been suggested may belong to the Bennett Focus. The site also promises important data bearing on the interpretation of village plans, the cultural sequences, and the way of life of the prehistoric Indians of that area.

The fourth party in the Oahe area in the 1955 season was sponsored by the University of South Dakota and the South Dakota Archeological Commission working under a cooperative agreement with the National Park Service. Dr. Wesley R. Hurt, of the University of South Dakota, was the director, and the party continued excavation of the Swan Creek site (39WW7) which was begun the previous year, ending a 7-week season on August 1. Human burials, a moat, a palisade, and houses were excavated, greatly increasing the information on these features for the region. This party also conducted limited test excavations at sites 39WW300, 39WW301, 39WW302, and 39WW303.

In the North Dakota portion of the Oahe Reservoir area the State Historical Society of North Dakota, working under a cooperative agreement with the National Park Service, comprised the fifth field party in that reservoir. The party, directed by Alan R. Woolworth, conducted excavations at the Paul Brave (or Fort Yates) site (32S14) from early July until late August. Three earth lodges of rectangular pattern were excavated. Limited testing was also accomplished in sites 32SI2 and 32SI3. Surface collections were made at a series of other sites in the vicinity, and aerial survey provided photographic records of 10 other sites in the North Dakota portion of the reservoir.

The 1956 field season in the Oahe Reservoir area began early, and by the end of the fiscal year six parties were in the field. G. Hubert Smith led a Smithsonian Institution party to the vicinity of the dam-construction area on May 21 and was still in the field at the end of the fiscal year. Smith's party spent some time examining old historic land records in the General Land Office at the State Capitol in Pierre, as well as records in the South Dakota Historical Society, in an effort to determine the location of various frontier trading posts. They then covered the area carefully on foot and finally found what appear to be the remains of Fort Pierre II which was in use around 1859-63. It

also seems probable now that Fort Pierre II and Fort Galpin (1857-59) are identical in location. Excavations in this locality in June revealed the outline of the stockade, the location of several structures, and produced interesting artifactual materials. The fort was much larger than most trading posts as the enclosure was approximately 200 feet square. It was destroyed by fire. Other historic sites scheduled for investigation by this party include Forts La Framboise and Primeau (both dating in the 1860's) and, if time permits, the sites of Fort Sully and Fort Bennett.

On June 5 Dr. Waldo R. Wedel returned to the Missouri River Basin and took a Smithsonian Institution field party to the Cheyenne River site (39ST1) where the final season of excavation was started. By the end of the fiscal year the party had opened several test areas, cache pits, and house features, recovering a good sample of artifacts. Upon completion of work at this site the Wedel party plans to finish excavations which were begun by another River Basin Surveys party in 1952 at the Black Widow site (39ST3).

A Smithsonian Institution party directed by Carl F. Miller began digging at the Hosterman site (39PO7) near Whitlock's Crossing, S. Dak., the last week in June. Having only started by the end of the fiscal year this party had nothing to report.

A University of South Dakota-South Dakota Archeological Commission party, working under a cooperative agreement with the National Park Service and directed by Roscoe Wilmeth of the University of South Dakota, began excavations in mid-June at the Swan Creek site (39WW7). This party also planned to make test excavations at two nearby sites (39WW302 and 39WW303) after completing the work at the Swan Creek site which was begun two seasons ago. They were in the field at the end of the fiscal year.

A University of Wisconsin field party, working under a cooperative agreement with the National Park Service and directed by Dr. David A. Baerreis of that University, began work early in June at the Eklo site (39WW3) near Mobridge, S. Dak. The party expected to conduct test excavations at two other nearby sites (39CA6 and 39CA9) after finishing the season's work at the Eklo site. They were in the field at the end of the fiscal year.

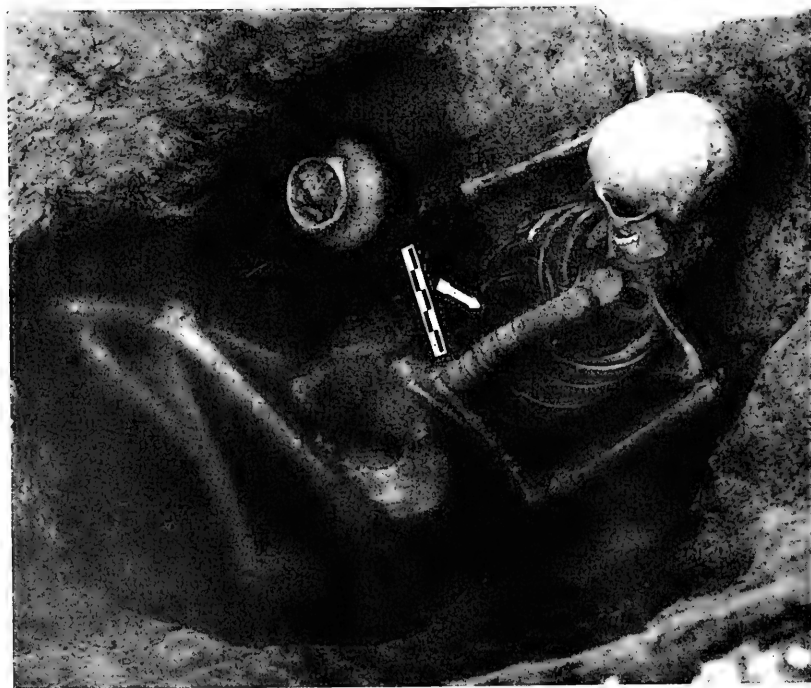
In the North Dakota section of the Oahe Reservoir a State Historical Society of North Dakota field party directed by Alan R. Woolworth, working under a cooperative agreement with the National Park Service, began investigations in mid-June. They excavated at the Demery site (39CO1) in Carson County, S. Dak., and at the Fireheart site (32SI2) in Sioux County, N. Dak. They also were to test an additional site (32SI208) in the vicinity. All three sites are near the North Dakota-South Dakota border. The party was in the field at the end of the fiscal year.



1. River Basin Surveys: Floor pattern of rectangular earth lodge at the Cheyenne Village site. Rows of holes indicate position of walls. Larger holes were cache pits. Entrance platform at far end. Workman is kneeling by fire pit



2. River Basin Surveys: Long curved line of post holes shows location of palisade at the Cheyenne Village. Men working on small cache pits and other post holes inside the stockade. Field camp in background.



1. River Basin Surveys: Indian burial at the Leavitt site near the Oahe Dam. Arrow indicates north and scale stick is 1 foot long. Pottery vessel was a mortuary offering.



2. River Basin Surveys: Uncovering remains of a bison kill at a camp site in the Tiber Reservoir area. Occupation level was 8 feet below the present surface.

With the added results of the current year's work, it is now possible to identify at least nine archeological complexes in the Oahe portion of the Missouri Basin, covering the years about A. D. 850 to 1859. Some indications have been found of occupations belonging to an earlier period, but they are not sufficiently known as yet to be included in the definitely identified list.

In the Fort Randall Reservoir two field parties operated in the 1955 field season. The Nebraska State Historical Society, under a cooperative agreement with the National Park Service, had a party directed by Marvin F. Kivett excavating at the Crow Creek site (39BF11). Work was started on this site in the 1954 season and the second season's digging there was completed late in August of 1955. This complex site contains the remains of two and possibly three occupations ranging in time over 300 or more years. The season's work provided new data on village plans, house types, fortifications, and relationships of this area to other areas in South Dakota and Nebraska.

The second party in this area was that of the University of Kansas led by Dr. Carlyle S. Smith of that institution and working under a cooperative agreement with the National Park Service. They excavated site 39BF204 over a 7-week period ending the last of July. They also conducted some test excavations in site 39BF201, which appeared to be culturally identical to the former site. Both relate directly to the Spain site (39LM301) and the Talking Crow site (39BF3), which were excavated in previous years by parties under Dr. Smith.

In the Big Bend Reservoir area a Smithsonian Institution party directed by Harold A. Huscher began an intensive survey and site-testing operation in this newly activated reservoir on the Missouri River in South Dakota on June 2. The party planned to search the entire reservoir area for archeological potentialities. It was scheduled to visit all known sites, locate all possible new sites, and make exploratory tests in all of them in order to determine what additional excavation must be done before inundation. By the end of the fiscal year it had visited and tested 20 sites and had located several others from previous records.

In the Lovewell Reservoir area a Smithsonian Institution party directed by Robert W. Neuman began the excavation, on June 12, of three sites on White Rock Creek in Jewell County, Kans. They started at site 14JW1 and worked there until the end of the fiscal year. The other two sites are 14JW2 and 14JW201. These sites should help materially in establishing the significance and cultural

content of the White Rock Focus and its relation to the western extension of the Oneota Aspect.

A total of 15 parties were in the field during fiscal 1956, 7 in the 1955 season, and 8 in the 1956 season, investigating archeological remains in 8 reservoirs. They conducted excavations at 24 sites, tested over 40 sites, and examined the surfaces of nearly 100 sites. Each field party consisted of a crew chief and from 6 to 10 crewmen. Bulldozers and other heavy equipment, supplied through the courtesy of the Lytle-Green Construction Company and the Corps of Engineers, were used at some sites in order to expedite investigations. At all reservoir projects the complete cooperation of the Corps of Engineers and the Bureau of Reclamation personnel was always willingly given.

On May 14 three members of this staff joined Dr. Dwight R. Crandell of the U. S. Geological Survey, Denver office, on an archeological-geological field trip to the areas of the Oahe, Big Bend, and Fort Randall Reservoirs in South Dakota. The party was in the field for seven days, examining Pleistocene and early Recent geological deposits and fossil soils. The principal purpose of the trip was to instruct members of the River Basin Surveys staff how to recognize possible localities where archeological deposits of Early Man material or other pre-pottery cultural remains might be found. The results of the trip, while negative from the standpoint of actually finding such sites, provided this office with a great deal of information as to where and how to search for such material in the future and what might be expected in specific localities. The three members of this staff who accompanied Dr. Crandell were Richard P. Wheeler, G. Hubert Smith, and Lee G. Madison. Dr. Crandell's participation in the project was arranged through the cooperation of Dr. Wilmot H. Bradley, Chief, Geologic Division of the Geological Survey.

While fieldwork during the fiscal year was devoted to phases 1 and 2 (survey and excavation) of the salvage program, laboratory and office activities were devoted to phases 3 and 4 (analysis and reporting). During the time the archeologists were not in the field they were engaged in analyses of their materials and in laboratory and library research. They also prepared manuscripts of technical scientific reports and wrote articles and papers of a more popular nature. The laboratory and office staff devoted its time to processing specimen materials for study, photographing specimens and preparing specimen records, and typing and filing records and manuscript materials. The accomplishments of the laboratory and office staff are listed in the following tables.

TABLE 1.—*Artifact materials processed*

Reservoir	Number of sites	Catalog numbers assigned	Number of specimens processed
Glendo.....	16	431	585
Merritt.....	1	7	220
Oahe.....	14	5, 183	36, 376
Tiber.....	3	172	374
Non-Reservoir.....	2	58	70
Unassigned.....	4	179	527
Total.....	40	6, 030	38, 152

As of June 30, 1956, the Missouri Basin project had cataloged 570,238 specimens from 1,517 numbered sites and 47 collections not assigned site numbers.

Two shipments of archeological materials were sent to the United States National Museum for permanent transfer. One was by Missouri Basin project vehicle and consisted largely of fragile items such as human skeletal remains, pottery vessels and vessel sections, bone, shell, and wooden artifacts. The second was by truck freight and consisted of stone specimens and other more durable materials.

TABLE 2.—*Record materials processed*

Reflex copies of records.....	1, 286
Photographic negatives made.....	615
Photographic prints made.....	2, 784
Photographic prints mounted and filed.....	1, 004
Plate layouts made for manuscripts.....	42
Transparencies mounted in glass.....	81
Drawings, tracings, and maps.....	14
Pottery vessels restored.....	3
Pottery vessel sections restored.....	32

On May 3, 4, and 5 the annual meetings of the Society for American Archaeology were held in Lincoln, Nebr. As a programmed part of the meetings, Thursday evening, May 3, was devoted to an "open house" at the Missouri Basin project laboratory at 1517 "O" Street. The office and laboratory were prepared with suitable displays of photographic and specimen materials in order to best exhibit the work of the Missouri Basin project. The "open house" was scheduled for 8:00 to 10:00 p. m. but lasted until well past midnight. Approximately 120 people visited the office and laboratory at that time.

Most of the activities of the Lincoln office during the first three weeks in March were devoted to a general remodeling of the office space at 1517 "O" Street. The entire first floor was cleaned and painted. The floors were sanded and coated with floor preservative.

The west half of the first floor was partitioned into seven office cubicles. A map room was made and the filing and secretarial facilities were improved. All the work was done by members of the staff.

Dr. Robert L. Stephenson, chief of the Missouri Basin project, returned to Lincoln on January 10 after 16 months academic leave and resumed his duties at the headquarters and laboratory. During the remainder of the fiscal year most of his activities were directed toward the preparation of plans for the summer's field program. In addition, he started work on a summary report of the Missouri Basin Salvage Program for the calendar years 1952-1955. He presented a paper, "Topography of a Late Archeological Site," at the 66th Annual Meeting of the Nebraska Academy of Sciences held in Lincoln on April 20-21. An abstract of the paper was published in the Proceedings of the Nebraska Academy of Sciences. He also took an active part in the annual meeting of the Society for American Archaeology held in Lincoln May 3-5 and presented a paper entitled "Pottery from the Accokeek Site, Maryland." At the close of the fiscal year he was preparing to take a field party to the Sully site (39SL4) in the Oahe area north of Pierre, S. Dak.

Harold A. Huscher, field assistant, who worked several previous seasons for the River Basin Surveys, rejoined the staff on May 28, and on June 2 left Lincoln in charge of a survey party which proceeded to Pierre, S. Dak., and began a reconnaissance of the proposed Big Bend Reservoir area on the Missouri River. The work of the Huscher party was continuing on June 30.

Robert W. Neuman, temporary field assistant, joined the staff on June 11. He left Lincoln on June 12 as the leader of a party which proceeded to the Lovewell Reservoir on White Rock Creek, Jewell County, Kans. By the end of the fiscal year he had excavated for two weeks in site 14JW1 and one week in site 14JW201. The work of Mr. Neuman and his party was handicapped by severe rains but was continuing at the close of the year.

G. Hubert Smith, archeologist, as previously stated was in charge of the Lincoln office during most of the period from July 1 to January 10. His work for the Department of Justice pertained to preparing an ethnohistorical report on the Omaha tribe and appearing as a witness at a hearing held in Washington late in September when his report was introduced as evidence. During the fall and winter months Mr. Smith completed the manuscript of a detailed archeological report on excavations at the site of Fort Berthold II (32ML2) in the Garrison Reservoir area in North Dakota. In addition Mr. Smith worked on a manuscript pertaining to excavations at Fort Berthold I and the adjacent Like-a-Fishhook Village. The latter paper is being prepared in collaboration with Alan R. Woolworth of the North Dakota Historical Society and James H. Howard who was formerly associated



with that organization and is now at the Kansas City Museum. Mr. Smith participated in the annual Plains Archeological Conference, the meetings of the Nebraska Academy of Sciences and of the Society for American Archaeology which were held at Lincoln. At the Anthropological Section of the Academy of Sciences, he presented a paper on the ethnographic contributions of Paul Wilhelm, Duke of Wuerttemberg, who first visited the Upper Missouri region in 1820. Early in May Mr. Smith went to Pierre, S. Dak., and spent a week with the geological party that was studying deposits in the Oahe Reservoir area. Following that activity he remained at Pierre and began his regular summer's program, as mentioned in previous pages. Mr. Smith's party was continuing its excavations just below the Oahe Dam at the end of the year.

Upon completing the 1955 season's work Dr. Waldo R. Wedel returned to Lincoln, and before his departure for Washington from the Missouri Basin project headquarters, proceeded to Turin, Iowa, to examine a reported find of human skeletons. He was accompanied by Lawrence L. Tomsyck of the Lincoln office, and when they arrived at the location of the burials they joined representatives from a number of institutions in studying the finds. Absence of diagnostic artifacts with the skeletons precluded any valid estimate of age or cultural affiliations, but nothing was noted that would confirm assertions which had been freely made that the bones were those of Paleo-Indians and had a Pleistocene dating. Upon his return to Washington Dr. Wedel resumed his regular duties at the U. S. National Museum. He was again detailed to the River Basin Surveys for the 1956 season and reported at the Lincoln headquarters on June 4. His subsequent activities were described in the preceding discussion of field parties in the Oahe area.

Richard P. Wheeler, archeologist, was in charge of a field party working in the Oahe Reservoir area from July 25 through October 29. During the remainder of the fiscal year he devoted his time to analyzing the materials obtained in the field and in working on a number of technical reports and short articles. One article, "Recent Archeological Salvage Operations in the Missouri Basin," was published in the Missouri River Basin Progress Report, October-December, 1955, and another, "'Quill Flatteners' or Pottery Modeling Tools," was published in the Plains Anthropologist, April 1956. Wheeler presented a paper on his work in the Oahe Dam area at the Plains Conference in November and participated in a number of discussions during the conference. He was elected chairman of the 14th Plains Conference which will be held in Lincoln in November 1956. At the end of the fiscal year Mr. Wheeler was at the Lincoln headquarters working on reports.

*Cooperating institutions.*—Several State and local institutions continued to cooperate in the Inter-Agency Salvage Program throughout the year, although the shortage of funds for working agreements in projects outside the Missouri Basin considerably reduced the activities. Several State groups carried on independently but their investigations were correlated with the general program. The New York State Museum at Albany kept close check on projects in that State. The Department of Anthropology at the University of Michigan studied the possible effect of proposed enlargements of the South Canal on St. Marys River on archeological manifestations in that district. The University of Minnesota made preliminary investigations relative to sites that may be involved in the flood-control program for the Mankato area. The Florida State Museum checked several proposed canal routes in the northern part of Florida. The Ohio State Historical and Archeological Society continued salvage work in several localities, and the Historical Society of Indiana included examination of proposed reservoir areas in its general program for surveys in that State. The University of California Archeological Survey did some further work on projects for which it previously had agreements with the National Park Service, and the Archeological Survey Association of Southern California continued its volunteer efforts in the vicinity of San Diego. In the Columbia Basin the University of Oregon did additional digging at sites on the Oregon side of the Columbia River at the Dalles Reservoir, while the University of Washington continued its investigations on the Washington side.

The only work done under an agreement with the National Park Service, except for that previously described for the Missouri Basin, was that of the University of Missouri in the Table Rock Reservoir on the White River in southern Missouri. A special appropriation for that project for the fiscal year made possible an extensive series of investigations under the direction of Dr. Carl H. Chapman. Sites in the Table Rock area are exceptionally numerous and represent a variety of cultures. Considerable progress was made by Dr. Chapman and his parties during the year.

#### ARCHIVES

The Bureau Archives continued during the year under the custody of Mrs. Margaret C. Blaker. From June 4 to 6 Mrs. Blaker attended the Special Libraries Association Convention in Pittsburgh, Pa., where copyright problems and the preservation, microfilming, cataloging, and arranging of photographic and manuscript collections were discussed.

#### MANUSCRIPT COLLECTIONS

The manuscript collections continue to be utilized by students. Visitors consulted about 264 manuscripts, and reproductions of 70

manuscripts were mailed out. In addition, 89 mail inquiries concerning manuscripts were received and more than 200 manuscripts were consulted by the archivist in preparing replies.

While examining these manuscripts, 93 of them were analyzed and more fully described in anticipation of publishing a manuscript catalog. Several descriptive lists of manuscripts relating to specific subjects or tribes were prepared for distribution.

Additions to the collections included a manuscript translation of the Book of Genesis into Choctaw by Rev. Cyrus Byington, dated 1862. This translation was received from Miss Marcia Walton of New York City. Accompanying the gift were a number of photographs and news clippings relating to the Reverend Byington's work; some of these are for permanent deposit, while others have been lent for copying only.

Just at the year's end, Dr. Philip Drucker's field notebooks and unpublished manuscripts for the period 1937-55 were accessioned and sorted. They cover ethnological and archeological work in Alaska, the Northwest coast, California, Meso-America, and Micronesia. They occupy about 20 manuscript boxes.

#### PHOTOGRAPHIC COLLECTIONS

A sustained interest in pictorial data relating to the American Indian has been shown by authors, publishers, students, and others who have continued to draw heavily on the Bureau's photographic collections. There were 294 inquiries and purchase orders for photographs, and 978 prints were distributed. In response to public inquiry, the archivist prepared numerous lists that described photographs available for specific subjects or tribes.

Public interest has also been demonstrated by the contribution of additional Indian photographs to the Bureau's collections.

Frank B. Shuler of Hamilton, Ohio, lent a group of 29 photographs of Kiowa, Comanche, Caddo, Wichita, and Sioux Indians. These photographs were made about 1900. Copy negatives of 17 of these were made for Bureau files.

Through the courtesy of Mr. and Mrs. Hugh N. Davis, Jr., of Miami, Fla., the Bureau received 295 photographic prints of Seminole, Cheyenne, and Alaskan Indians photographed during the years 1905-52 by Deaconess Harriet M. Bedell, a missionary now residing in Everglades City, Fla. Mr. and Mrs. Davis contributed their services in making enlarged 8-x-10" prints from snapshot negatives lent to them by Deaconess Bedell; the cost of the materials used was borne by the Bureau.

Later in the year a collection of 450 snapshot negatives of Seminole Indians, made principally by Stanley Hanson in the period 1927-31, was lent to the Bureau by Robert Mitchell of Orlando, Fla., through

Gene Stirling of Venice, Fla. Copy negatives of some 280 of these were made. Enlargements of the remainder are being printed, the work being about half completed at year's end.

#### ILLUSTRATIONS

Illustrative work for the Bureau of American Ethnology and the River Basin Surveys consumed the major portion of the illustrator's time for the year. This included a great variety of work on charts, graphs, maps, diagrams, photograph retouching, and other illustrations for the Bureau and River Basin Surveys publications.

There were also charts, graphs, mechanical renderings, and illustrations on a variety of other subjects prepared for other Smithsonian departments.

#### EDITORIAL WORK AND PUBLICATIONS

There were issued 1 Annual Report and 1 Bulletin, as follows:

Seventy-second Annual Report of the Bureau of American Ethnology, 1954-1955.  
ii + 24 pp. 1956.

Bulletin 163. The Diné: Origin myths of the Navaho Indians, by Aileen O'Bryan.  
viii + 188 pp., 1 pl., 23 figs. 1956.

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

Bulletin 161. Seminole music, by Frances Densmore.

Bulletin 162. Guaymí grammar, by Ephraim S. Alphonse.

Bulletin 164. Anthropological Papers Nos. 49-56.

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

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

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

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

No. 53. Archeological reconnaissance of Tabasco and Campeche, by Matthew W. Stirling.

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

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

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

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

Bulletin 166. River Basin Surveys Papers, No. 8. Excavations in the McNary Reservoir Basin near Umatilla, Oregon, by Douglas Osborne.

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

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

Publications distributed totaled 17,018 as compared with 24,533 for the fiscal year 1955.

## COLLECTIONS

*Acc. No.*

208851. 4 specimens of birch bark bearing pictographs incised and etched by the Passamaquoddy Indians of Maine and the Abnaki of New Brunswick.  
 209009. 35 vials and 39 envelopes of insects from Southampton and Walrus Islands, 300 plants, mollusks, fossils, lemmings, and 38 mammals, collected by Henry B. Collins.

## FROM RIVER BASIN SURVEYS

207595. Archeological material consisting of pottery, stone, bone, glass, and metal objects collected by reconnaissance parties of the Missouri Basin Project in and about 16 reservoir areas in Nebraska, and human skeletal material from 4 sites.  
 207596. Archeological specimens from North Dakota.  
 208180. 149 fresh-water mollusks from Nebraska and Wyoming, collected by Carl F. Miller.  
 209283. Archeological specimens consisting of pottery, stone, bone, glass, and metal objects collected by parties of the Missouri Basin Project, in and about two sites in area of Fort Randall Reservoir, Charles Mix County, S. Dak., and human skeletal material from 39CH7.  
 209694. Archeological material consisting of rim and body sherds from Clay County, Kans.  
 209962. Archeological material consisting of pottery, stone, bone, and shell objects collected by reconnaissance parties of the Missouri Basin Project, from two mound sites in South Dakota, 1947-48, human skeletal material.  
 209963. Shell beads collected by reconnaissance parties of the Missouri Basin Project from site in Stanley County, S. Dak., human skeletal material.  
 210409. Archeological and human skeletal material from site in Fort Randall Reservoir, S. Dak.

## MISCELLANEOUS

Dr. John R. Swanton, Dr. Frances Densmore, Dr. Antonio J. Waring, Jr., and Ralph S. Solecki continued as collaborators of the Bureau of American Ethnology. Dr. John P. Harrington is continuing his researches with the Bureau as research associate. Dr. William C. Sturtevant, ethnologist, joined the staff of the Bureau on March 29, 1956.

Information was furnished during the past year by staff members in reply to numerous inquiries concerning the American Indians—past and present—of both continents. Many new descriptive lists and information leaflets were prepared in answer to requests for information on the Bureau's photographic and manuscript collections and other subjects. There continued to be a constant demand for information, published material, and photographs from teachers, particularly of

primary and secondary grades, from Scout organizations, and from the general public. Material for use in writing term papers was in frequent demand by high-school students who show an increasing interest in this popular subject. On several occasions publishers consulted various staff members regarding ethnological and archeological problems, and the archivist regarding unpublished manuscripts and the photograph collections. Specimens sent to the Bureau were identified and data on them furnished for their owners.

Respectfully submitted.

M. W. STIRLING, *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 Astrophysical Observatory for the fiscal year ended June 30, 1956:

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

## DIVISION OF ASTROPHYSICAL RESEARCH

At the beginning of the fiscal year, the scientific headquarters of the Division of Astrophysical Research were moved from Washington to Cambridge, Mass. In this new location, a close liaison with Harvard University is expected to add to the research effectiveness in astrophysics for the Smithsonian Institution. With this transfer and the development of a working association with Harvard College Observatory, a reevaluation of the basic scientific policies and goals of the Astrophysical Observatory was undertaken. Because of the present-day rapid progress in the physical sciences, the understanding of the fundamental astrophysical processes of the sun, earth, planets, and interplanetary medium has grown at an ever-increasing rate. In addition, our mushrooming technology has become more and more sensitive to phenomena of the solar system which were once considered as of only academic interest. The Astrophysical Observatory's long tradition of active research in solar and terrestrial phenomena and their interrelationships has laid a firm foundation upon which will be based new research objectives including, besides solar radiation, other phenomena of the solar system which also affect the earth and its atmosphere. Energy sources other than the sun have a profound effect on our atmosphere, on geophysical phenomena, and on practical technological aspects of radio communication, the guidance of missiles, and other practical considerations. Among the sources of energy are corpuscular radiation from the sun, meteors,

cosmic rays, interplanetary gas, and radiation from without the solar system.

This broadened research program of the Astrophysical Observatory now embraces not only research in solar activity and its effects upon the earth, but also meteoritic studies and studies of the higher atmosphere. New methods of research, as they develop, will be included in the program. For example, radioactivity and nuclear processes will be utilized in the study of meteorites. Theoretical research and magnetohydrodynamics will increase our understanding of how solar variations and activity occur and how the energy from these activities affect the earth's magnetic field, produce air night glow, the aurora borealis, and other phenomena of a geophysical character.

The new Satellite Program of the International Geophysical Year, sponsored by the National Academy of Sciences and the National Science Foundation, and in which the Astrophysical Observatory has a very important part, promises a new and startling tool of remarkable power in the study of solar-system and geophysical phenomena. Such technological tools as may be developed will be incorporated in the working potential of the Astrophysical Observatory. A restudy of plans and methods was an important first step.

*Work on solar radiation.*—As reported last year, the quality of the skies at the Montezuma station in Chile deteriorated to an intolerable degree because of smoke introduced by smelting operations at nearby copper mines. Consequently, the station was closed September 22, 1955. The scientific and new transportation equipment was moved to Table Mountain in southern California. By the middle of winter the three observers at that station, F. A. Greeley, A. G. Froiland, and Stanley Aldrich, extended the observational program to include simultaneous observations of the sun from two similar arrays of radiation-measuring equipment. In this fashion it will now be possible to check the influence of instrumental variations upon the measurements of solar radiation and atmospheric opacity.

However, the Table Mountain skies are also beginning to show progressive deterioration from the smog from the Los Angeles urban area. So far this has not been too disadvantageous, but probably the transparency loss will eventually necessitate the acquisition of a new observing station for solar radiation. Serious searches for a site with clear skies have been conducted in recent years, but the time is approaching when a conclusive investigation must be made of the usable high-altitude locations that offer the necessary atmospheric qualifications for precise solar measurements. It is possible that the use of satellite vehicles for carrying instruments to measure solar radiation will eventually obviate the need for ground stations by elim-



inating the errors arising from atmospheric opacity. On the other hand, the measurements of atmospheric opacity in the observing program of the Astrophysical Observatory have become of increasing interest to meteorologists and geophysicists in recent years. Records from Table Mountain show clearly the increased opacity of the atmosphere arising from the Alaskan volcano in 1953. However, they show no effect of increased opacity arising from the explosions of nuclear or thermal nuclear bombs.

*Meteoritic studies.*—Meteoritic studies have been a part of the Smithsonian Institution's scientific research program for the past 80 years. The Institution's meteorite collection, which has been developed through these decades of exploration and study, is one of the most outstanding in the world. In cooperation with meteorite specialists in the department of geology of the United States National Museum, E. P. Henderson and the late Dr. W. F. Foshag, a freshly oriented plan of meteoritic research has been explored. This new program has been placed under the supervision of Dr. John S. Rinehart for the purpose of ascertaining the answers to numerous questions concerning astrophysical dynamics. As a result, the following aspects of the problem are now in course of consideration: Past and current research pertaining to the nature and distribution of meteorite debris and micrometeorites; the nature of meteorite craters; exterior and terminal ballistics and other phenomena that relate to meteoritic impact against the earth; and the extraterrestrial life of meteorites. All these studies are directed toward answering astrophysical rather than specific geologic questions.

Under the sponsorship of the United States Air Force, the Astrophysical Observatory has initiated a program whose objective is to develop a better understanding of the processes that cause ablation as meteorites hurtle through the atmosphere. Effort thus far has been confined (1) to renewed search of museum collections for specimens that exhibit ablation, and (2) to a metallurgical examination of meteorites that show heat alteration effects caused by their passage through the atmosphere.

In June 1956, Dr. J. S. Rinehart, Nicholas Matalas, R. O'Neil, and R. Olson journeyed to the meteorite crater near Winslow, Ariz., in order to investigate, by systematic sampling, miniscule spherules, globules, and pieces of meteoritic matter in the soil around the crater. The search will extend over an area of more than 100 square miles. Magnetic means are being used to extract meteoritic material from soil samples. Initial effort is being directed toward the development of sampling techniques and the identification of material. The results of the first survey will be used as the basis for further and more extensive exploration of the Arizona crater and other terrestrial me-

teorite craters. A long-term objective of the program is to arrive at a better estimate of the rate of accretion of meteoritic material by the earth.

Design and construction of a fluorescent X-ray micronalyzer have likewise been initiated and are now well under way. When completed this instrument can be used to determine within a microscopic (5-micron) area the concentration and distribution of the various chemical elements within a meteorite, without destruction of the sample. The method will be applied first to the determination of nickel-iron percentages in meteorites that have Widmanstaetten figures. A knowledge of the distribution of nickel will be of considerable cosmological significance as related to the origin of meteorites.

*Satellite Tracking Program.*—The United States National Committee of the International Geophysical Year under the National Academy of Sciences and through the National Science Foundation has assigned to the Smithsonian Institution the responsibility, and also a grant of funds, for initiating and executing an optical research program involving the tracking of the planned artificial earth's satellite. Dr. J. Allen Hynek has joined the project as associate director in charge of the Optical Observing Program and will join the permanent Smithsonian staff in July 1956.

The Satellite Tracking Program consists of two distinct parts: the visual search and tracking program, of low-order accuracy, and the photographic tracking program, of extremely high precision. The two have a common denominator in the needs for a communication system and a central computing bureau to provide ephemerides and for the later analysis of scientific results attained from the tracking of the satellites.

The precision optical program will be carried out by means of special Schmidt cameras of aperture 20 inches, mirrors of aperture 30 inches, and focal length of 20 inches, for which a newly developed optical system is being designed by Dr. James G. Baker. A unique drive system for these cameras is being designed by Joseph Nunn and associates to make possible the photography of a 15-inch sphere at a distance of a thousand miles and a 3-foot sphere at the moon's distance during hours of deep twilight or darkness when the satellite is illuminated by the sun. A tracking accuracy of some 2 seconds of arc normal to the path of the satellite on the sky and some 6 to 10 seconds along the direction of motion with a time precision of one-thousandth of a second is anticipated in the operation of these cameras.

A number of observing stations, possibly 12, each of which will include one of these cameras and a precise crystal-clock system, will be established at intervals around the globe. Observations of artificial earth satellites from such a system of stations, combined with an

accurate computing system, should make possible the calculation of the position of the satellite at any moment and the relative position of the stations in respect to each other and to the center of the earth with a precision of some 30 feet. Not only is such precision tracking essential to the general scientific value of the Artificial Satellite Program, but it will lead specifically to precise determination of the atmospheric density and pressure as a function of height to an altitude of some 300 to 500 miles above the earth's surface. It will provide a precise interconnection among the geodetic networks of the continents and islands, the inclination of these networks with respect to the true geoid, the shape of the earth, certain gravimetric data concerning the distribution of mass in the earth, and other geophysical information of great significance.

The visual tracking program will have two aspects: (1) Acquisition of a satellite in case the electronic tracking equipment contained in the satellite should fail, as well as possible tracking near the end of a satellite's lifetime as it plummets through the lower atmosphere; and (2) a broad contribution to general interest in scientific research by young potential scientists as well as the general public. The visual observations will be carried out by a large number of nonprofessional observers under the general direction of Dr. Armand N. Spitz. It is expected that between one and two thousand observers, usually amateur astronomers, will be activated in this program, but many times that number will follow the program in considerable detail and gain scientific understanding and interest because of it.

The organization of the visual observation part of the program is well under way, and the first of a series of bulletins has been prepared and issued to more than 20,000 potential observers.

The participation of the Smithsonian Astrophysical Observatory in the Artificial Satellite Program follows two traditions that we cherish in the Smithsonian Institution. We are participating as pioneers in the progress of science, comparable to Dr. Langley's original research in the flight of heavier-than-air craft. We are also promoting international interest in the Satellite Tracking Program which is in keeping with the worldwide pattern of contributions to knowledge by the Smithsonian Institution.

#### DIVISION OF RADIATION AND ORGANISMS

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

The major activities of this division have been concerned with fundamental physiological and biochemical research on the role of light in regulating growth in higher plants. Seed germination, seedling growth, flowering, and the development of what is commonly referred to as a "normal plant" are controlled by light. Pigments

within the organism absorb the light and convert it into chemical bond energy and thus initiate a chain of events that produce the observed growth effects. In most instances, relatively little light is necessary. This is in contrast to the photosynthesis of sugars where very high intensities are required for optimal results. There is a similar group of light-controlled reactions in animals which regulate many phases of reproductive behavior. Plans have been prepared for extending the findings and technics developed in the laboratories to this phase of animal physiology.

The regulatory plant photochemical reactions may be divided into two general groups: (1) Those controlled chiefly by red and far-red light; and (2) those controlled principally by blue light. The respective pigment systems channel the energy into different biochemical pathways and therefore induce entirely different physiological responses.

*Photomorphogenesis.*—Included in the photochemical reactions initiated by red light are formative growth processes in seedlings, such as the ability to form normal leaves and the disappearance of the stem hook that often is present on germination. Any one of these responses, among many others, can be used as quantitative bioassays of the photo-reactions. In these laboratories we have developed a technic based on the rate of angular opening of the excised stem hook or arch that appears in seedlings of beans and other dicotyledonous plants that have been grown in complete darkness. If the hook portion of the stem is cut from the seedling and exposed to red light, and then returned to darkness, the hook will open in the following 20 hours to an angle that is proportional to the logarithm of the incident red-light energy. Last year it was determined that the most effective region of the spectrum for producing this response was in the red at 660  $m\mu$ . If, after an exposure to red light, the hook is treated with far-red energy from 700 to 750  $m\mu$ , much of the effectiveness of the initial red treatment is inhibited or "reversed." Dr. W. Klein, Dr. R. B. Withrow, and V. Elstad have completed the action spectrum of this far-red reversal phenomenon and have found that the maximum reversal occurs at 710 and 730  $m\mu$ , with a weak maximum at 640  $m\mu$ . The reversal action has been determined at 27 points in the spectrum from 365 to 800  $m\mu$  in the following incident energy series: 25, 10, 7.5, and 5.0 millijoules (mj). The percentage reversal is directly proportional to the far-red incident energy, up to values of 10 mj which produces about 85 percent reversal. This linear response is in contrast to logarithmic function of the red-light induction reaction.

*Phototropism.*—Another expression of photoregulatory processes in plants is bending toward a light source, or phototropism. Previously, Dr. E. S. Johnston of this laboratory had found the action

spectrum of this response in oat plants to have two maxima in the blue. However, because of poor resolution of the reaction in this region, subsequent disagreement has arisen and it has not yet been clearly established what pigment absorbs the incident energy and initiates the response. There are several blue-absorbing pigments, including the carotenoids and flavins, with absorption characteristics that might qualify them as candidates for the role of the photoactivated pigment. For example, beta-carotene has absorption maxima in the blue at 435 and 470  $m\mu$  and riboflavin at 445 and 475  $m\mu$ . Both pigments are commonly found in plants.

However, the flavins and the carotenoids have very clear-cut spectral differences in the near ultraviolet. Riboflavin has a strong absorption maximum at 370  $m\mu$ , but the carotenoids do not absorb in this region. Therefore, the effectiveness of various ultraviolet wavelengths in promoting phototropic curvature might be used as an indicator as to which of these two pigment types is involved. When the pigment system responsible is identified, it will be possible to resolve the initial steps of the chemical reactions leading to curvature.

In order to establish the effectiveness spectrum, a large-grating monochromator, for irradiation in the near ultraviolet and visible, has been built in the Observatory shops. Calibration of the equipment has been completed and Walter Shropshire has standardized bioassay technics, using curvatures of the oat and barley coleoptiles to measure the effectiveness spectrum. Although positive phototropic curvatures have been obtained in the near ultraviolet in preliminary studies, a complete monochromatic analysis of the action spectrum in the entire visible and near ultraviolet appears necessary before the photoactivated pigment system can be clearly identified.

*Photochemical synthesis of plant pigments.*—Dr. J. Wolff and L. Price have found that the complete chlorophyll molecule is not formed immediately on irradiation of leaves of plants grown in the dark, as heretofore postulated. Instead, protochlorophyll, the green pigment present in very low concentrations in leaves of dark-grown seedlings, is rapidly converted by light to chlorophyllide *a*. This pigment is subsequently linked to the long chain alcohol, phytol, by the action of the enzyme chlorophyllase in a strictly nonphotochemical thermal reaction. Chlorophyllide *a* and chlorophyll *a* have identical absorption spectra in the visible, but differ in chemical properties. Protochlorophyll has a different absorption spectrum from chlorophyllide *a*, yet the two pigments have similar chemical properties. These facts indicate that what has been commonly termed "protochlorophyll" is actually protochlorophyllide.

*Modification of X-ray damage by visible radiant energy.*—The damaging effects of X-rays and other forms of ionizing radiation to liv-

ing cells are due chiefly to the breaking of the chromosomes and interference with normal cell division. Young rapidly dividing cells are most susceptible to X-ray damage and evidence three types of aberrations—chromatid break, isochromatid break, and chromatid exchange. In the past year, Dr. C. C. Moh and Dr. R. B. Withrow continued the study of the effect of infrared, far-red, and red radiant energy on the modification of chromosomal damage induced by X-rays, using root tips of the horse bean, *Vicia faba*, as the chief experimental material.

It has been found that infrared, from 820 to 1350  $m\mu$ , causes no significant increase in X-ray damage to the chromosomes. However, far-red at 710 to 820  $m\mu$  did significantly increase the frequency of chromosomal aberrations induced by X-rays. The three types of chromosomal aberrations were not effected equally, however. Chromatid exchanges increased 100 percent; chromatid breaks, 34 percent; isochromatid breaks were increased very little, if at all. These results were substantiated with the pollen of the *Tradescantia* flower where the chromosomes of the microspores showed similar results.

When wavelengths from 680 to 820  $m\mu$  (involving red and far-red radiant energy) were used, the ability of far-red to increase the X-ray damage was not secured. Thus, apparently, when red and far-red are combined in proper proportions, the two regions nullify each other. This could explain the negative results obtained by several workers who irradiated the biological material with filters that did not sharply absorb all the red.

Red radiant energy (wavelengths from 630 to 680  $m\mu$ ), when used alone prior to X-irradiation, increased the yield of chromatid exchanges significantly, but chromatid and isochromatid breaks were consistently decreased by 10 to 20 percent. This action of red radiant energy on X-ray-induced chromosomal breaks is not yet clear. It is suggested that the red radiant energy might accelerate the rejoining process after the breakage occurs.

#### PUBLICATIONS

During the current year the following publication concerned with the work of the Division of Astrophysical Research was issued by the Smithsonian Institution:

Leading operations of the Smithsonian Astrophysical Observatory, 1895 to 1955, by C. G. Abbot. Smithsonian Misc. Coll., vol. 131, No. 1, Sept. 22, 1955. (Publ. 4222.)

The following publications by Dr. F. L. Whipple appeared in various other scientific journals:

On meteors. Proc. Astron. Soc. Pacific., vol. 67, pp. 367-386, 1955.

Photographic  $\alpha$ -Capricornid meteors (with F. W. Wright and L. G. Jacchia). Astron. Journ., vol. 61, p. 61, 1956.

A research program based on the optical tracking of artificial earth satellites (with J. A. Hynek). Proc. Inst. Radio Eng., vol. 44, pp. 760-764, 1956.  
On meteors and rainfall (with G. S. Hawkins). Journ. Meteorol., vol. 13, No. 3, pp. 236-240, June 1956.

A new series, Smithsonian Contributions to Astrophysics, has been initiated to provide a proper outlet for the research contributions of the Smithsonian Astrophysical Observatory and to provide an additional avenue of publication for a limited number of contributions by other investigators with interests in common with those of our observatory. These contributions will contain research papers specifically in astrophysics, with particular attention to problems of the sun, the earth, and the solar system.

The first number of the Smithsonian Contributions to Astrophysics, in galley proof at the end of June, is entitled "New Horizons in Astronomy." It is a collection of scientific papers by leaders in the various fields of astronomy who present their concepts of the research problems that should prove most important to the advancement of astronomy during the next decade or two. These papers are published with partial support by the National Science Foundation. An *ad hoc* committee of the National Science Foundation, on the "Needs of Astronomy," has devoted its attention to methods of increasing the potential of astronomy. One of the methods is the publication of the "New Horizons" series of papers. There is hope that the Smithsonian Contributions to Astrophysics will serve to further our understanding and appreciation of this part of the universe in which we are privileged to live.

#### OTHER ACTIVITIES

During the course of the year, the Director attended and contributed to the following international congresses: The International Federation of Astronautics at Copenhagen, Denmark, in August 1955; a symposium on radio astronomy at the Jodrell Bank Experimental Station, University of Manchester, England, in August 1955; and the Congress of the International Astronomical Union held at Dublin, Ireland, in early September 1955. He was appointed President of the Subcommittee on Meteoritics of the IAU commission No. 22.

In national science and defense, the Director contributed by serving in the following capacities: Chairman of an *ad hoc* committee on "Needs of Astronomy" on the Panel on Astronomy of the National Science Foundation; chairman of a working group to set up a standard atmosphere for national and international use; as chairman of the Panel on Rocketry of the International Geophysical Year, U. S. Council of the National Academy of Sciences; member of the Technical Panel on the Earth Satellite Program of the International Geophysical Year; member of the working group on the Tracking

of Artificial Earth Satellites under the above panel; associate editor of the *Astronomical Journal*; and member of the Panel of the Atmosphere of the Scientific Advisory Board to the Air Force.

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, 1956.

## SMITHSONIAN ART COMMISSION

The 33d annual meeting of the Smithsonian Art Commission was held in the Regents Room of the Smithsonian Building on Tuesday, December 5, 1955. Members present were: Paul Manship, chairman; Robert Woods Bliss, vice chairman; John E. Graf, acting secretary; John Nicholas Brown, Gilmore D. Clarke, David E. Finley, Lloyd Goodrich, Walker Hancock, Charles H. Sawyer, Stow Wengenroth, Archibald G. Wenley, Lawrence Grant White, Andrew Wyeth, and Mahonri Young. Thomas M. Beggs, Director, and Paul V. Gardner, curator of ceramics, National Collection of Fine Arts, were also present.

Dr. Finley, chairman, reported that the executive committee had met on November 18, 1955. Those present were: Mr. Clarke, Mr. Wenley, Mr. Manship, Dr. Carmichael, ex officio, and Mr. Beggs. Various means of acquiring works by living artists were discussed. Existing membership of the Commission was considered, and it was suggested that at its annual meeting the present imbalance between its three categories of membership (artists, experts, and men from civic life) be corrected by strengthening representation of public interest. Acting as a nominating committee, at the request of Mr. Manship, the executive committee suggested a list of officers and members for new terms. Following this report, the Commission voted to recommend to the Smithsonian Board of Regents the reelection of Lloyd Goodrich, Walker Hancock, Lawrence Grant White, and Bartlett H. Hayes, Jr., for the usual 4-year period.

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

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

Mr. Beggs pointed out that gifts of valuable art objects will not be received until exhibition space of the National Collection of Fine Arts is noticeably increased. He stated that since the National Gallery of Art now collects and superbly exhibits the art of the past, the proper function of the National Collection of Fine Arts should be the acquisition of meritorious examples of painting, sculpture, and design by living artists. The Ranger Fund of the National Academy of Design establishes a precedent for placing such works of art in other institutions until re-called for use in the National Collection of Fine Arts. Until a new Smithsonian Gallery of Art is built, therefore, accessions by gift, as well as by purchase, might be lent if donations were made with that understanding. The advantage of purchase prize competitions was discussed, and possible circulation of selected items from these by the Smithsonian Traveling Exhibition Service was mentioned. The urgent need for space in a new building to house all these services was cited.

Mr. Goodrich recalled that at the last annual meeting discussion concerning the Smithsonian Gallery of Art had not been completely resolved and presented a resolution which was unanimously accepted as follows:

*Whereas* the Congress of the United States approved a Joint Resolution on May 17, 1938, titled Public Resolution No. 95, 75th Congress, providing that a suitable tract of public land in the District of Columbia between Fourth and Fourteenth Streets and Constitution and Independence Avenues should be assigned as a site for the Smithsonian Gallery of Art, that appropriate designs for a building for the Gallery should be secured, the sum of \$40,000 being appropriated for this purpose, and that the Regents of the Smithsonian Institution should be authorized to solicit and receive funds from private sources to meet the cost of construction of such a building, to purchase works of art, conduct exhibitions, and carry on other related activities; and *whereas* a competition for designs for such a building was held by the Smithsonian Gallery of Art Commission; therefore be it

*Resolved*, that the Smithsonian Art Commission strongly favors the early construction of such a building; that the Commission believes that if this is to be accomplished, funds must be appropriated by the Congress in addition to donations from private sources; and that the Commission requests that the Secretary of the Smithsonian Institution transmit this resolution to the Regents of the Institution and to other interested persons.

Mr. Brown proposed the following motion which was carried unanimously:

It is moved that the executive committee be requested to take under advisement the program for the new building and, in consultation with the Secretary of the Smithsonian Institution, define the purposes and the scope of the much desired new building.

The Commission recommended acceptance of the following objects:

Oil, Brooding Silence, by John F. Carlson, N. A. (1875-1945). Henry Ward Ranger Bequest.

Three miniatures, A Gentlewoman, Lady with Blue Hair Ribbon, and Lady with Pearls in Hair, by Hattie E. Burdette (?-1955). Gift of George F. Linkins.

A German antique cabinet and a collection of 31 pieces of glass, mostly German and Bohemian from the sixteenth to the nineteenth centuries. Bequest of Henry Osthoff.

Two award-winning pieces from the Fifth International Exhibition of Ceramic Art, 1955; sgraffito bowl, by Roger D. Corsaw, winner of the Frank A. Jelleff award; and a green bowl, by Cynthia Wilder Mott, winner of the Popular Ceramics Magazine award. Gift of the Kiln Club.

Three bronze busts, offered by the sculptors to the Smithsonian Institution—Dr. Charles Greeley Abbot, by Alicia Neathery; Dr. Albert Schweitzer, by Leo Cherne; and Daniel Carter Beard, by Nickolai V. Dimitrieff—were recommended for addition to the Smithsonian collection, the latter two for transfer to the division of medicine and public health and the division of civil history, respectively.

#### THE CATHERINE WALDEN MYER FUND

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

101. Richard Yates (1732-1808), attributed to John Ramage (1748-1802).

102. Mrs. Richard Yates (nee Catherine Brass) (1735-?), attributed to John Ramage.

103. Lawrence Reid Yates (brother of Richard) (?-1796), by Walter Robertson, after Gilbert Stuart.

104. Mrs. Elizabeth Pollock Hartigan, attributed to Walter Robertson.

Nos. 101 through 104 were acquired from Capt. Edward E. Lull, U. S. N. R., Norfolk, Va.

105. Mrs. Benjamin Silliman (Harriet Trumbull) (?-1850), attributed to Henry Colton Shumway (1807-1884); from Spencer R. McCulloch, Kirkwood, Mo.

#### WITHDRAWAL BY OWNERS

Twenty-two bronzes, 20 by Frederic Remington, lent in 1947, Paleolithic Woman, by Sally James Farnham, lent in 1947, and Destiny of the Red Man, by Adolph A. Weinman, lent in 1950, were withdrawn by the R. W. Norton Art Foundation, Shreveport, La., and taken to the Remington Art Memorial, Ogdensburg, N. Y., on December 8, 1955.

Five family portraits, Lady Standing by Tombstone (Henrietta Gordon), signed Martin, and Lucy Walters and the Duke of Monmouth, said to be by Sir Peter Lely, lent by the Bruce Corporation (Ltd.) of Kildary, Scotland, and Wilmington, Del., through Sir Charles Ross in 1926; Hon. Grizel Ross, said to be by William Hogarth, lent by Lady Ross in 1949, and Charles II, and Earl of Lauderdale, by undetermined artists, lent by her in 1951, were withdrawn by Lady Ross for shipment to Balnagown Castle, Ross-shire, Scotland, on February 28, 1956.

Four hundred and sixty-seven Chinese jade ornaments, 111 Chinese snuff bottles, 45 Chinese mirrors, 1 plate, and 3 bowls, lent by Dr. Edwin Kirk in 1943 and 1944, were withdrawn by Mrs. Kirk on March 29, 1956.

#### ART WORKS LENT

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

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

- July 5, 1955----- Friendly Neighbors, by Alfred Howland.  
 Head of a Woman, by Jean Gustave Jacquet.  
 Head of a Woman, by Eisman Semonowski.  
 Queen Henrietta Maria, Wife of Charles I, in  
 the manner of Anthony Van Dyck.  
 May 24, 1956----- Francis James Child, by Leila Usher. (Plaster  
 bas-relief.)  
 American Eagle, by undetermined sculptor.  
 (Plaster cast.)  
 Madonna with Halo of Stars, by undetermined  
 artist.  
 November, by Dwight W. Tryon.

To David Reasoner, as executor of the estate of Abbott H. Thayer, and Charles M. Plunket, Washington, D. C.:

- August 3, 1955----- Two Hooded Warblers, by Abbott H. Thayer.  
 11 cardboard folders containing sketches made  
 by Abbott H. Thayer during his study of Pro-  
 tective Coloration in the Animal Kingdom.

To the Naval Historical Foundation, Washington, D. C.:

- August 11, 1955----- Portrait of Stephen Decatur, by Gilbert Stuart.  
 (Returned May 1, 1956.)

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

- August 23, 1955----- The Rapids, by W. Elmer Schofield.  
 Tohickon, by Daniel Garber.

To the Museum of the City of New York, New York, N. Y., for a special exhibition "Four Centuries of Italian Influence in New York":

- September 15, 1955----- The Street Shrine, by Jerome Myers. (Re-  
 turned January 20, 1956.)

To The Pennsylvania State University, University Park, Pa., for its Centennial Exhibition:

- September 27, 1955----- Cliffs of the Upper Colorado River, Wyoming  
 Territory, by Thomas Moran. (Returned  
 November 16, 1955.)

To the Department of Health, Education, and Welfare, Washington, D. C.:

- October 4, 1955----- The Grand Canal, Venice, by Gabrini.  
 Figure Group, by O. Lear.  
 Dr. George Washington Carver, by Betsy Graves  
 Reyneau.  
 Rockwell Studio, by Macowin Tuttle.

- To the Department of Justice, Washington, D. C. :  
 November 21, 1955----- Mrs. Tarbell as a Girl, by Edmund C. Tarbell.  
 (Permission granted by owner, Mrs. Josephine  
 Tarbell Ferrell.)
- November 22, 1955----- Gen. Albert J. Myer, by G. P. A. Healy. (Re-  
 turned January 24, 1956.)
- January 24, 1956----- Maj. Gen. George B. McClellan, by Julian Scott.  
 Hon. Charles Evans Hughes, by Harry L. Raul.  
 (Plaster bas-relief, bronzed.)
- To the International Business Machines Corporation, New York, N. Y., for  
 casting in bronze :  
 November 28, 1955----- Joseph Henry, by Herbert Adams. (Plaster  
 bust.) (Returned February 15, 1956.)
- To the Smithsonian Traveling Exhibition Service, Washington, D. C., to be  
 included in an exhibition "Pennsylvania Painters":  
 December 6, 1955----- Cliffs of the Upper Colorado River, Wyoming  
 Territory, by Thomas Moran.  
 December 20, 1955----- Mary Abigail Willing Coale, by Thomas Sully.
- To the Virginia Museum of Fine Arts, Richmond, Va., to be included in a special  
 exhibition "Portraits of Virginia-born Presidents":  
 January 17, 1956----- President John Tyler, by G. P. A. Healy. (Re-  
 turned February 15, 1956.)
- To the Federal Power Commission, Washington, D. C. :  
 February 23, 1956----- John Burroughs, by Walter Beck.  
 September, by William A. Coffin.  
 After a Storm, Amagansett, by Arthur T. Hill.
- To the Alexandria Association, Alexandria, Va., for an exhibition "Our Town,  
 1749-1865":  
 April 10, 1956----- Miniature, John Gadsby, by Benjamin Trott.  
 Miniature, Member of the Washington Family,  
 attributed to James Peale.  
 Miniature, John Parke Custis, by Charles Willson  
 Peale.  
 Miniature, Martha "Patty" Custis, by Charles  
 Willson Peale. (Permission to lend the Custis  
 miniatures was granted by the owners.)  
 (Returned May 29, 1956.)
- To the Department of State, Washington, D. C. :  
 May 11, 1956----- Triptych, by Kano Tsunenobu.  
 Scroll, Tiger and Cub, by Mr. Whang Jang Har.
- June 20, 1956----- Hindu Merchants, by Edwin Lord Weeks.
- To the Interstate Commerce Commission, Washington, D. C. :  
 June 20, 1956----- Male Wood Duck in a Forest Pool, by Abbott H.  
 Thayer.  
 June 26, 1956----- Male Wood Duck, by Abbott H. Thayer.

## LOANS RETURNED

Oil, Abraham Lincoln, by George H. Story, lent March 15, 1955, to  
 the Department of Justice, was returned November 22, 1955.

Oil, Andrew Jackson, by Ralph E. Earl, lent September 20, 1949, to the Department of State, was returned November 30, 1955.

Oil, Gen. Dwight D. Eisenhower, by Capt. Sir Oswald Birley, lent June 29, 1955, to the Bureau of the Budget, was returned November 30, 1955.

Two oils, Charles G. Abbot, by Samantha L. Huntley, and Charles D. Walcott, by Hattie Burdette, lent April 17, 1953, to the National Academy of Sciences, were returned November 30, 1955.

Oil, Samuel P. Langley, by Robert G. Hardie, lent May 1, 1950, to the Langley Aeronautical Laboratory of the National Advisory Committee for Aeronautics, Langley Field, Va., was returned December 2, 1955.

Oil, Man in White (Dr. Henry S. Drinker), by Cecilia Beaux, lent December 7, 1954, to the Pennsylvania Academy of Fine Arts, Philadelphia, Pa., was returned December 15, 1955.

Oil, Early Spring, by Alexander T. Van Laer, lent November 10, 1953, to the Department of State, was returned January 16, 1956.

Oil, Summer, by Charles H. Davis, lent September 17, 1954, to The White House, was returned April 4, 1956.

Oil, Stephen Decatur, by Gilbert Stuart, lent August 11, 1955, to the Naval Historical Foundation, was returned May 1, 1956.

#### SMITHSONIAN LENDING COLLECTION

Oil, Grand Canyon, by Carl Oscar Borg (1879-1947), a gift of Mrs. Martin O. Elmberg, was accepted December 6, 1955.

Two hundred and seventeen unframed oils, by Frank W. Stokes (1858-1955), to be known as the Arthur Curtis James and Robert Curtis Ogden Memorial Collection, were added. One hundred and thirty-five were received July 19, 1954; 76 on April 5, 1955; and 6 on May 18, 1955.

The following paintings were lent for varying periods:

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

July 5, 1955-----	Hippolyte Dreyfus, by Alice Pike Barney.
	La Concord, by Edwin Scott.
	Place de la Concord, No. 2, by Edwin Scott.
	Porte St. Martin, No. 1, by Edwin Scott.
	Rue de Village, by Edwin Scott.
	Rue des Pyramides, by Edwin Scott.
	Rue San Jacques, by Edwin Scott.
	Self Portrait, by Edwin Scott.
May 24, 1956-----	Marine, by Edwin Scott.
	The Seine at Paris, by Edwin Scott.

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

- July 6, 1955----- A. P. B. in Painting Robe, by Alice Pike Barney.  
 Porte St. Denis, by Edwin Scott.  
 Somnolence, by Edwin Scott.  
 Study of Seated Woman, by Alice Pike Barney.  
 Mme. I. D. C., by Alice Pike Barney.  
 E. P. (Evalina Palmer), by Alice Pike Barney.  
 Italian Woman and Child, by Alice Pike Barney.  
 Italian Woman at Foot of Steps, by Edwin Scott.  
 La Madeleine, No. 1, by Edwin Scott.  
 Notre Dame in Winter, by Edwin Scott.  
 Old Dwelling, Paris, by Edwin Scott.  
 St. Germain des Pres, No. 1, by Edwin Scott.  
 (The last nine were returned July 27, 1955.)

To the Bio-Sciences Information Exchange, Washington, D. C. :

- July 26, 1955----- Minnete and Minet, by Alice Pike Barney.  
 The Visitor (Mrs. Richard P. McCullough), by  
 Alice Pike Barney.  
 Endymion, by Alice Pike Barney.  
 The Dimple, by Alice Pike Barney.  
 Little Girl, by Alice Pike Barney.  
 Hail Fellow, Well Met, by Alice Pike Barney.  
 November 2, 1955----- An Oriental, by Alice Pike Barney.  
 Fantasy, by Alice Pike Barney  
 Gladys, by Alice Pike Barney.  
 Hippolyte Thom, by Alice Pike Barney.  
 Laura in Hat, Profile, by Alice Pike Barney.  
 Natalie in Greens, by Alice Pike Barney.  
 Peggy, by Alice Pike Barney.  
 Romance, by Alice Pike Barney.

To the Department of Health, Education, and Welfare, Washington, D. C. :

- October 4, 1955----- Musketeer on Guard, by A. Arrunategin.  
 St. Germain des Pres, No. 1, by Edwin Scott.  
 The Bali Temple Festival, by Maurice Sterne.

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

- November 21, 1955----- Mountain and Valley, by James Henry Moser.  
 Notre Dame in Winter, by Edwin Scott.  
 La Madeleine, No. 1, by Edwin Scott.  
 Church of St. Germain des Pres, by Edwin Scott.  
 Church and Lake, by Henry Bacon.

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

- February 23, 1956----- An Evening Effect, Greenland, by Frank W. Stokes.

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

- June 20, 1956----- The Placid Potomac, by William H. Holmes.  
 Greenland, by Frank W. Stokes.

#### Alice Pike Barney Memorial Fund

Additions to the principal during the year amounting to \$1,824.37  
 have increased the total invested sums in this fund to \$36,428.22.

## THE HENRY WARD RANGER FUND

No. 176, *On Strike*, by Robert A. Hitch (1920- ), purchased by the National Academy of Design March 24, 1954, was assigned by the Academy to the Hudson River Museum at Yonkers, Yonkers, N. Y., on December 3, 1955.

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, four paintings were re-called for action of the Smithsonian Art Commission at its meeting December 6, 1955.

No. 28, *Brooding Silence*, by John F. Carlson, N. A., listed earlier in this report, was accepted by the Smithsonian Art Commission to become a permanent accession.

No. 36, *Midsummer*, by William S. Robinson, N. A. (1861-1945), assigned in 1956 to the George Washington University, Washington, D. C.

No. 100, *Rhododendron*, by H. Dudley Murphy, N. A. (1867-1945), assigned in 1932 to the University of Tulsa, Tulsa, Okla.

No. 107, *The Blue Jar*, by Cullen Yates, N. A. (1866-1945), assigned in 1954 to the Norfolk Museum of Arts and Sciences, Norfolk, Va.

The last three paintings were returned to the institutions to which they had been assigned by the National Academy of Design, as indicated.

## SMITHSONIAN TRAVELING EXHIBITION SERVICE

Seventy-two exhibitions were circulated during the past season, 71 in the United States and 1 abroad, as follows:

## UNITED STATES

*Paintings and Drawings*

<i>Title</i>	<i>Source</i>
American Indian Painting.....	Philbrook Art Center, Tulsa, Okla.
American Natural Painters.....	Galerie St. Etienne and private collections.
A Century and A Half of Painting in Argentina.	Government of Argentina; Argentine Embassy; private collections.
As I See Myself.....	Junior Arts and Activities; Galerie St. Etienne.
Austrian Drawings and Prints.....	Albertina, Vienna; Austrian Embassy.
Paintings by Austrian Children.....	Superintendent of Schools in Vienna; Austrian Embassy.
California Painting.....	Municipal Art Center, Long Beach, Calif.
Paintings by George Catlin.....	Smithsonian Institution, Department of Anthropology.



Children's Paintings from Forty-five Countries IV.	}	Embassy of Denmark; Friendship Among Children and Youth Organization.
Children's Paintings from Forty-five Countries V.		
Children's Paintings from Forty-five Countries VI.		
Children's Paintings from Japan.....		United Nations Educational, Scientific and Cultural Organization.
Ethiopian Paintings.....		George Washington University; Dr. Bruce Howe; Embassy of Ethiopia.
Watercolors and Drawings by Gavarini.		Walters Art Gallery, Baltimore; Rosenwald Collection, National Gallery of Art.
German Drawings.....		German Government; German Museums and private collections; German Embassy.
Goya Drawings and Prints.....		Prado and Galdiano Museums, Madrid; Spanish Embassy; Rosenwald Collection, National Gallery of Art.
Italy Rediscovered.....		Munson-Williams-Proctor Institute, Utica; dealers; museums; artists.
19th Century American Paintings from the Karolik Collection.		Maxim Karolik; Museum of Fine Arts, Boston.
Kokoschka's "Magic Flute".....		Minneapolis Institute of Arts; artist.
Pennsylvania Painters.....		Pennsylvania State University, State College; museums; private collections.
Plant Portraits.....		University of Colorado Museum, Boulder.
Work by Rudy Pozzatti (graphic work also).		Print Club of Cleveland; Cleveland Museum of Art; dealers; private collections.
Watercolors and Prints by Redouté...		Luxembourg State Museum; private collections; Legation of Luxembourg.
Sargent Watercolors.....		Museum of Fine Arts, Boston.
Seal Islands.....		Cleveland Museum of Natural History.
Contemporary Swedish Paintings....		National Museum, Stockholm; Swedish Embassy.
Swedish Children's Paintings.....		National Museum, Stockholm; Swedish Embassy.
Painters of Venezuela.....		Ministry of Education at Caracas; Pan American Union.
Watercolor Today.....		Toledo Museum of Art; dealers; artists.

#### *Graphic Arts*

American Color Prints.....	Library of Congress.
Recent British Lithographs.....	British Council; British Embassy.
Children's Picture Books II.....	Washington Post Children's Book Fair.
International Children's Books.....	Washington Post Children's Book Fair; Embassies.
Contemporary Japanese Prints.....	Art Institute of Chicago; Japanese Association of Creative Printmakers.

Japanese Woodcuts.....	United Nations Educational, Scientific and Cultural Organization.
Southern California Serigraphs.....	Los Angeles Museum of Art; artists.
Woodcuts by Antonio Frasconi.....	The Print Club of Cleveland; The Cleveland Museum of Art; Weyhe Gallery; artist.

#### *Architecture*

Contemporary Finnish Architecture...	Finnish-American Society; Association of Finnish Architects; Finnish Embassy.
New Libraries.....	American Institute of Architects.
The Re-Union of Architecture and Engineering.	American Institute of Architects.
Building in the Netherlands.....	Bond of Netherlands Architects and Bouwcentrum; Netherlands Embassy.
San Francisco Bay Region Architecture.	California Redwood Association; Northern California Chapter American Institute of Architects.

#### *Design*

American Craftsmen II.....	University of Illinois, Urbana; artists.
American Jewelry & Related Objects I.	Huntington Galleries, Huntington, W. Va.; artists, Hickok Company.
Brazilian Landscape Architecture— New Designs by Roberto Burle Marx.	Brazilian Embassy; artist.
Contemporary European Tapestry....	Contemporary Arts Association, Houston, Tex.; artists; private collections; museums.
Dutch Arts and Crafts.....	Department of Education, Arts and Sciences in The Hague; Netherlands Embassy.
European Glass Design.....	Georg Jensen, Inc.; designers.
Fifty Years of Danish Silver.....	Georg Jensen, Inc.; Danish Embassy.
Finnish Crafts.....	Waertsila-Arabia and other Finnish Manufacturers; Finnish-American Society, Helsinki; Finnish Embassy; artists, Tapio Wirkkala and Rut Bryk.
Italian Arts and Crafts.....	Compagnia Nazionale Artigiana, Rome; Bonniers; Altamira; Italian Embassy.
New England Crafts.....	Worcester Art Museum; Junior League of Worcester, Inc.; The Craft Center, Worcester, Mass.
Tapestries by Hannah Ryggen.....	Norwegian Government; Embassy of Norway; Norwegian Museums; private collections.

#### *Ceramics*

Norwegian Ceramics.....	Norwegian Embassy.
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*Oriental Art*

- Chinese Gold and Silver from the Dr. Carl Kempe; Embassy of Sweden.  
Kempe Collection.
- Chinese Ivories from the Collection Sir Victor Sassoon.  
of Sir Victor Sassoon.

*Folk Art*

- Americana----- Index of American Design, National Gallery of Art.
- Eskimo Art I }----- Eskimo Art, Inc.; Canadian Handicrafts  
Eskimo Art III } Guild.
- Norwegian Decorative Painting----- Norwegian Artists Guild; Embassy of Norway.
- Popular Art in the United States----- Index of American Design, National Gallery of Art.
- Scrimshaw Exhibition----- Col. Leslie Buswell.

*Photography*

- Ansel Adams Photographs 1933-1953-- Artist; George Eastman House, Rochester.
- Architectural Photography----- American Institute of Architects; Architectural Photographers Association; George Eastman House.
- Birds in Color, by Eliot Porter----- Artist; American Museum of Natural History.
- Birds of Argentina, by Salvador Artist; Williams Foundation; American  
Magno. Museum of Natural History.
- This is the American Earth----- Ansel Adams; Nancy Newhall; National Park Service; California Academy of Sciences; Sierra Club.
- Venetian Villas----- Soprintendenza ai Monumenti Medievali e Moderni, Venice; Dr. Michelangelo Muraro; Italian Embassy.
- Japan, by Werner Bischof----- Magnum Photos, Inc.

*Ethnology*

- Art and Magic of Arnhem Land----- Smithsonian Institution, Department of Anthropology.
- Carl Bodmer Paints the Indian Karl Viktor, Prinz zu Wied; German  
Frontier. Embassy.

ABROAD, BY THE UNITED STATES INFORMATION AGENCY

*Plastics in America*

These displays were scheduled as an integral part of the programs of 182 museums and galleries, located in 39 States, the District of Columbia, Hawaii, Canada, and Cuba.

Twenty-seven exhibitions are in preparation, 26 for circulation in the United States and 1 abroad, as follows:

FOR CIRCULATION IN THE UNITED STATES

American Printmakers.	German Art Books.
A Half Century of Architectural Education.	Contemporary German Prints.
Contemporary American Glass.	Japan II (second edition), by Werner Bischof.
American Jewelry and Related Objects II (second edition).	Japanese Woodcuts II (second edition).
Argentine Children as Illustrators.	Landscape Architecture Today.
Recent Work by Harry Bertola.	A. J. Miller Watercolors.
Contemporary Brazilian Prints.	Perceptions.
Canadian Abstract Paintings.	Prints by Henri-Georges Adam and John Paul Jones.
Prints by Chodowiecki.	Sixty Swedish Books.
Contemporary Danish Architecture.	Swedish Rock Carvings.
Dutch Art, 1946-1956.	Venetian Villas II (second edition).
Early Prints and Drawings of California.	The World of Edward Weston.
German Architecture Today.	Fritz Winter and Hans Uhlmann.

FOR CIRCULATION ABROAD BY THE UNITED STATES INFORMATION AGENCY

John Marin.

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 2,257. Examination was made of 598 works of art submitted for identification.

An article, "The Golden Brush of Kristian Krekovic," by Thomas M. Beggs, was published in the December 1955 issue of the *American Artist* and reprinted (revised and translated) in *Cultura Peruana*, January 1956.

Special catalogs were published for the following six exhibitions: Italian Arts and Crafts; German Drawings; Hannah Ryggen; Contemporary Finnish Architecture; Venetian Villas; and Finnish Crafts—Tapio Wirkkala and Rut Bryk. The last five contained acknowledgments written by Mrs. Annemarie H. Pope, chief of the Smithsonian Traveling Exhibition Service.

In recognition of the significant contribution Mrs. Pope had made to the re-establishment of cultural relations between the United States and Germany, she was decorated with the Order of Merit of the Federal Republic of Germany by German Ambassador Heinz L. Krekeler on April 28, 1956.

Mr. Beggs discussed the problem of a college museum for classical antiquities at Howard University on December 13, 1955. He was also a speaker at the biennial art banquet of the National League of American Pen Women on April 8, 1956, at the Sheraton-Park Hotel. He served as a judge for four exhibitions in the Washington area.

Paul Vickers Gardner, curator of ceramics, attended the Wedgwood International Seminar in Philadelphia on April 12 and 13, 1956, and was moderator of a panel "The Editors Discuss Design," at the convention of the American Ceramic Society held in New York City April 23 through 25, 1956.

Rowland Lyon, exhibits preparator, served on the juries of five local exhibitions and one at La Plata, Md. He exhibited sculpture, prints, and designs at the Silver Spring Art Gallery, Woodward and Lothrop, the Artists Guild of Washington, and the Society of Washington Printmakers.

The canvases of 14 paintings were cleaned and varnished, and 33 frames were renovated. Under special contract, Glenn J. Martin cleaned and restored 10 paintings. Nine paintings by George Catlin were retouched and revarnished for the United States National Museum, and one was relined, cleaned, restretched, and retouched.

Mrs. Pope gave a talk, illustrated with slides showing various phases of the work involved in preparing exhibitions for travel, to the Cultural Attaches Luncheon at the Dupont Plaza Hotel on October 17, 1955, and attended meetings of the Southeastern Museums Directors' Council at Chattanooga, Tenn., and Southeastern Museum Officials in Nashville, October 10-15, 1955, and also the annual convention of the American Association of Museums in Cincinnati, Ohio, May 26-June 1, 1956.

#### SPECIAL EXHIBITIONS

Thirteen special exhibitions were held during the year:

*July 19 through August 28, 1955.*—"Paintings of Peru, Past and Present," by Kristian Krekovic, held under the sponsorship of His Excellency, the Ambassador of Peru, Sr. Don Fernando Berckemeyer, consisting of 61 paintings. A catalog was printed with private funds.

*September 1 through 24, 1955.*—The Fifth Exhibition of Ceramic Art, sponsored by the Kiln Club of Washington, D. C., consisting of 177 pieces (71 by local ceramic artists, 69 by invited American artists, and 37 by artists of various nations through their respective embassies or legations in Washington). Demonstrations on the potter's wheel were given daily. A catalog was privately printed.

*October 24, 1955, through January 3, 1956.*—An exhibition of "Ceramics of the World," in celebration of the tenth anniversary of the establishment of the United Nations was shown in the lobby of the Natural History Building. It included 71 objects from 43 nations and was assembled from articles in the Division of Ethnology dating from about 1800 to the present.

*November 26 through December 18, 1955.*—An exhibition of 50 watercolors of "Plant Portraits," by Ida Hrybesky Pemberton (1890-1951), inaugurating the tour scheduled by the Smithsonian Traveling Exhibition Service. A catalog was privately printed.

*January 15 through February 2, 1956.*—An exhibition of the Society of Washington Printmakers, consisting of 137 prints. A catalog was privately printed.

*January 15 through February 2, 1956.*—A Smithsonian Institution Traveling

Exhibition of 44 watercolors and prints, by Pierre Joseph Redouté (1759–1840), held under the sponsorship of His Excellency, the Ambassador of Luxembourg, Hugues Le Gallais. A catalog was privately printed.

*February 19 through March 8, 1956.*—The Twelfth Annual Exhibition of the Artists Guild of Washington, consisting of 51 paintings. A catalog was privately printed.

*February 19 through March 8, 1956.*—The Fifth Biennial Exhibition of the Washington Sculptors Group, consisting of 34 pieces of sculpture.

*March 25 through April 15, 1956.*—The Biennial Art Exhibition of the National League of American Pen Women consisting of 198 paintings, sculpture, prints, ceramics, textiles, jewelry, and other craftwork. A catalog was privately printed.

*April 29 through May 17, 1956.*—A Smithsonian Institution Traveling Exhibition of Finnish Crafts by Tapio Wirkkala and Rut Bryk, held under the sponsorship of His Excellency, the Ambassador of Finland, and Madame Nykopp, consisting of 130 pieces of sculpture, wood carvings, brass, glass, and silver designs by Mr. Wirkkala and works in ceramic by Rut Bryk.

*April 29 through May 17, 1956.*—A Smithsonian Institution Traveling Exhibition of 28 watercolors by Henry Wood Elliott (1846–1930). These works constitute the first pictorial record ever made of the seal herds that populated the Pribilof Islands in the 1870's.

*June 3 through 24, 1956.*—The Fifty-ninth Annual Exhibition of the Washington Water Color Club consisting of 149 watercolors, etchings, and drawings. A catalog was privately published.

*June 2 through 24, 1956.*—The Twenty-third Annual Exhibition of The Miniature Painters, Sculptors, and Gravers Society of Washington, D. C., consisting of 176 examples. A catalog was privately printed.

Respectfully submitted.

THOMAS M. BEGGS, *Director.*

DR. LEONARD CARMICHAEL,

*Secretary, Smithsonian Institution.*

# Report on the Freer Gallery of Art

SIR: I have the honor to submit the thirty-sixth annual report on the Freer Gallery of Art, for the year ended June 30, 1956.

## THE COLLECTIONS

Twenty-five objects were added to the collection by purchase as follows:

### BRONZE

- 55.14. Chinese, Sui dynasty (A. D. 589-618). Mirror decorated with casting in relief showing the 12 cyclical animals and other symbolic motifs; inscription of 40 characters. Diameter: 0.212. (Illustrated.)
- 55.16. Chinese, Northern Wei dynasty (A. D. 386-535). Gilt-bronze figure of the Buddha standing on a lotus pedestal on a 4-legged platform; removable mandorla with flames, lotuses, and animal mask in relief. 0.639 x 0.259.

### LACQUER

- 55.24. Japanese, Tokugawa period (18th century). Writing box (*suzuribako*), decorated in high and low relief, in gold, silver, red, green, and black with mother-of-pearl and glass inlays showing the thunder god, a demon, a maiden, and a standard bearer on the cover; inside is a portrait bust of Daruma, an inkstone, and a water holder. Signed, Kajikawa. 0.206 x 0.163 x 0.243.
- 56.3. Japanese, Tokugawa period (18th century). Incense box and tray of cryptomeria wood with decoration in lacquer showing monkeys looking at a painting. Attributed to Ritsuō (1663-1747). 0.092 x 0.190 x 0.238.
- 56.4. Japanese, Kamakura or Early Ashikaga period (14th century). Box for a priest's robe (*kesa*); basketwork and black lacquer decorated in gold; a landscape scene on cover; *kesa*, band, and shoulder cord included. 0.128 x 0.389 x 0.562.

### METALWORK

- 55.27. Indian, Mughal period (17th century). Knife made for the emperor Jahāngīr; partially meteoric iron and decorated with cut design and gold inlay; inscription dated in correspondence with A. D. 1621. Length: 0.261.
- 55.23. Japanese, Tokugawa period (19th century). Gold ornament in the form of a wild goose sleeping on a separate base modeled as a bed of reeds. 0.032 x 0.084 x 0.038.
- 55.10. Syrian, Ayyūbid period (13th century). Basin of brass richly inlaid with silver, part of which has fallen out; decoration includes inscriptions in *naskhī* and *kūfic* scripts, Christian subjects, polo players, musicians, standing figures in arcades, animals, arabesques, etc. Made for the sultan Ayyūb who reigned A. D. 1239-49. 0.225 x 0.500.

- 55.22. Syrian, Ayyūbid period (13th century). Ewer of brass with silver inlay, some of which has fallen out; decorated with arabesques in lattice framework; *naskhī* inscriptions give the artists as Qāsim b. 'Alī and date corresponding to A. D. 1232. 0.367 x 0.213.

## PAINTING

- 55.13. Chinese, Ch'ing dynasty (1644-1912). Landscape in ink and color on paper; by Wu Li; dated in correspondence with A. D. 1767. 0.669 x 0.321.
- 55.17. Chinese, Ming dynasty (1368-1644). Scroll painting in ink and full color on satin showing 24 Buddhistic figures; 20 inscriptions and 73 seals on painting; title and 2 seals on mount, dated in correspondence with A. D. 1643. 0.495 x 7.313.
- 55.18. Chinese, Ming or Ch'ing dynasty (17th century). Landscape in ink and color on paper; inscription and 8 seals on painting; inscription and 1 seal on mount; by Ch'êng Sui (fl. 1630-1650). 1.433 x 0.530.
- 55.19. Chinese Ch'ing dynasty (1644-1912). Landscape in ink on satin; signature and two seals on painting; by Ch'a Shih-piao; dated in correspondence with A. D. 1694. 1.863 x 0.468.
- 55.20. Chinese, Ch'ing dynasty (1644-1912). Album containing 16 landscapes on paper, 15 in ink and color, 1 in ink; 16 inscriptions and 30 seals on paintings, 1 inscription and 4 seals on mounts; by Hua Yen; dated in correspondence with A. D. 1729. 0.229-0.238 x 0.153 x 0.163.
- 55.21. Chinese, Ming and Ch'ing dynasties (17th century). Album containing 10 paintings in ink on paper showing flowers, birds, insects, and fish; 9 signatures and 30 seals on paintings; 11 inscriptions and 44 seals on mounts; by Chu Ta (fl. 1634-1674 or later). 0.255 x 0.230.
- 55.11. Coptic, third quarter of the 12th century (Damiatta, Egypt). First page of a religious codex made for the 73rd Jacobite Patriarch, Michael, son of Zaraa (A. D. 1174-89); recto: a cross; verso: the four evangelists; parchment with gold and colors; Arabic inscription in *naskhī*. 0.356 x 0.228.
- 55.25- Japanese, Muromachi period (1333-1568). Pair of 6-fold screens with
- 55.26. silk panels on paper grounds; panels painted in ink depicting landscapes; grounds decorated with floral patterns in colors on gold; by Kano Motonobu (1476-1559). Each 1.752 x 3.758. (55.26 illustrated.)

## POTTERY

- 55.12. Chinese, T'ang dynasty (618-906). Covered jar; soft, pinkish-buff clay; soft lead glazes of dark green, dark blue, yellowish-brown, and white, arranged in vertical patterns. 0.242 x 0.213. (Illustrated.)
- 55.15. Chinese, Ch'ing dynasty, Ch'ien-lung period (1736-1796). Writer's box of fine, white porcelain with pale, transparent celadon green glaze over delicately painted slip designs of dragon, waves, and clouds, and interlocking scroll patterns; 6-character Ch'ien-lung mark in underglaze blue on base. 0.057 x 0.222 x 0.067.
- 56.5- Chinese, Han dynasty (207 B. C.-A. D. 220). Mortuary figures of
- 56.7. ladies, two standing and one kneeling; grayish clay fired hard with traces of red, brown, purple, and green pigments. Heights: 0.660, 0.662, and 0.493.
- 56.1. Persian, 9th-10th century, Nishapur. Bowl with design of two birds in black slip on a white ground. 0.066 x 0.218.



56.2. Persian, 12th century, Gurgan. Bowl of thin, white, vitreous, translucent ware decorated with two bands of incised ornament inside and fine holes piercing the body and mostly filled with the transparent glaze. 0.062 x 0.184.

Total number of accessions to date (including above) ----- 10,977

#### REPAIRS TO THE COLLECTIONS

One hundred and forty-seven Chinese and Japanese objects were restored, repaired, or remounted by T. Sugiura. In addition to this work on the collections, Mr. Sugiura completed *t'ao* for five Chinese books and mounted five rubbings for the library; he also remounted and repaired a Japanese screen for the United States National Museum.

#### CHANGES IN EXHIBITIONS

Changes in exhibitions amounted to 3,012. This abnormally large number is accounted for by the redecoration of the exhibition galleries and the installation of the Charles Lang Freer Centennial Exhibition. The changes were as follows:

American art:	
Copper plates.....	17
Etchings.....	46
Lithographs.....	23
Oil paintings.....	124
Pastels and drawings.....	36
Watercolors.....	37
Whistleriana.....	10
Chinese art:	
Bronze.....	672
Gold.....	19
Jade.....	400
Lacquer.....	8
Marble.....	5
Manuscripts.....	1
Paintings.....	177
Pottery.....	305
Silver and silver-gilt.....	52
Stone sculpture.....	50
Christian art:	
Crystal.....	4
Glass.....	12
Gold.....	31
Manuscripts.....	47
Paintings.....	22
Stone sculpture.....	3
Indian art:	
Bronze.....	3
Manuscripts.....	20
Paintings.....	109
Stone sculpture.....	11

Japanese art:	
Bronze -----	3
Lacquer -----	72
Paintings -----	171
Pottery -----	124
Wood sculpture -----	2
Korean art:	
Bronze -----	1
Pottery -----	18
Near Eastern art:	
Bookbindings -----	25
Crystal -----	3
Glass -----	12
Manuscripts -----	32
Metalwork -----	66
Paintings -----	173
Pottery -----	59
Stone sculpture -----	5
Tibetan art:	
Paintings -----	2

#### LIBRARY

The library was reopened to the public on December 19, 1955, after being closed for a year for installation of steel stacks and decoration. The folio shelves are especially appreciated, as the many elephant volumes are now shelved not more than two to a shelf. These major improvements in the library facilities are due to the initiative and imagination of the librarian, Mrs. Bertha M. Usilton, who devised all the plans for the new arrangement and saw them to completion.

The geographic breakdown of Far East, Near East, South Asia, West, and Orient was discontinued in the reshelving. The Dewey decimal classification scheme controls these breakdowns in the various categories in the Western languages. Orientalia are cataloged and shelved separately as before. A thorough reading of the shelves in the shelving process revealed that only 15 books can be termed "lost" in the 33 years of the library's history.

The library is the laboratory of the entire staff, and it is here that data for correct attribution, comparative material, and recorded facts can be searched for and found. It has research material of the greatest value in the realm of Oriental art. Welcome gifts from scholars and learned institutions included a reproduction of the world by the twelfth-century geographer Idrisi, received from the Embassy of Iraq. An autographed letter of Mr. Whistler written to Thomas Way was purchased. Books, pamphlets, and periodicals now number 35,000.

Despite the fact that the number of the year's accessions was greater than the previous year, and the added labor of moving into new stacks, the accessioning and cataloging have been kept up to date.

During the Charles Lang Freer Centennial commemorating the birth of the founder of the Gallery, a special exhibition was made of the monumental writings of Prof. Osvald Sirén, who was the first recipient of the Charles Lang Freer Medal.

#### PUBLICATIONS

Five publications were issued by the Gallery as follows:

- Title page and contents for Occasional Papers, vol. 2, 1955. (Smithsonian Publ. 4223.)
- The Charles Lang Freer Medal (first presentation). Booklet containing a partial bibliography by Prof. Osvald Sirén.
- Charles Lang Freer Centennial Exhibition (1856-1956). Booklet listing objects on exhibition in galleries.
- First presentation of the Charles Lang Freer Medal (February 1956). Contains partial bibliography by Prof. Osvald Sirén, opening remarks by Dr. Carmichael and Mr. Wenley, presentation by Dr. Carmichael, and Prof. Sirén's address.
- Pope, John Alexander: Chinese porcelains from the Ardebil Shrine, xvi + 194 pp., 142 pls., 1956. (Smithsonian Publ. 4231.)

#### REPRODUCTIONS

The photographic laboratory made 3,782 items during the year as follows: 2,494 prints, 374 negatives, 814 color transparencies, 64 black-and-white slides, and 36 microfilms. Total negatives on hand, 11,173; lantern slides, 9,542; 110 reproductions in the round of Freer Gallery objects were sold.

#### BUILDING

The general condition of the building is good. All roof areas appear to be in good condition; minor repairs were made when necessary throughout the year. The ledge of the roof was repaired, and a coating of roofing compound was applied. The copper flashing surrounding the court area was retucked and caulked. All exterior walls were waterproofed and repointed; all exterior water valves were replaced or repaired on the outside of the building and in the court. All screen doors and areaways are in good condition.

Redecoration of the interior was completed on December 9, 1955, and rubber-tile floors were installed in the library and main office. Fluorescent light fixtures were installed in all offices, work rooms, storage rooms, and corridors, with the exception of the gallery corridors where incandescent fixtures were put in.

The major work of the cabinet shop has been devoted to the making of exhibition cases for the galleries. Miscellaneous odd jobs related to storage, exhibition, restoration, crating, and maintenance of office and Gallery equipment continue as usual.

Some of the alterations in the court planting planned last year, such as reseeding, replacement of shrubs, removal of ivy, were undertaken,

and all plants, trees, and shrubs appear to be doing well and are maintaining steady growth.

Work on the installation of the long-needed air-conditioning system to safeguard the collections has begun.

#### 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 94,276. The highest monthly attendance was in April, 12,972, and the lowest was in December, 3,209.

There were 2,172 visitors to the office for the following purposes:

For general information.....	855
To submit objects for examination.....	367
To see staff members.....	162
To take photographs in the court or exhibition galleries.....	157
To study in library.....	228
To see building and installations.....	37
To examine or borrow slides.....	20
To sketch in galleries.....	16
To use Herzfeld Archive.....	4
To see objects in storage:	
Far Eastern paintings.....	106
Far Eastern metalwork.....	20
Far Eastern pottery.....	39
Far Eastern jade, lacquer, wood, ivory, etc.....	20
Near Eastern paintings.....	9
Near Eastern metalwork.....	12
Near Eastern pottery.....	3
Near Eastern glass, bookbindings, etc.....	6
Christian art (Washington Mss.).....	23
American art.....	196

#### AUDITORIUM

The series of illustrated lectures was continued as follows:

##### 1955

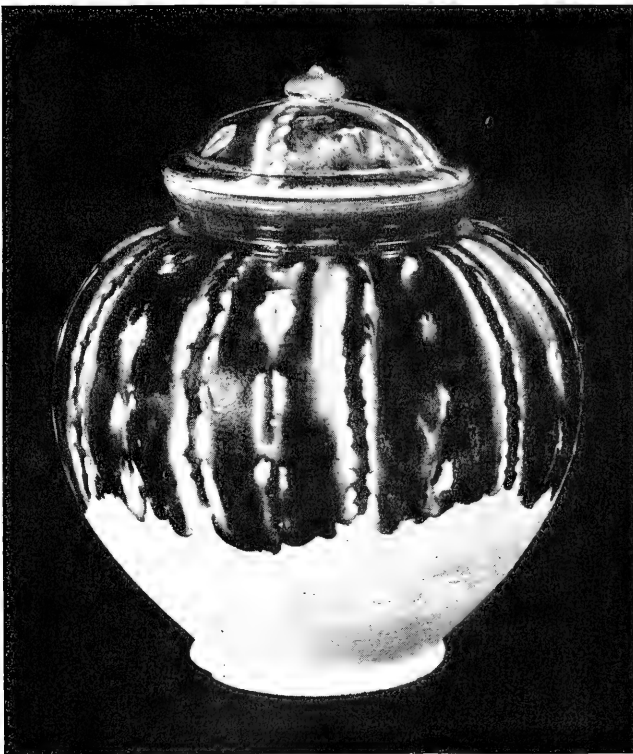
- October 18. Dr. Aschwin Lippe, Assistant Curator of Far Eastern Art, Metropolitan Museum of Art, New York. "Early Chinese Paintings in Formosa." Attendance, 110.
- November 15. Dr. Sherman E. Lee, Curator of Oriental Art, Cleveland Museum of Art. "Kamakura Art in Japan." Attendance, 193.

##### 1956

- January 17. Dr. Oleg Grabar, Assistant Professor in Islamic Art, University of Michigan, Ann Arbor. "Umayyad Art, the Art of an Empire." Attendance, 171.
- February 14. Prof. William F. Albright, Johns Hopkins University, Baltimore. "The Art and Architecture of the Age of Solomon." Attendance, 242.



55.14



55.12

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



55.26

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

## 1956

- March 13. Mr. Chiang Yee, Columbia University, New York. "Western Scenery through Chinese Eyes." Attendance, 145.
- April 17. Laurence Sickman, Director, William Rockhill Nelson Gallery of Art, Kansas City, Missouri. "Early Chinese Figure Painting." Attendance, 157.

On February 25, 1956, the auditorium was the scene of ceremonies commemorating the centennial of the birth of the Gallery's founder. This was marked by the first presentation of the Charles Lang Freer Medal "for distinguished contribution to the knowledge and understanding of Oriental civilizations as reflected in their arts" to Prof. Osvald Sirén of Stockholm. Also on the platform were Count Carl L. Douglas, Minister Plenipotentiary, representing the Ambassador of Sweden, Miss Katharine N. Rhoades, representing the Friends of the Freer Gallery named in Mr. Freer's last will and testament, the Director of the Freer Gallery of Art, and the Secretary of the Smithsonian Institution. The proceedings were opened by Dr. Carmichael, and following some remarks on the inauguration of the award by Mr. Wenley, Dr. Carmichael made the presentation. Professor Sirén responded with an address on the development of scholarship in the Far Eastern field (particularly in America) during the last 50 years and on the collecting of Chinese and Japanese art, together with some personal recollections of Mr. Freer. The presentation was followed by a reception in Gallery XVII. Attendance, 260.

Seven outside organizations used the auditorium, as follows:

## 1955

- August 5. Dr. Remington Kellogg, Director, United States National Museum. A talk to employees of the Smithsonian Institution on "Travel in Russia." Attendance, 190.
- August 19. Paul Garber, Curator, National Air Museum. Motion pictures for a group of World War I flyers. Attendance, 36.
- October 11. Dr. Carmichael, Secretary, Smithsonian Institution, addressed members of the Vassar Club on "Classicism and Romanticism in Education." Attendance, 48.

## 1956

- January 19. District of Columbia Libraries Association meeting. Mr. Wenley gave an address on "The Freer Gift and the Relation of the Library to the Museum." This was followed by a tour of the Freer Gallery library. Attendance, 44.
- April 18. Howard Sollenberger brought a group from the Foreign Service Institute, State Department. Mr. Wenley gave a talk on "Background in Chinese Art, Shang through the Ming Dynasties." Attendance, 15.
- May 17. United States Department of Agriculture, in conjunction with the National Safety Council. General discussion meeting and motion pictures on safety. Attendance, 30.
- May 25. District of Columbia Psychological Group. Dr. Leonard Carmichael, Secretary, Smithsonian Institution, introduced the speaker, Dr. Joy Paul Guilford. Attendance, 39.

One other meeting was held in the building when the Far Eastern Ceramic Group had its fall meeting in Storage II and used the facilities of the library. Attendance, 22.

#### STAFF ACTIVITIES

The work of the staff members has been devoted to the study of new accessions, of objects contemplated for purchase, and of objects submitted for examination as well as to individual research projects in the fields represented by the collections of Chinese, Japanese, Persian, Arabic, and Indian materials. Reports, oral or written, and exclusive of those made by the technical laboratory (listed below) were made on 7,258 objects as follows: for private individuals, 4,975; for dealers, 1,072; for other museums, 1,211. In all, 552 photographs were examined, and 320 Oriental language inscriptions were translated for outside individuals and institutions. By request 19 groups totaling 468 persons met in the exhibition galleries for docent service by staff members. Two groups totaling 74 persons were given docent service in the storage rooms.

Among the visitors were 70 distinguished foreign scholars or persons holding official positions in their own countries who came here under the auspices of the State Department to study museum administration and practices in this country.

In the technical laboratory 90 objects from the Freer collections and 74 from outside sources were examined. The following projects were begun: Quantitative chemical analyses of ancient Chinese bronzes; thin-section studies on Chinese porcelain bodies and glazes; study of ancient Chinese bronze-iron objects to determine means of fabrication and special behavior during soil corrosion. The following projects were continued: X-ray diffraction studies on jade objects in the Freer collections; examination of specimens of wall painting from the ancient Christian church of the Chora, Istanbul (in cooperation with Dumbarton Oaks Research Library and Collection). The following projects were completed: Spectrochemical analyses of samples from ancient Persian and Near Eastern silver objects (results to be published later); treatment and conservation of several Freer Gallery objects, mostly bronzes. During the year, 22 written reports were made and 56 verbal reports given on objects examined in the technical laboratory.

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

1955

November 8. Dr. Ettinghausen, at the Near Eastern Research Club, University of Michigan, on "The Riddle of a Famous Persian Pottery Plate." Attendance, 35.



## 1955

November 9. Dr. Ettinghausen, in Angell Hall, University of Michigan, on "Paintings from the Albums of the Mughal Empire." Attendance, 75.

December 14. Mr. Stern, at China House, New York City, to the Chinese Art Society of America, on "Hokusai Paintings and Drawings in the Collection of the Freer Gallery of Art." Attendance, 35.

## 1956

January 8. Dr. Ettinghausen, at Pierce Hall, All Souls' Unitarian Church, Washington, D. C., on "The Art of the Muslim East." Attendance, 45.

March 2. Dr. Ettinghausen, for the Photographic Roundtable, Graduate School, United States Department of Agriculture, on "Experiences of an Art Photographer under the Crescent." Attendance, 91.

March 12. Mr. Gettens, at New York State Teachers College, New Paltz, N. Y., on "Chemistry in Art and Archaeology." Attendance, 150.

March 22. Mr. Pope, at the Museum of Fine Arts, Boston, on "Ming Porcelain and Its Travels." Attendance, 110.

April 4. Mr. Stern, at the Far Eastern Association meeting in Philadelphia, on "Shiba Kōkan—Artist." Attendance, 50.

April 11. Mr. Stern, at American University, Washington, D. C., on "Hokusai Paintings and Drawings in the Freer Gallery of Art." Attendance, 60.

April 30. Mr. Stern, at the University of Virginia, Charlottesville, on "Noted Examples of Japanese Paintings and Sculpture." Attendance, 95.

May 31. Dr. Ettinghausen, before the Convegno "Volta," Accademia Nazionale dei Lincei, Villa Farvard, Florence, Italy, on "Persian Ascension Scenes of the 14th Century." Attendance, 65.

June 12. Mr. Gettens, at The Henry Francis du Pont Winterthur Museum, Winterthur, Del., on "Museum Laboratories" in connection with a 3-day conference titled, "Winterthur Seminars in Museum Operation and Connoisseurship." Attendance, 60.

On October 15 Mrs. Usilton attended a meeting of the Catalogers and Classifiers for the District of Columbia, Maryland, and Virginia, in Washington, D. C. Members of the staff traveled outside Washington on official business as follows:

## 1955

July 5. Mrs. Usilton in Philadelphia attended the Art Reference Round Table of the American Libraries Association.

August 15-19. Mr. Schwartz in Chicago attended the National Industrial Photographic Conference.

September 2-3. Mr. Stern in New York examined objects belonging to dealers.

October 24. Mr. Wenley in Ann Arbor attended a meeting of the Freer Fund Committee at the University of Michigan.

November 7-19. Mr. Gettens in Sarasota, Fla., examined bronze and stone sculpture at the John and Mable Ringling Museum.

November 8-10. Dr. Ettinghausen in Ann Arbor examined objects in a private collection.

November 21-25. Mr. Wenley in New York examined objects at the Metropolitan Museum of Art and belonging to dealers.

## 1955

- December 12-16. Dr. Ettinghausen in New York examined objects in the New York Public Library, American Numismatic Society, and belonging to dealers.
- December 14-18. Mr. Stern in New York examined objects at the Metropolitan Museum of Art and belonging to dealers.
- December 21. Dr. Ettinghausen in Baltimore examined objects at the Walters Art Gallery.
- December 21. Mr. Gettens in Baltimore examined objects at the Walters Art Gallery.

## 1956

- February 7-9. Dr. Ettinghausen in New York examined objects belonging to dealers.
- March 8-12. Mr. Stern in New York examined objects at the Metropolitan Museum of Art, the Brooklyn Museum, and belonging to dealers.
- March 24-25. Mr. Stern in Charlottesville, Va., examined objects in a private collection.
- April 3-6. Mr. Stern in Philadelphia examined objects at the Philadelphia Museum of Art.
- April 9-11. Mr. Wenley in Baltimore attended meetings of the American Oriental Society.
- April 10-11. Mr. Pope in Abilene, Kans., examined objects at the Eisenhower Museum.
- April 23-25. Mr. Gettens in New York examined objects at the Metropolitan Museum of Art, the Brooklyn Museum, and belonging to dealers. Also discussed bronze corrosion problems with officials of the International Nickel Corporation.
- April 30-  
May 1. Mr. Stern in Charlottesville, Va., conducted a seminar on Japanese art at the University of Virginia.
- May 5. Mr. Wenley in Boston attended meetings of the Far Eastern Ceramic Group.
- May 5. Mr. Pope in Boston presided at the all-day meeting of the Far Eastern Ceramic Group.
- May 19-  
June 16. Dr. Ettinghausen in Europe attended the 12th Convention of the Fondazione "Alessandro Volta" of the Accademia Nazionale dei Lincei in Rome and Florence. Also attended the opening of the International Exhibition of Iranian Art in Rome; studied manuscripts at the Royal Scottish Museum, Edinburgh, and at the British Museum, London.
- May 25-27. Mr. Wenley in Cincinnati attended meetings of the Association of Art Museum Directors held at the Cincinnati Art Museum and the Taft Museum.
- June 12-14. Mr. Gettens in Winterthur, Del., attended The Henry Francis du Pont Winterthur Museum's "Seminars in Museum Operation and Connoisseurship."
- June 12-15. Mr. Stern in Boston examined objects at the Museum of Fine Arts and in a private collection.
- June 16-20. Mr. Stern in New York examined objects at the Brooklyn Museum, the American Museum of Natural History, the Metropolitan Museum of Art, the New York Public Library, and belonging to dealers, and one private collection.
- June 18-  
July 27. Dr. Ettinghausen in Columbus, Ohio, taught "A Survey Course of Islamic Art" at Ohio State University.

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

- Mr. Wenley :      Member, Visiting Committee, Dumbarton Oaks Research Library and Collection.  
                          Research Professor of Oriental Art, Department of Fine Arts, University of Michigan.  
                          Member of the Board of United States Civil Service Examiners at Washington, D. C., for the Smithsonian Institution.  
                          Member, Board of Trustees, Textile Museum, Washington, D. C.  
                          Member, Council of the Far Eastern Ceramic Group.  
                          Member, Smithsonian Art Commission.  
                          Member, Consultative Committee, *Ars Orientalis*.  
                          Chairman of the Louise Wallace Hackney Scholarship Committee of the American Oriental Society.  
                          Member, Committee on Japanese Studies, American Council of Learned Societies.  
                          On February 27, 1956, at the studios of WRC (NBC) discussed the *Freer Gallery of Art and its Collections* on the Patty Cavin radio show.
- Mr. Pope :        President, Far Eastern Ceramic Group.  
                          Member, Editorial Board, *Archives of the Chinese Art Society of America*.  
                          President, Association of the Southern Alumni of the Phillips Exeter Academy.  
                          Member, Art Committee, Cosmos Club.
- Dr. Ettinghausen :      Research Professor of Islamic Art, Department of Fine Arts, University of Michigan.  
                          Near Eastern editor, *Ars Orientalis*.  
                          Member, Editorial Board, *The Art Bulletin*.  
                          Trustee, American Research Center in Egypt.  
                          Member, Comitato Internazionale di Patronato, Museo Internazionale delle Ceramiche, Faenza, Italy.  
                          Member, Advisory Committee of *Current Research on the Middle East*, to be published by the Middle East Institute, Washington, D. C.
- Mr. Gettens :        Consultant, Advisory Board of the Intermuseum Conservation Association, Oberlin College, Oberlin, Ohio.  
                          Associate Editor, *Studies in Conservation*, published for the International Institute for the Conservation of Museum Objects, London.  
                          Abstractor for *Chemical Abstracts*, American Chemical Society.  
                          Socio Corrispondente, Centro de Storia della Metallurgia (Associazione Italiana di Metallurgia), Via Moscova 16, Milano, Italy.  
                          Member, Subcommittee for *I. I. C. Abstracts*, Chief of the American Working Party, International Institute for the Conservation of Museum Objects, London.  
                          Member, Planning Committee for a proposed National Conservation Laboratory for the United States.

- Mr. Gettens :           Member, Committee of Scientific Laboratories, International Council of Museums, 10 Parc du Cinquantenaire, Bruxelles, Belgique.  
                          President, Washington Society, Archaeological Institute of America.
- Mr. Stern :             Member, Program Committee, Far Eastern Association.

On February 21, at a ceremony in the Regents' Room, Smithsonian Institution, at 4:00 o'clock, Dr. Carmichael, Secretary, presented Russell C. Mielke with a certificate of award and a check for "special and meritorious services in carrying out the duties of general maintenance foreman during Mr. Rawley's long illness and subsequent retirement, demonstrating in an outstanding manner ability to discharge these added responsibilities, sometimes under rather trying circumstances."

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, 1956:

## STATUS OF PROPOSED NATIONAL AIR MUSEUM BUILDING

At the beginning of the fiscal year the vigorous efforts by the Smithsonian Institution to obtain a site for the proposed National Air Museum building seemed about to succeed. The preferred site had been chosen after a study of the original "wineglass pattern" plan developed by the National Capital Planning Commission for improvement of the southwest Washington area. At the offices of that Commission it was agreed that the site on Independence Avenue, between 9th and 12th Streets, was most desirable for the proposed National Air Museum building. Subsequently, however, the Commission decided to adopt a plan for the development of southwest Washington proposed by the firm of Webb & Knapp, New York City. That plan eliminated the preferred National Air Museum building site in favor of a 10th Street Mall. No alternate site has yet been assigned, although several are being considered. Especial attention is being given sites close to the other museum buildings in order to provide most convenient access to the visiting public with limited time in Washington.

Although the question of a site has not been answered, nevertheless as a result of continuing efforts and cooperation the Smithsonian Institution now has a broader appreciation and better knowledge of the requirements for adequate care and housing of the National Aeronautical Collections. The architectural studies, which were generously financed by the Aircraft Industries Association and the Air Transport Association, and ably conducted by the architectural firm of McKim, Mead & White, have provided the Institution with a magnificent general internal and external plan of a building, scale drawings of floor plans, perspective renderings, and scale models of a building which is generally adaptable to any level site approximately 1,000 by 500 feet. A previous study conducted by the General Services Administration, Public Buildings Service, produced a plan adaptable to a larger area which would include outdoor exhibits and parking. As the result of the work of the past several years, therefore, the Institution is provided with the principal features which can be adapted to any chosen site.

At the close of the fiscal year, the Smithsonian Institution was proceeding with plans of buildings for other bureaus of the Institution. It was decided that as soon as other units, now occupying space in the Arts and Industries Building, are thus provided for, the space they vacate will be made available to the National Air Museum. Such space should be considered, however, only as an interim provision, and not as a permanent solution of the constantly increasing need to give adequate care and proper educational display to the Institution's marvelous collection of aircraft. Four-fifths of that collection is hidden away in storage, prevented from accomplishing its educational and inspirational function for the students, engineers, and pilots of this Nation which first gave powered and controlled wings to mankind. Aeronautics is too important to the defense, industry, and progress of our Nation to have this collection, embodying its very foundation and development, so confined and suppressed as it now is.

#### ADVISORY BOARD

This Board of five members, specified in the Act establishing the National Air Museum, continues to assist in the planning and operation of the Museum. Shortly after the beginning of the fiscal year, Maj. Gen. George W. Mundy, the Air Force member, was assigned to other duties away from the Washington area and was succeeded on the Board by Maj. Gen. John P. Doyle. He and his assistant for Museum matters, Maj. George C. Bales, have not only been ever ready to assign Air Force personnel to help in maintaining the Air Force planes in the exhibit, but also have directed the construction of a series of dioramas and scale-model groups being made for the National Air Museum at Wright-Patterson Air Force Base to illustrate significant events in Air Force history.

The Navy member of the Board, Rear Adm. James S. Russell, and his alternates, Capt. C. C. Case and Alfred Verville, have kept close contact with the Museum on a number of projects. These include the restoration of a World War I Curtiss N-9 training seaplane, the improved display of the series of models illustrating the development of naval aircraft, and the preservation of the original wind-tunnel models developed at the Washington Navy Yard. Associated with the latter project is the intention to construct a scale model of that wind tunnel, which was developed in 1914. The Museum is indebted also to the Navy for its continued storage of Museum material, thus relieving the Museum of this physical custody while its own premises and facilities are completely occupied.

On March 20, 1956, William B. Stout, one of the Presidential appointees to the Board, passed away at his home in Phoenix, Ariz. His constant interest and wise counsel were a most helpful resource in

conducting the work and planning of the National Air Museum. Several months before his death, Mr. Stout had brought to the Museum a group of five early experimental model aircraft devised during the late nineteenth century and including two he had made at that time, evidencing his early interest in aeronautics. He continued active experimenting and designing throughout his life, and the aeronautical world is richer because of his accomplishments. His last letters to the Museum relate to his efforts in obtaining for the Collections an example of the famous Ford-Stout trimotored transport, which was one of the mainstays of the pioneer airlines during the 1930's. In his letters, he included sketches detailing his ideas for hall arrangements and exhibit locations in the proposed National Air Museum building.

During the year, the other Presidential appointee, Grover Loening, shared his progressive ideas for improvements and expansion of the National Air Museum with the fifth member of the Board, the Secretary of the Smithsonian Institution.

#### STEPHENSON BEQUEST

It will be recalled that Congress authorized the Secretary of the Smithsonian Institution to accept as a gift from the late George H. Stephenson of Philadelphia a statue of Gen. William Mitchell. The development of this project is proceeding very satisfactorily. At the time the previous report was submitted, the sculptor, Bruce Moore, had completed his  $\frac{1}{3}$ -size study and it has been approved by the Fine Arts Commission. This has since been enlarged in plastiline to full size, about 7 feet high. Details of the head, figure, uniform, and other features are being perfected. The Director of the National Collection of Fine Arts, Thomas M. Beggs, and the head curator of the National Air Museum inspected this enlargement on February 2, 1956, and approved it in that elementary form. While continuing his refinement of the sculpture, Mr. Moore has studied many photographs and motion pictures of General Mitchell and has had the helpful assistance and constructive criticism of persons who knew the General intimately. The sculpture will soon be ready for final inspection prior to casting.

#### SPECIAL EVENTS

On July 2, 1955, just 20 years after the world endurance record of 653 $\frac{1}{2}$  hours continuous refueled flight had been established in a Curtiss Robin airplane by the Key brothers, Algene and Fred, of Meridian, Miss., that same airplane *Ole Miss*, piloted by Fred Key, completed a flight from Meridian to Washington, D. C., for presentation to the National Air Museum. This accession not only adds another event of flying history to the many outstanding accomplishments

illustrated in this Museum by original aircraft, but also provides the collection with an example of a 3-place commercial airplane which was popular in the 1930's. This record of over 27 days in the air was an impressive demonstration of the reliability of American aircraft and engines, as well as a tribute to the piloting skill and endurance of the Key brothers.

On August 18, the Civil Air Patrol, an air-youth organization sponsored by the Air Force to encourage aeronautical training and national airmindedness, chose the National Air Museum as a fitting location for paying tribute to their retiring head, Gen. Lucas V. Beau. The ceremony was held in the Aircraft Building in front of the Spad-XIII airplane, a type which General Beau had flown during World War I.

August 19 was the birth date of Orville Wright. At one time this date was designated as Aviation Day, and although that term is now generally applied to December 17, when the Wright brothers first flew in 1903, August 19 is deserving of recognition. The National Air Museum marked the day with a public lecture on World War I aviation, Col. Burling Jarrett, curator of the Army Ordnance Museum at Aberdeen, Md., being guest speaker. He showed motion pictures that he had produced with the assistance of Maj. Kimbrough Brown, USAF, recording the heroism of the famous aces, Georges Guynemer of France and Baron Manfred von Richthofen of Germany.

On September 5, 1955, at a meeting of the Early Birds in Philadelphia, this organization of pioneer pilots, who flew solo during the first 13 years of human flight, 1903-1916, designated the National Air Museum as their official depository for mementos of those fundamentally important years of aeronautics. The head curator was elected secretary of this organization. As a result, this Museum has received a number of important accessions from the membership. These include the Knabenshue airship of 1905, Boland air-speed indicator of 1910, an Elbridge and a Lawrance engine from William Parker, a group of instruments and a Daniel rotary engine from Adm. Luis de Florez, and other items included among those listed at the end of this report.

Members of the Philadelphia Flying Club came to Washington in their own planes October 30, 1955, for the purpose of seeing the Smithsonian's aircraft collection; and on April 3, 1956, a tour of the Museum by members of the Association for Childhood Education International was followed by a group discussion on the value of aeronautics as a medium in school courses. On June 13 a group of children, sponsored by Representative Peter Mack, were given a descriptive tour of the aircraft display.

The National Air Museum was represented, by invitation, at the Wright brothers memorial banquet of the Aero Club of Washington



on December 17, 1955, and at the annual banquet of the American Helicopter Society on May 2, 1956. The head curator continued to serve as a director of the National Aeronautic Association and a member of the Brewer Trophy award committee. On August 28 he received the annually awarded citation of the Air Line Traffic Association in recognition of the progress achieved by the National Air Museum in memorializing aeronautical history. During the year he gave 17 lectures on various aspects of the history and development of aeronautics as requested by various groups, including the Institute of Aeronautical Sciences at the Fairchild Aviation Division, Hagerstown, Md., and the Management Club of McDonnell Aircraft at St. Louis, Mo. Three television and three radio presentations on historical and current aspects of aeronautics were prepared by the National Air Museum during this year and broadcast from Washington stations.

For the annual meeting of the Smithsonian Institution's Board of Regents on January 13, 1956, the National Air Museum prepared a special display illustrating the development of the world's first liquid-fueled rocket by Dr. Robert H. Goddard. The main item of this display was the revised version of the world's first liquid-fueled rocket, fired March 16, 1926. This flight was a significant milestone in the development of rockets. Dr. Goddard's experiments were carried on under the auspices of the Smithsonian Institution from 1913 to 1930 and were aided by an additional Smithsonian grant in 1932. This Institution allotted funds to Dr. Goddard from a Research Corporation grant, the Smithsonian's Hodgkins fund, and from its own research sources. Clark University, the American Association for the Advancement of Science, and the Carnegie Institution of Washington also gave aid to Dr. Goddard during the 1917-1930 period. His later sponsor was the Daniel Florence Guggenheim Foundation until, in World War II, the United States Navy financed his final accomplishments. Dr. Goddard died on August 10, 1945, at age 62. This Regents display was added to the permanent exhibits of the Museum and now includes full-sized original rockets of 1934-35 and a larger rocket, about 16 feet long and 1 foot in diameter, developed 1939-41. Dr. Goddard's experiments were copied by the Germans during their development of the V-2 rocket weapon and formed the foundation for modern rocket progress.

#### IMPROVEMENTS AND CHANGES IN EXHIBITS

During the first part of this fiscal year several halls in the Arts and Industries Building were painted, requiring partial disassembly and covering of the suspended aircraft in those halls and the repair and reassembly of the planes after the painters had completed their work. Because of changes being made in the halls of the Arts and Industries Building, in connection with renovation of exhibits pertaining to

American history and technology, the National Air Museum was required to remove another full-sized aircraft, the William H. Martin glider of 1909, from exhibition. The same renovation program required moving the Wright brothers' first military flyer of 1909 and the Wright brothers' first transcontinental flyer of 1911 to other exhibition locations in the same building. With the assistance of working parties supplied by the Air Force, repairs were made to the Douglas World Cruiser, Loening amphibian, and Spad-XVI airplanes. Several of the fabric-covered aircraft, particularly those exhibited in the Aircraft Building, required patching.

The Museum is particularly proud of its collection of famous aeronautical trophies. Several of these, such as the Pulitzer Trophy and the Curtiss Marine Trophy, have served to stimulate progress in the past, while others, including the Robert J. Collier Trophy, Wright Brothers Memorial, Thompson, and Harmon Trophies, continue to reward those who attain excellence and to inspire others. Improvements have been made throughout the year in the display of these trophies and the associated exhibition of specimens which illustrate the basis for the individual awards. The display describing the two world flights of Wiley Post in the *Winnie Mae*, 1931 and 1933, the first time with Harold Gatty, has been improved by the addition of specimens that expand the physical records of these famous flights. The exhibition of scale models illustrating types developed by the Wright brothers and the Wright Company during the 17 years of progressive development, from their first glider of 1900 to the type "L" of 1916, has also increased in contents and educational interest. The development of our Armed Forces' aircraft, as illustrated by groups of scale models, has been expanded by important additions.

#### STORAGE

At the beginning of this fiscal year, the National Air Museum was busily continuing shipment of its stored collection of aircraft and aeronautical materials from the original storage area at Park Ridge, Ill., to the Suitland, Md., facility, in order to advance the project of concentrating all the Museum's stored material at one location in the Washington, D. C., area where the proposed National Air Museum building is to be constructed. A target date of January 1, 1956, had originally been set for completing this transfer, but Museum personnel at Park Ridge, under the capable management of Walter Male, beat this deadline by four months. The final load was dispatched on August 27, 1955, and the storage operation there was terminated September 1.

Meanwhile, at Suitland the carloads and truckloads of material were being placed in the storage buildings by the Suitland force di-

rected by Stanley Potter, keeping pace, both in efficiency and speed, with the hard-working Park Ridge crew. The last load was stored on September 9. Most unfortunately Mr. Potter was severely injured during the unloading of one of the final deliveries and has not been able to return to work.

The construction of the largest of the Suitland buildings, which will serve as a shop for the restoration and subassembly of aircraft, was begun October 1 and completed January 27. This is 200 by 180 feet in area and will accommodate metal and woodworking machinery, engine-handling devices, stocks of material, a spray booth, a fabric and sheet-metal shop, and other equipment. During the period of about seven years while these aircraft were at Park Ridge they were unavoidably subjected to weather exposure and handling, and further affected by their recent disassembly and shipment. With the expectation of ultimately obtaining an adequate building for exhibition of the National Aeronautical Collections, it is vitally necessary to conduct a continuing program of preparing these specimens for durable, authentic, and attractive display in that building.

By the close of the fiscal year a force consisting of a foreman, two mechanics, an assistant for maintenance, and an aide had been engaged for duty at Suitland. They were setting up the individual shops, sorting material, and selecting the aircraft most in need of reconditioning.

Other projects at Suitland have included the repair of vehicular handling equipment which was strenuously used during the aircraft unloading operations, the repair of roads, and the rearrangement of aircraft storage to clear one of the 4,000-square-foot buildings for storing specimens of the Smithsonian's National Collection of Fine Arts and Division of Engineering.

The four Museum airplanes that were flown to Washington have remained at Andrews Air Force Base where they landed. They were moved to an end of a runway and at the close of the fiscal year a fence was erected around them to protect them from damage. The dismantling of the aircraft for storage of their parts at Suitland is the first project of the next fiscal year for the Suitland crew.

#### INFORMATIONAL SERVICES

The supplying of information on aeronautical history; technical development of aircraft; details of aircraft structure and operation; the theory of flight; the collections of aircraft, engines, and flight equipment in custody of the National Air Museum; biographies of aircraft inventors, designers, manufacturers and pilots; and the furnishing of photographs and drawings—these and other informational services require a constantly increasing amount of time by the staff

of the Museum. These requests come from visitors to the Museum who are interested in various details of the exhibits, from authors, engineers, historians, teachers, students, and others whose need for authoritative information leads them to this national depository for aeronautical materials.

Among the numerous requests for assistance and information received from other Government departments one of the most interesting is the making of a historical film by the Navy Department, Bureau of Aeronautics. It is astounding to realize that the evolution of naval aircraft from the first 45-mile-per-hour 40-horsepower "hydroaeroplane" of 1911 to the current supersonic jet-powered delta-winged fighters has taken place in the active life span of a number of naval aviators who retain keen recollections of this marvelous progress. In this motion picture the memories of these men are being recorded and illustrated by actual scenes taken from film records. The head curator was appointed a technical director for this film, and it has been a fascinating experience for him to listen to these stories in the words of those persons who were actually there when history was being made. For a number of scenes the Museum has supplied specimens which not only stimulated recollections but also illustrated the vivid descriptions. The Navy also requested assistance from the Museum in determining the identification markings of carrier-borne aircraft of the 1930's, in recalling details of the first aircraft landing aboard ship, and in dating early catapulted takeoffs.

The Coast Guard is filling in the history of its aircraft, and was pleased to obtain some needed illustrations from our reference files. The Department of Justice, investigating the origins of inventions in order to defend claims against the Government, was shown on a Museum specimen of 1909, the Olmsted monoplane, a prior development of a high-aspect-ratio elevated stabilizer, and was interested also in the use by the Japanese on their transpacific incendiary balloons of a means for automatically releasing ballast and explosives with aneroid-operated relays, as evidenced by an example in the Museum. The Central Intelligence Agency was also informed about these Japanese balloons. The Air Force, in assembling a history of Mitchel Field, was furnished with data and photographs of early air races held there, and the Signal Corps, proud of the first military airplane exhibited in the Museum, obtained help in describing its technical details and history. A consulting engineer for the Atomic Energy Commission was shown, in the files and library of this Museum, numerous accounts and illustrations of flight-training devices to assist him in preparing a curriculum for employees. The Treasury Department, preparing Defense Bonds advertisements featuring famous Americans, was shown numerous biographical references in the National Air

Museum files, and selected several to augment its program. The Voice of America made a number of phone calls to the Museum to check on details of scripts, and the Civil Aeronautics Administration received helpful suggestions for the making of scale models of airplanes used in accident investigations. These are only a few of the many requests for assistance received from Government agencies. Several Congressmen referred their constituents to the Museum or received direct assistance in answering inquiries about historic aircraft, and a research worker from the Bureau of the Budget was aided in his study of the history of aerial photography.

Seventeen schools and colleges were assisted in preparing their aeronautical courses, and numerous teachers and students consulted the Museum for facts about many aircraft and related subjects. Authors and an illustrator from the Civil Air Patrol were shown some documents on aviation engines and propellers which aided them in preparing texts. Aeronautical organizations that consulted the National Air Museum included the National Aeronautical Association, Royal Aeronautical Society, Institute of Aeronautical Sciences, Air Transport Association, Air Industries Association, Washington Junior Chamber of Commerce, and the National Aviation Education Council. Several lecturers were assisted in preparation of texts and in illustrating their talks.

Among the many interesting projects with which the Museum assisted were three motion pictures, the producers of which have expressed their appreciation, not only for help in reproducing accurate copies of historic aircraft, but also for supplying authentic facts for the script. For "The Court Martial of Billy Mitchell" help in costuming was supplied from actual uniforms of Mitchell preserved in this Museum. The *Spirit of St. Louis* itself was measured, photographed, and examined in detail to insure the accuracy of the copies of that airplane constructed for the film. The third film project was the story of the Wright brothers, and only in this Museum could the technical directors find three original examples of Wright brothers' aircraft, and a group of models from which they could scale details for the reproductions they planned to make.

The list of airlines and aircraft manufacturers who were assisted in writing their own company histories includes several which, but for the Museum records, would have left gaps in their texts. The publications that were given assistance include the National Geographic Magazine, Our Wonderful World, Reader's Digest, Life, Saturday Evening Post, American Aviation Daily, Pegasus, Skyways, and Sperryscope. Numerous authors and artists based their work on Museum material.

Maintaining this informational service is a task that has proved its worth as evidenced by the needs and responses of those assisted. This Museum is becoming increasingly recognized as a unique source for authentic information, as embodied in the aircraft and other specimens, the documentary files, the photograph collection, and in the expert knowledge of the staff. Requests for this service are increasing as it becomes more widely appreciated. An upsurge resulted from the publication of an article describing this function.<sup>1</sup>

This service has come to require more staff time than any other duty, and yet those other duties must somehow be performed, especially when they involve administrative requirements. Time must in some way be found also to maintain the collection, both exhibited and stored, and the associated records, to search for new material, to write texts and other descriptions of aircraft and aeronautical objects in the Museum, and to study. This constant searching for facts involves not only the acquired specimens, but also texts, both historic and current, in order that the staff's personal knowledge and familiarity with the collection—an intangible that is as valuable as any specimen—may be constantly increased. Thus, the need for adequate facilities for the National Air Museum—a building, equipment, and staff—becomes increasingly emphasized.

#### PUBLICATIONS

By the end of the fiscal year all work on the ninth edition of the Handbook of the National Aeronautical Collections was virtually completed, and the book came off the press in mid-August. This Handbook is a general history of aeronautics, as illustrated by the principal specimens in the collections. It contains 166 pages of text and 220 illustrations.

Progress this year on the Catalog of Aircraft has been principally through the procurement of photographs of each of the airplanes, seaplanes, gliders, rotorcraft, and experimental aircraft in the collections, and the assembling of data on each, preparatory to condensing each item to a concise description.

Several of the information leaflets that describe individual aircraft in the Museum and are used principally as inserts for correspondence were revised and multigraphed. Despite progress with supersonic aircraft, correspondence throughout the year reveals that there is still widespread interest in the most basic of aircraft, the kite, for both practical uses and sport. The Museum exhibits a number of oriental and domestic kites, including some that were made by

<sup>1</sup> "The Expanding Role of the Smithsonian Institution in Aviation and Education," by Leonard Carmichael and Paul E. Garber, in *Education* for September 1955.

aeronautical pioneers during their early experiments. Assembly of material for a publication describing them has progressed during the year, and promising leads are being investigated for the procurement of several types of kites that should be obtained in order to complete the series.

#### REFERENCE MATERIAL AND ACKNOWLEDGMENTS

Documentation of the collections is an important procedure, in order to authenticate the exhibits and acquire authoritative data from which labels, catalogs, and other texts can be prepared. This material is also essential for answering the thousands of questions received each year and for serving those who come to the Museum engaged in research. Realizing that the Museum has need for such material and has facilities for keeping it in ready-reference form, a number of persons and organizations have transferred reference items to this Museum. Appreciation is expressed to the following:

- AERO DIGEST, Washington, D. C.: An assortment of photographs and texts, acquired in connection with publication of this magazine.
- AIRCRAFT INDUSTRIES ASSOCIATION, Washington, D. C. (through Joseph Geuting): The Aircraft Yearbook for 1955.
- ANDREWS, HAROLD, Ithaca, N. Y.: A group of scale drawings by Gene Schmidt illustrating U. S. fighter airplanes of the 1920's.
- BADE, CHARLES A., Cleveland, Ohio.: Three name plates from aircraft: American Eagle, Kenyon and Williams, and Lincoln Page.
- BOWERS, PETER, Seattle, Wash.: The loan of a large collection of photographs of World War I aircraft, from which copies were made for the Museum files.
- CARRUTHERS, JOHN, Claremont, Calif.: A microfilm of a collection of documents, announcements, posters, and news accounts of balloon ascents during the nineteenth century.
- DALLY, COMDR. F. E., USN, Washington, D. C.: A photostatic copy of Maggs Brothers' catalog, London, 1923, illustrating and describing a collection of aeronautical prints and texts.
- DRAPER, COL. WM. G., USAF, Washington, D. C.: A photograph of the Aero Commander, presidential airplane, autographed by President Dwight D. Eisenhower, Colonel Draper, pilot, and Maj. John W. Mitchell, copilot.
- ESSO AVIATION NEWS DIGEST, New York, N. Y.: 103 bound volumes of aviation magazines, including Aero Digest, Air Transport, Aviation Week, Aeroplane, Flight, Aviation, and others.
- GROSZ, P. M., Princeton, N. J.: Copies of Ernst Udet, Mein Fliegerleben, The Skycraft Book, and The Second Boys' Book of Model Airplanes.
- HAMILTON, EDWARD G., Dearborn, Mich.: His flight log, listing flights in the Ford-Stout Liberty-engine "Air Pullman," during 1922-25 when the airmail and transport route established by Henry Ford was pioneering operations between Detroit, Chicago, and Cleveland.
- HARDESTY, BERGEN, Frankfort, Ind.: A scale drawing of the Nieuport-28, World War I French pursuit airplane.
- HEGENER, HENRI, Bennebroek, NH, The Netherlands: The loan of 90 photographs of World War II aircraft, from which copies were made for the Museum files.
- HILDES-HEIM, ERIK, Fairfield, Conn.: 12 books on aeronautics and two copies of American Helicopter.

- KLEMIN, MRS. ETHEL, Greenwich, Conn.: Records pertaining to aerodynamic tests performed by her husband, the late Dr. Alexander Klemin, noted aeronautical engineer and teacher.
- LEWIS, CAPT. R. A., Maywood, N. J.: A 3-sheet photostat copy of the navigator's log, recording the flight of the U. S. Air Force B-29 bomber *Enola Gay*, August 6, 1945, when it carried the first atomic bomb to be dropped in warfare, over Hiroshima, Japan. Captain Lewis was copilot on this flight.
- LONDON TIMES, London, England: "The Times Survey of British Aviation," prepared September 1955; review of historical and current developments in aircraft engines, airports, and related services.
- MACCARTEE, CHARLES J., Orlando, Fla.: The loan of a series of negatives, from which prints were made for the Museum files, illustrating airplanes and flights at the first military aviation school and field, College Park, Md., 1910-14.
- NEVIN, ROBERT, Denver, Colo.: A scale drawing of the Wright Brothers Company airplane, type "H," of 1914.
- NIETO, JOSEPH, San Antonio, Tex.: Scale drawings of the U. S. Army Air Service Curtiss R3C-2 Racer of 1925, and the Air Corps Boeing P-26 of 1933.
- NYE, WILLIS L., Hayward, Calif.: A scale drawing of the Douglas World Cruiser airplane, flown by pilots of the U. S. Army Air Service on the first flight around the world, 1924.
- POPULAR MECHANICS MAGAZINE, Chicago, Ill.: A drawing showing details of the *Winnie Mae* airplane, including its engine and supercharger installation, and the stratosphere suit devised by Wiley Post.
- RICHARDSON, CHARLES L., Hebron Conn. (through his wife and Walter D. Sherwood): A copy of "Zeppelin, fahrt um die Welt," an illustrated account of the voyage around the world by the *Graf Zeppelin* airship, 1929.
- SUMPTER SMITH, MRS., Washington, D. C.: A series of scrapbooks maintained by her from 1924 to 1939 recording aeronautical events of those years.
- U. S. AIR FORCE, Wright-Patterson Air Force Base, Ohio: A quantity of Technical Orders, illustrating in detail the construction of a number of recent types of aircraft in use by the Air Force.
- U. S. COAST GUARD, Washington, D. C. (through Norman Rubin): A series of photographs illustrating types of aircraft used by this service.
- U. S. NAVY, Washington, D. C.: A set of scale drawings of the Curtiss N-9 seaplane used during World War I for the training of naval student aviators.
- VAN WEERDEN, J., Maarssen, The Netherlands: Three books on aeronautical history—from Icarus to Zeppelin, by Edgar Fuld; Mijlpalen (Milestones), by C. Van Steenderen, describing airplanes and seaplanes prior to 1918; and Zij Maakten Luchtvaartgeschiedenis, by C. Van Steenderen, Jr., describing airplanes and seaplanes of the period 1910-36.
- VERVILLE, ALFRED V., Washington, D. C.: Descriptions and drawings of the "Messenger" airplane designed by the donor, 1920; one of the earliest successful military liaison and sport types.
- WESTINGHOUSE ELECTRIC CORPORATION, Kansas City, Mo.: A drawing of the J-34 turbojet engine, produced by this company.
- WOLFFSOHN, HANS J., Suffern, N. Y.: Copies of the magazine *Flugsport*.

The Museum is also pleased to acknowledge the cooperation of the Academy of Model Aeronautics, National Aeronautic Association, the National Advisory Committee for Aeronautics, Harvey Lippincott of Hebron, Conn., John H. Lundgren of St. Albans, N. Y., Robert P. McComb of Moultrie, Ga., Chris Bielstein of Arlington, Va., and Ray



Fife of Coronado, Calif., in improving the documentary files by gifts and exchanges of magazines and other data.

During the year a small room in the Aircraft Building was equipped as a depository for reference items, and as a study for use by members of the staff and visitors.

#### ACCESSIONS

Additions to the National Aeronautical Collections received and recorded this year total 118 specimens in 45 separate accessions from 37 sources. Those from Government departments are entered as transfers; others were received as gifts except as noted.

ATCHISON, JOS. ANTHONY, Washington, D. C.: Group of five aircraft squadron insignia illustrating the devices adopted by units of the First Pursuit Group, U. S. Army, in World War I; and four plaster sculptures showing primitive concepts of flying gods in the Hittite, Assyrian, Babylonian, and Egyptian religions (N. A. M. 870, purchased).

AUTOGIRO CO. OF AMERICA, Philadelphia, Pa. (through Franklin Institute): Pitcairn autogiro, the first aircraft of this type constructed in America, 1929 (N. A. M. 888).

BEECH AIRCRAFT CORP., Wichita, Kans.: Scale-model airplanes, 1:16, one illustrating the Beechcraft Bonanza airplane *Waikiki Beech* in which William Odom flew from Honolulu to Teterboro, N. J., March 7-8, 1949, establishing a solo distance record of 4,957.24 miles in 36 hours 2 minutes, and in which the Honorable Peter F. Mack made a solo flight around the world, Oct. 7, 1951-Feb. 7, 1952, visiting 30 nations and flying more than 30,000 miles in the interests of international good will and acquainting himself with conditions in other countries. The other model is of the Beechcraft Super 18, 6-place twin-engined monoplane in current production (N. A. M. 898).

BOLAND, JOS., Takoma Park, Md.: Replica of an air-speed meter devised and constructed by the donor in 1910 (N. A. M. 902).

BYRD, MRS. THOS., Boyce, Va.: Uniforms and military equipment of the late Gen. William Mitchell (N. A. M. 881). Two swords belonging to General Mitchell, one having been presented to him by his uncle in 1898 when Mitchell was promoted from private to lieutenant during the Spanish War and became the youngest officer in the Army; the other, his service sword (N. A. M. 904).

CLARK AUTOMOTIVE MUSEUM, Southampton, L. I., N. Y.: Two aircraft engines, an Anzani and a Caminez (N. A. M. 896).

COMMERCE, DEPARTMENT OF, CIVIL AERONAUTICS ADMINISTRATION, Washington, D. C.: Two aircraft beacons of the type used when the national airways were first established (N. A. M. 893).

DE FLOREZ, ADM. LUIS, Pomfret, Conn.: A group of early aircraft instruments which he assisted in developing during the World War I period, and a Daniel rotary, 2-cycle aircraft engine (N. A. M. 906).

DOUGLAS AIRCRAFT Co., INC., Santa Monica, Calif.: Scale models, 1:16, of the F4D-1, Skyray, and the A4D-1, Skyraider, illustrating current types of naval carrier-based fighting and attack airplanes (N. A. M. 892).

CLCK, W. JOHN, Arlington, Va.: The first passenger ticket sold for the first commercial airplane flight over the North Pole area from the United States to Europe, by the Scandinavian Airlines System, Inc., November 18, 1954. The donor had the distinction of being the first passenger (N. A. M. 875).

- FAIRCHILD ENGINE & AIRPLANE CORP., Hagerstown, Md.: Scale models, 1:48, illustrating the C-119 and C-123 cargo planes recently produced by this corporation for the Armed Forces (N. A. M. 874).
- GARBER, PAUL E., Washington, D. C.: An aviator's helmet equipped with air tubes, hoses, and mouthpiece used for instructing student pilots (N. A. M. 913).
- HADLEY, CLIFTON O., Reading, Pa.: A roll of "Penacloth" developed by the Pennsylvania Rubber Co. during the early days of flying, as a special fabric for covering the wings of airplanes. This type of fabric was used by many of the Early Birds, including the donor (N. A. M. 895).
- HAMMOND, DEAN, Dearborn, Mich.: Stearman-Hammond airplane, a type developed by the donor in the early 1930's when the Department of Commerce was encouraging production of economical aircraft intended for private flying (N. A. M. 886).
- HARTMAN, A. J., Burlington, Iowa: A Roberts airplane engine, 4 cylinders, 60 hp., together with the associated radiator and propeller that formed the power installation of an airplane of 1911 flown by the donor (N. A. M. 873).
- KEY, ALGENE and FRED, Meridian, Miss.: The *Ole Miss*, Curtiss Robin monoplane which, June 4-July 1, 1935, established an official endurance record of 653 hours 34 minutes continuous flight, refueled in air (N. A. M. 883).
- KNABENSHUE, ROY, Pasadena, Calif.: A replica of the dirigible airship which he constructed in 1905 and piloted over New York City, that being the first time a powered aircraft had flown over that metropolis (N. A. M. 894).
- MAGRATH, CHRISTY, Berkeley, Mo.: An early flying model airplane of about 1910 and a structural unit of the U. S. Army's Goodyear RS-1 airship of 1932 (N. A. M. 884).
- MANBECK, ESTELLE, Long Beach, Calif.: The first type of pin identifying members of the Ninety Nine's, organization of women pilots of which Amelia Earhart was cofounder. The donor was past commander of the Amelia Earhart Post #678, American Legion (N. A. M. 871).
- METCALF, DR. G. W., Baltimore, Md.: 10 scale models, 1:24, illustrating airplanes used in World War I, including English, French, and German types (N. A. M. 869).
- NAVY, DEPARTMENT OF THE, Washington, D. C.: The original ground-speed and drift indicator developed by Harold Gatty and used by him when, as navigator, he flew around the world with Wiley Post, June 23-July 1, 1931, received from the U. S. Naval Observatory (N. A. M. 887). Scale model, 1:16, of the Curtiss SOC-3 airplane, one of the final types of biplanes used by the Navy, several having engaged the enemy when Pearl Harbor was attacked in 1941 (N. A. M. 903).
- NESSEN, JOHN, Pleasant Valley, Conn.: A 6-cylinder Menasco aircraft engine, this example having been used by Charles Lindbergh in the Miles "Mohawk" airplane that he purchased and flew in England in 1937 (N. A. M. 900).
- NORTH AMERICAN AVIATION, INC., Los Angeles, Calif.: Scale model, 1:16, of the F-100 Supersabre, the first fighter to attain supersonic speed in level and climbing flight. For the development of this airplane the donor was the recipient of the Robert J. Collier Trophy award for 1953 (N. A. M. 911).
- OLIVER, ROWLAND S., Washington, D. C.: A toy given to the donor in 1899, illustrating an early concept of a foot-propelled parachuteliike aircraft (N. A. M. 899).
- OLMSTED, CHAS. M., THE FAMILY AND ESTATE OF: An original full-sized amphibious aircraft developed 1909-12, incorporating many advanced features, including retractable wheels, variable-camber wing, and elevated high-aspect-ratio tail plane (N. A. M. 872).

- OLMSTED, JOHN B., Miami, Fla.: The original wind-tunnel model of an amphibious twin-pusher monoplane developed by his father, Charles M. Olmsted, 1909-1912 (N. A. M. 880).
- PARKER, WM. D., Bartlesville, Okla.: An Elbridge 3-cylinder airplane engine used by the donor during some of his early flights, 1910-12; and a Lawrance 2-cylinder-opposed aircraft engine developed for installation in the "Penguin" clipped-wing training airplanes of World War I (N. A. M. 907).
- PFISTER, MRS. ARTHUR, Aspen, Colo.: A Bell P-39 Airacobra airplane, a fighter type developed for use in World War II, this example having been piloted by the donor (nee Betty Haas) in postwar air races (N. A. M. 876).
- PORTZ, HENRY G., Garden Grove, Calif.: Scale model, 1:16, of the Turner-Laird special racer piloted by Roscoe Turner when he won the 1939 Thompson Trophy Race at an average speed of 282.53 m. p. h., becoming the only pilot to win this famous trophy three times. (N. A. M. 905).
- POST OFFICE DEPARTMENT, Washington, D. C.: A mail bag used in the Postal Aviation Service on the first continuous scheduled public-service airmail route in the world, New York-Philadelphia-Washington, 1918 (N. A. M. 889). An airplane propeller, mahogany, from one of the airmail planes operated by the Postal Aviation Service over the transcontinental mail routes about 1925, used with a Liberty engine (N. A. M. 908).
- RICKER, BERNARD, Washington, D. C.: A mail bag and post card dropped from the German airship *Graf Zeppelin* when it circled over Washington after making its first transatlantic flight from Germany to Lakehurst, N. J., October 15, 1928. The donor, then 13 years old, caught this mail bag and took it to the Post Office where its contents were forwarded (N. A. M. 912).
- STOUT, WM. B., Phoenix, Ariz.: A group of five early and experimental aircraft models which the donor collected or constructed, illustrating elementary helicopters of the late nineteenth century, and gliders constructed from descriptions by Octave Chanute (N. A. M. 878).
- TOPPING, WILLIAM, Akron, Ohio: Scale models, 1:48, of two guided missiles, the Chance Vought "Regulus" and the Martin B-61 "Matador," which are in current production (N. A. M. 901).
- UNITED AIRCRAFT CORP., PRATT & WHITNEY AIRCRAFT DIVISION, Hartford, Conn. (with assistance of Harvey Lippincott): A Bendix fuel injection unit of the type used with the Wasp Major R-4360 engines (N. A. M. 882). The original example of the J-57 twin-spool turbojet engine, a type selected to power several supersonic fighters of the U. S. Air Force and Navy and recently developed tankers and bombers, including the Boeing 707 and Douglas DC-8. The designer of this engine, Leonard S. Hobbs, was awarded the Robert J. Collier Trophy for 1952 (N. A. M. 885). An R-2000 2SD13G aircraft engine, the Pratt & Whitney Co.'s one-hundredth experimental engine which served as a basis for testing many improvements in design. This type installed in DC-4 airplanes made aircraft history as the principal powerplant of the famous Berlin airlift (N. A. M. 890). A full-sized sectionalized turbosupercharger of the type used in the Boeing B-17 superfortress bombers during World War II to enable the engines to operate efficiently at high altitudes. For development of the turbosupercharger Dr. Sanford A. Moss, of the General Electric Co., was awarded the Robert J. Collier Trophy for 1940 (N. A. M. 891). SIKORSKY AIRCRAFT DIVISION, Bridgeport, Conn.: Scale models 1:48, of the H-5 and H-19 helicopters, in current service (N. A. M. 897).
- UNITED AIR LINES, Chicago, Ill.: Uniform of the type worn by the first stewardesses of this airline which was the first to employ them, 1930 (N. A. M. 879).

VOUGHT, CHANCE, AIRCRAFT, INC., Dallas, Tex. : A scale model, 1 : 16, of the Navy FSU "Crusader," a current type of carrier-based supersonic fighter (N. A. M. 909).

WOMEN'S NATIONAL AERONAUTIC ASSOCIATION (through Mrs. Chester S. Bleyer, Tulsa, Okla.) : Scale model, 1:16, of the William B. Stout Liberty-engined "Air Pullman" with which Contract Air Mail Route #1 was inaugurated by the Ford Motor Co. between Detroit and Cleveland, 1925 (N. A. M. 877). Seven scale models, 1:16, illustrating airplanes flown in competition and in World War II service by Jacqueline Cochrane (N. A. M. 910).

Respectfully submitted.

PAUL EDWARD GARBER, *Head Curator.*

Dr. LEONARD CARMICHAEL,  
*Secretary, Smithsonian Institution.*

# Report on the National Zoological Park

SIR: Transmitted herewith is a report on the operations of the National Zoological Park for the fiscal year ended June 30, 1956.

In all, 742 accessions, comprising 1,710 individual animals, were added to the collection during the year by gifts, deposits, purchases, exchanges, births, and hatchings. Among these were many rare specimens never before shown in this Zoo. The addition of new kinds of animals enhances the value of the collection, which is maintained not only for exhibition but also for research and education. Opportunities for research are afforded students of biology, particularly vertebrate zoology, as well as artists, photographers, and writers. Methods of study that do not endanger the welfare of animals or the safety of the public are encouraged.

In addition to the regular diversified activities of carrying on all the operations of the Zoo, the services of the staff included answering in person or by phone, mail, or telegraph questions regarding animals and their care and transportation; furnishing to other Zoos and other agencies, public and private, information regarding structures for housing animals; cooperating with other agencies of Federal, State, and municipal governments in research work; and preparing manuscripts for publication.

The stone restaurant building, which was constructed in the Park in 1940, is leased at \$34,452 a year. This money is deposited to the credit of the Collector of Taxes, District of Columbia.

Elton Howe, for many years a watch and clock repairman in Washington but now associated with the Diamond Ordnance Laboratory at the U. S. Bureau of Standards, generously presented to the Zoo the 4-faced, 8-day clock that had stood at F Street near Thirteenth since 1922. Mr. Howe put the clock in first-class condition when it was installed, and plans to maintain it in running order as long as he can do so. It has been set up at the intersection of the concourse on the main road through the park, and was started on Monday, June 4, 1956.

## FINANCES

The regular appropriation for the fiscal year was \$669,300, which is carried in the District of Columbia Appropriation Act. This amount was supplemented by \$21,600, which was transferred to the appropriation in accordance with Public Law 94, to cover pay increases

made necessary by the Federal Employees' Salary Increase Act of 1955, approved June 28, 1955.

#### THE EXHIBITS

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

As in any colony of living things, there is a steady turnover, and the exhibits are constantly changing. Thus, the inventory of specimens in the collection on June 30 of each year does not show all the kinds of animals that were exhibited during the year, for sometimes creatures of outstanding interest at the time they were shown are no longer in the collection at the time the inventory is made.

The United States National Museum is given first choice of all animals that die in the Zoo. If they are not desired for the Museum they are then made available to other institutions or scientific workers. Thus the value of the specimen continues long after it is dead.

The two pairs of young giraffes and the pair of young gaurs, as well as other animals brought to the Zoo in 1937 by the National Geographic Society-Smithsonian Institution Expedition, have bred so successfully that the Zoo has been able to dispose of surplus stock having a total exchange value greater than the entire cost of the trip. Such animals are exchanged with other zoos and with animal dealers for specimens that are needed for this collection.

#### ACCESSIONS

The Zoo is particularly fortunate in having friends who show their sincere interest by bringing in specimens or arranging for acquisitions from foreign countries.

To obtain suitable animals for exhibition extensive correspondence throughout the world and a great number of personal contacts are maintained. As a result it is frequently possible to obtain animals that are not ordinarily available through animal dealers. Some of these are gifts and some are obtained by purchase.

#### OUTSTANDING ACQUISITIONS

"Firsts" and rarities are always welcomed, and the Zoo acquired a gratifying number of such specimens during the year.

For the first time this Zoo has a pair of European bison, or wisents (*Bison bonasus*), which are the European counterparts of the American bison. Wisents are extinct in the wild, but a few have survived in captivity or in forest preserves in spite of wars in Europe.

After trying for several years the National Geographic Society procured for the Zoo a specimen of the very rare dwarf armadillo (*Burmeisteria retusa*) of the Bolivian region of South America. It was obtained by W. Frerking, a National Geographic Society correspondent keenly interested in the undertaking, and was flown from Santa Cruz, Bolivia, by the Pan American and National Air Lines without cost. It arrived in perfect condition, and while not a showy exhibition animal it is remarkable in form and appearance, and its great rarity makes it an outstanding "first" for this Zoo. It may be the first to be alive in the United States. It is about 7 inches long. The pink color of the body shows through the shell, there is a fringe of white hairs around the edge of the shell, and the hair of the underparts is white. The feet are pink and the front feet have very large claws for digging.

Lt. Col. Robert Traub, of the Army Medical Research Unit, who is now stationed at Kuala Lumpur, Malaya, again generously offered the Zoo a considerable assortment of animals, from which a few were selected. The most outstanding specimen was a linsang (*Prionodon linsang*) which unfortunately died only a few hours before reaching Washington. It is very rare in the wild and is not known to have been in captivity before.

The U. S. Fish and Wildlife Service, through the kindly interest of Donald L. Spencer in Alaska and William Tierre in Washington, made a noteworthy contribution of an Alaskan brown bear (*Ursus* sp.)—a female cub born about February 1955.

The Army Medical School gave the Zoo seven chimpanzees of exhibition quality.

The National Geographic Society, through Gilbert G. La Gorce, presented two beavers (*Castor canadensis*), the first the Zoo has had for some time.

Twenty specimens of a medium-size African galago (*Galago senegalensis*) were turned over to the Zoo by the Army Medical School of Walter Reed Hospital, through Dr. J. A. Morris, after they had served their purpose with the Medical Corps. They were in good condition and are useful for both exhibition and exchange.

The Army Medical School also gave three Mongolian gerbils (*Meriones unguiculatus*), which are sufficiently active during the day to be good exhibition animals. This species was on exhibition only once before.

Two interesting African small mammals, a rock rat (*Aethomys kaiseri*) and a kusu rat (*Arvicanthus niloticus*), were sent by Dr. Lawrence Kilham of the National Institutes of Health while he was engaged in research work at Entebbe, Uganda. These small mammals

have considerable external resemblance to some of the ratlike creatures of North America and are interesting for exhibition.

A Himalayan snow cock (*Tetraogallus h. himalayensis*) was given the Zoo by the Fish and Wildlife Service through Gardner Bump, who was then in Pakistan, and F. C. Lincoln of the Washington office. This is the first bird of this kind exhibited here. It is about the size and form of a domestic chicken.

The Fish and Wildlife Service also presented the first specimens of the sand grouse (*Pterocles orientalis*) the Zoo has ever had.

Two kea parrots (*Nestor notabilis*), gifts from the New Zealand Government, were brought north for the Zoo by the Naval Antarctic Expedition. These birds were at one time threatened with extinction and are now rigidly protected. They have been successfully exhibited here for many years, but these two additional specimens are most welcome.

Three emperor penguins (*Aptenodytes forsteri*) were brought to the Zoo by Malcolm Davis of the Zoo staff, who accompanied the Antarctic Expedition known as Task Force 43. He also brought back six parasitic gulls known as skuas (*Catharacta maccormicki*). The penguins died of aspergillosis within a few days.

From Dr. Juan Rivero, of the University of Puerto Rico, came three different species of the beautiful little green anolis of Puerto Rico.

The following were obtained by purchase:

An olingo, or bassaricyon (*Bassaricyon gabbi*), from the Leticia region of Colombia. For many years this rare animal has been sought in Central America and northern South America. It is a relative of the raccoons and kinkajous and bears considerable resemblance to the latter, but its ears are larger, its tail is not prehensile, and its movements suggest that it is probably more terrestrial than the kinkajou. Only a few specimens of this genus are known from widely scattered locations in Central America and northern South America. This is the first one of its kind exhibited in the Zoo and probably the first to be alive in the United States.

Two young Sumatran orangutans (*Pongo pygmaeus*), which had been deposited in the Zoo by Mr. and Mrs. Carl Krummel of Baltimore, Md.

A male, a female, and a young Saiga antelope (*Saiga tatarica*).

Fine specimens of male and female gelada baboons (*Theropithecus gelada*), the first the Zoo has had for several years. They are rare in the wild and are noteworthy among the primates in having a naked area on their red chest; in the female this area is bordered by a row of tubercles on the skin more than one-eighth of an inch in diameter, giving the impression that she wears a pink pearl necklace. The single species of this interesting genus inhabits the mountainous parts of Abyssinia.



A South American tapir (*Tapirus terrestris*), which gives the Zoo a pair of these river and swamp animals.

A pair of rib-faced deer, or muntjaks (*Muntiacus muntjak*).

A pair of beautiful young tamandua anteaters (*Tamandua tetradactyla*).

Two African wild dogs (*Lycan pictus*). The Zoo had some of these animals several years ago, but they are not common in captivity.

Two black jaçanas (*Jacana spinosa hypomelaena*). These tiny relatives of the rails have extremely long slender toes and long legs, and are well adapted to running on vegetation floating on the surface of tropical streams and ponds. They are the first the Zoo has exhibited.

A beautiful white-and-gray Guianan crested eagle (*Morphnus guianensis*) from the Leticia region of Colombia. The species ranges from Honduras and Costa Rica south to Argentina and Bolivia but is scarce throughout its range and very rare in captivity.

Two Inca terns (*Larosterna inca*), inhabitants of the coast of Peru and Chile. These are the first that have been exhibited here and are attractive additions to the bird house.

Two whooper swans (*Cygnus cygnus*), inhabitants of Europe and Asia, but now rare.

A fine specimen of the comb duck (*Sarkidiornis melanota*), which inhabits most of Africa and southern Asia.

A specimen of an interesting Manduit's hawk-eagle (*Spizaetus ornatus*).

Surinam toads (*Pipa pipa*). These are the first of these very interesting creatures the Zoo has had for some time. They are remarkable for their method of reproduction—the male embeds the eggs in the soft spongy skin of the back of the female, where they go through the tadpole stage and emerge as little frogs.

A parrot snake (*Leptophis occidentalis*), from the Leticia region of Colombia.

During the year contact was reestablished with a collector, J. D. Handman, in Africa, who has sent several shipments of reptiles. Among the more interesting ones were flap-necked chameleons (*Chamaeleon dilepis*), striped sand snakes (*Psammodphis subtaeniatus*), sharp-nosed snakes (*Rhamphiophis rostratus*), Egyptian cobras (*Naja haje*), African black cobras (*Naja melanoleuca*), boomslangs (*Dispholidus typus*), African house snakes (*Boaedon lineatum*), and plated lizards (*Gerrhosaurus major*).

Several specimens of the Amazon spotted turtle (*Podocnemis unifilis*). Heretofore these turtles have been very rare in collections, but apparently the area in which they may be common is now being explored for animals.

By exchange with the Philadelphia Zoological Society a specimen of the Cape Barren goose (*Cereopsis novaehollandiae*) was acquired.

A small but interesting collection of lizards and scorpions from the Florida Keys was obtained by exchange from Mr. and Mrs. Louis H. Babbitt.

#### DEPOSITS

This year, as in many years past, various individuals have deposited in the Zoo animals to which they desired to retain title. These are most acceptable additions to the exhibits. Depositors are assured that the animals will receive routine care, but the Zoo assumes no responsibility and no obligation to replace any that do not survive. The following animals were on deposit during the year:

A young red ukari (*Cacajao rubicundus*), deposited by William Schwartz. Ukaris are unusual in collections because they do not thrive in captivity, but because of the special care given this specimen it gives promise of surviving.

A number of active young chimpanzees, on deposit from the Army Medical Corps and the Johns Hopkins Medical School. They are kept here until they are needed for research work by the respective institutions. Most of them suffer no greater indignity or discomfort than having a small amount of their blood taken for testing in a medical laboratory. They provide one of the most interesting and active exhibits.

Two specimens of Branick's paca (*Dinomys branickii*) on deposit for three days. They are South American rodents that are very rare, but the Zoo had had specimens of them on two previous occasions.

Some chukar quails (*Alectornia graeca*), deposited by the Pakistan Embassy.

Ten different species of unusually attractive finches that were living together, deposited by Dean Stambaugh, St. Albans School, Washington, D. C.

An interesting collection of Cuban reptiles, deposited by David Hardy of Baltimore, Md.

A specimen of the Murray turtle (*Emydura macquariæ*), deposited by Donald Pumphrey.

#### DEPOSITORS AND DONORS AND THEIR GIFTS

(Deposits are marked \*; unless otherwise indicated, address of donors is Washington, D. C.)

Aaron, A. H., Hyattsville, Md., domestic rabbit.	Alexander, Judith, 2 red-lined turtles.
Aaron, Mrs. William H., Wheaton, Md., domestic rabbit.	Amber, Dianne, Arlington, Va., 2 Peking ducks.
Adams, Louis, timber rattlesnake.	Amos, James, screech owl.
Adgate, W. M., Bethesda, Md., 2 domestic rabbits.	Anderberg, Sven, Hyattsville, Md., domestic rabbit.

- Anderson, Bruce, Silver Spring, Md., alligator.
- Anderson, R. G., Lanham, Md., 9 Peking ducks.
- Ariss, Michael and John, cottontail rabbit.
- Arnold, Mrs. Elting, Somerset, Md., purple grackle.
- Aro, Mrs. Thomas, Arlington, Va., grass parakeet.
- Atkeson, John C., Jr., Arlington, Va., sparrow hawk.
- Babbitt, Lewis H., Petersham, Mass., timber rattlesnake.
- Baker, Thomas G., Brentwood, Md., 9 domestic rabbits.
- Baldwin, J. W., King George Co., Va., 3 raccoons.
- Barber, Robin, Chevy Chase, Md., Peking duck.
- Barnwell, E. L., Alexandria, Va., Peking duck.
- Barrus, Russell W., Jr., Falls Church, Va., eastern skunk.
- Baster, Fred, domestic rabbit.
- Bayer, F. M., 10 sea snakes.
- Beall, Peter W., Bethesda, Md., mole snake.
- Beard, William H., skunk.
- Beckett, Patricia and Charlotte, Bethesda, Md., 3 bantam fowl.
- Berrell, Mrs. F. J., Peking duck.
- Besby, Susan, Orange, Va., ground hog.
- Bianchini, W. R., Hyattsville, Md., 2 Peking ducks.
- Bigley, Georgia, \*grass parakeet.
- Bingham, Lt. Col. E. C., Arlington, Va., domestic rabbit.
- Black, Charles N., Bladensburg, Md., alligator.
- Black, T. W., Cheverly, Md., red-lined turtle.
- Blankenship, William A., Bethesda, Md., squirrel monkey.
- Bohrer, Ronnie, Silver Spring, Md., Peking duck.
- Borkart, Mrs. Olivia, \*spider monkey.
- Bowen, Edward W., Hyattsville, Md., alligator.
- Bowker, Albert H., domestic rabbit.
- Bozzy, Mrs. Francis G., 6 barn owls.
- Brantner, Lester E., Rockville, Md., gray fox.
- Breazeale, Edgar B., chukar quail.
- Brewer, C. M., Hyattsville, Md., caiman.
- Bridge, John and Stephen, Greenbelt, Md., spotted turtle, 3 snapping turtles, pilot black snake.
- Briggs, Michael, horned lizard.
- Brooks, Virginia, domestic rabbit.
- Brown, Helen, Louisa, Va., \*owl monkey, \*pig-tailed monkey.
- Brown, Howard, Lexington Park, Md., bald eagle.
- Bruzzess, Pvt. J. A., muscovy duck.
- Butts, Dr. A. B., domestic rabbit.
- Cabot, Caskie, Arlington, Va., pigeon.
- Calvert, Gordon L., Silver Spring, Md., 2 domestic rabbits.
- Campbell, F. W., Alexandria, Va., Peking duck.
- Carpenter, W. K., Wilmington, Del., African leopard.
- Carr, Mrs. Myrtle, Muirkirk, Md., green guenon.
- Carroll, Mrs. Rachel, Silver Spring, Md., \*white-throated capuchin monkey.
- Carroll, Wyman, New Haven, Conn., gaboon viper.
- Carter, Helen, \*blue jay.
- Chandler, Mrs. R., domestic rabbit.
- Chapman, Cathy and Steve, Silver Spring, Md., 2 Peking ducks.
- Charman, H. W., Kensington, Md., domestic rabbit.
- Chauvenet, Allen, Silver Spring, Md., 3 opossums.
- Chin, Calvin and Carol, domestic rabbit.
- Christie, James, Knight, and Claude, Alexandria, Va., \*night monkey.
- Clarke, Patrick J., Takoma Park, Md., caiman.
- Clavelli, Mrs. Anita, domestic rabbit.
- Clay, Rick H., Arlington, Va., squirrel monkey.
- Coiner, Robert W., Silver Spring, Md., 2 Peking ducks.
- Collins, F., Falls Church, Va., hamster.
- Cook, Sheila, caiman.
- Cooke, M/Sgt. Russell, Jr., black-and-red marmoset, Geoffroy's marmoset.
- Corbin, Mrs. Mary Lee, Beltsville, Md., ringtail capuchin.
- Corvick, Mrs. William A., McLean, Va., albino robin.

- Crandon Zoo, Miami, Fla., soft-shelled turtle.  
 Crocker, Charles D., Georgetown, British Guiana, 2 anacondas.  
 Crockett, Mrs. J. S., Brentwood, Md., caiman.  
 Crooks, Claudia, Peking duck.  
 Crooks, Henry A., Indian Head, Md., raccoon.  
 Culver, Charles E., Falls Church, Va., 3 Peking ducks.  
 Curtis, Dr., rhesus monkey.  
 Curtis, Mrs. Charles, Silver Spring, Md., 2 flying squirrels.  
 Danko, George J., 4 Peking ducks.  
 Davis, Frank K., ocelot.  
 Davis, Mrs. J. R., Peking duck.  
 Davis, Lawrence D., Hyattsville, Md., red-lined turtle.  
 Davis, Robert R., \*kinkajou.  
 Davis, Skipper, Alexandria, Va., pilot black snake.  
 Dawson, Jane A., Rockville, Md., cotton-tail rabbit.  
 Degan, Donnie and Mary, Takoma Park, Md., 4 white-tailed pigeons.  
 DePrato, Joe and Jack, Langley Park, Md., 20 tree frogs, green frog, 2 toads.  
 Douglass, Beverly, \*pale capuchin.  
 Drake, Mrs. Ruth H., grass parakeet.  
 Dunaev, Nicholas, brown capuchin, 2 caimans.  
 Duques, Mrs. Henry, Arlington, Va., domestic rabbit.  
 Ebert, Jervy S., Rockville, Md., 4 purple martins.  
 Eby, Cecil A., Bethesda, Md., loon.  
 Ekin, Mrs. C. William, Bethesda, Md., gray squirrel.  
 Ellis, John H., Torrington, Conn., cackling goose.  
 Emerson, F. A., Rockville, Md., golden pheasant.  
 Emmett, Edith, domestic rabbit.  
 Ercannilla, M., cowbird.  
 Ezenour, Joan, Arlington, Va., 2 domestic chickens.  
 Ezrine, Angy, Peking duck.  
 Fama, Joseph, Peking duck.  
 Faulstich, Albert J., domestic rabbit.  
 Fehrman, Ray, Silver Spring, Md., \*2 collared turtle doves.  
 Feighery, Frank, Sr., Colvin Run, Va., alligator.  
 Ferguson, G. Gary, Alexandria, Va., coachwhip snake.  
 Fields, Lary, Bethesda, Md., pilot black snake.  
 Fisher, Viola, squirrel monkey.  
 Foley, John W., Kensington, Md., mud turtle, box turtle, snapping turtle, rabbit.  
 Fortenberry, C. G., Arlington, Va., domestic rabbit.  
 Foster, Daniel L., 2 red-bellied snakes.  
 Fox, James B., Bethesda, Md., \*2 sparrow hawks, \*2 red-tailed hawks, \*2 duck hawks.  
 Fraley, Patricia, Rockville, Md., Peking duck.  
 Francis, Roddy, 2 domestic rabbits.  
 Freeman, Frank W., 4 sea horses.  
 Frick, Ann Tracey, Peking duck.  
 Frost, Mrs. W. P., Kensington, Md., domestic rabbit.  
 Fudge, Robert E., Dahlgreen, Va., Virginia deer.  
 Fuqua, Paul, Arlington, Va., snapping turtle, 2 horned lizards.  
 Gambone, William A., Silver Spring, Md., domestic rabbit.  
 Garber, Paul E., flying squirrel.  
 Garcia, Modesta, Silver Spring, Md., squirrel.  
 Garrison, T., domestic rabbit.  
 Gaver, Gordon, Thurmont, Md., \*rhesus monkey, \*4 alligators, \*alligator turtle, \*Javan macaque.  
 Gilliam, Homer, Falls Church, Va., flying squirrel.  
 Gingell, F. V., Fairhaven, Md., Geofroy's marmoset.  
 Giuliani, Gilbert, Kensington, Md., tarantula.  
 Gleason, Mrs. Naomi, Silver Spring, Md., caiman.  
 Gooch, Donald, Takoma Park, Md., 2 eastern skunks.  
 Gray, Joseph B., Seat Pleasant, Md., opossum, raccoon.  
 Greco, James, Vienna, Va., common goat.  
 Greenhow, Roger, Springfield, Va., painted turtle.  
 Greenwood, Walter, Arlington, Va., diamond-back turtle.

- Grunwell, William T., Arlington, Va., red-bellied turtle.
- Gscheidle, John R., Chillum, Md., snapping turtle.
- Haldeman, Jay, Bethesda, Md., domestic rabbit.
- Hall, Mrs. Edna M., Arlington, Va., 2 black-widow spiders.
- Hall, Raynaud, domestic rabbit.
- Hammlin, Paul K., Kinston, N. C., 2 capuchin monkeys.
- Hammond, James H., Chevy Chase, Md., 6 guinea pigs.
- Hand, Dr. J. D., Silver Spring, Md., hog-nosed snake.
- Hardy, David, Baltimore, Md., \*4 Cuban iguanas, \*8 curl-tail lizards, \*19 Cuban boas, \*10 Cuban geckos, \*3 Cuban turtles, \*16 Cuban toads, \*Cuban racer, \*4 ground boas, \*Jubito or Cuban grass snake, \*hutia.
- Hatchman, Mrs. M. G., Bethesda, Md., pilot black snake.
- Hawkins, Clayton, Java rice bird, 4 grass parakeets.
- Heilman, Miriam, Chevy Chase, Md., box turtle.
- Helsig, C. P., Arlington, Va., 2 Peking ducks.
- Henderson, David and Elizabeth, Arlington, Va., 2 hamsters.
- Henderson, H. R., caiman.
- Hendley, Carroll, Bladensburg, Md., red-lined turtle.
- Hennessy, Richard L., San Francisco, Calif., \*Rosella parakeet.
- Hewitt, Wesley, Silver Spring, Md., alligator.
- Hibbert, B. L., Peking duck.
- Hicks, William, 6 hamsters.
- Highfield, Robert T., southern hill mynah.
- Hill, James C., 2 roosters.
- Hobbs, Catherine B., 2 diamond-back turtles.
- Hobbs, E. E., Jr., Wheaton, Md., ring-tail capuchin monkey.
- Hodge, Mrs. W. H., Silver Spring, Md., domestic rabbit.
- Hoffman, Irvin H., Cabin John, Md., silver pheasant.
- Hoffman, Irvin M., Bethesda, Md., 2 wood ducks, 2 silver-spangled Hamburg fowls.
- Hogeboom, Mrs. G. H., Kensington, Md., black-widow spider.
- Hoke, John, 2 common iguanas.
- Holland, Beatrice, grass parakeet.
- Homan, Coke, eastern skunk.
- Hood, Maj. Gen. Reuben C., Jr., USAF, Ancon, Canal Zone, Galapagos turtle.
- Horne, Douglas B., Surry, Va., copper-head snake.
- Howell, Robert, Arlington, Va., 3 Java finches.
- Hubbard, Robert, Arlington, Va., alligator.
- Hubble, Mrs. W., rosy-faced lovebird.
- Huggins, Mrs. Henry S., cottontail rabbit.
- Hughes, Mrs. Hannah, domestic turkey.
- Hughes, Mrs. William G., Jr., horned lizard.
- Hutchinson, W. S., cockatiel.
- Hynek, Frank, spiny-tailed iguana.
- Ikao, Tanit, Burlington, N. J., \*alligator.
- Johnson, Richard W., Bethesda, Md., 2 pocket mice.
- Jolley, Christian L., Rockville, Md., Butler's garter snake.
- Jones, J. O., Falls Church, Va., 3 domestic rabbits.
- Jones, Marie A., Silver Spring, Md., Peking duck.
- Kangas, Mike, Arlington, Va., 3 ospreys.
- Kastantin, J., Rockville, Md., indigo snake.
- Kasten, Mrs. Marie A., 2 box turtles, 3 false map turtles, 2 red-lined turtles, Florida water turtle.
- Keeping, Jim, sparrow hawk.
- Kennard, Marion, domestic rabbit.
- Kilham, Dr. Lawrence, National Institutes of Health, \*kusu rat, \*rock rat.
- King, Nancy J., Peking duck.
- Kirchmyer, R. H., red-lined turtle.
- Klenzing, G. Stewart, Chambersburg, Pa., caiman.
- Kliban, Barnett P., \*2 lovebirds, \*mynah, \*yellow-headed parrot, \*mynah.

- Krumke, Karl E., III, spotted turtle, mole snake, pilot black snake, hog-nosed snake.
- Krummel, Carl, Baltimore, Md., \*12 white headed nuns, \*2 Sumatran orangutans.
- Kuntz, Dr. Robert, Navy Medical Center, 2 western box turtles, western race runner, western hog-nosed snake, 8 horned lizards.
- Lang, Luisa, Chevy Chase, Md., blue-tailed skink.
- Lash, Irvin F., Arlington, Va., 2 grass parakeets.
- Latham, Inez F., 2 cardinals.
- Latham, Joseph D., Indian Head, Md., 2 Peking ducks.
- Latham, Louis, Arlington, Va., 6 opossums.
- Latham, Mrs. Marté, Pittsburgh, Pa., \*2 Brannick's paca.
- Lawrence, Mrs. Betty, \*blue jay.
- Leach, Janet, Peking duck.
- Leclercq, Richard P., Silver Spring, Md., wild rabbit.
- Leland, Mrs. Carolyn, weeping capuchin.
- Levangie, Betsy, squirrel monkey.
- Liebert, Carolyn, Bethesda, Md., 2 domestic rabbits.
- Linowes, David, domestic rabbit.
- Lipovsky, Dr. L. J., \*29 salamanders.
- Lippman, Larry, Bethesda, Md., caiman.
- Locke, Otto Martin, New Braunfels, Tex., 2 indigo snakes, 8 rattle-snakes.
- Loeber, C. W., albino robin.
- Logsdon, D. M., Annandale, Va., \*opossum.
- Long, Clifford F., Alexandria, Va., 32 grass parakeets.
- Loving, W. H., McLean, Va., 2 domestic rabbits.
- Ludwig, Charles D., Arlington, Va., \*Cuban parrot.
- Lumpkin, Allen, DeKay's snake.
- Madeira School, caiman.
- Maiatics, Jerry, horseshoe crab.
- March, Mr. and Mrs. Anthony, Bethesda, Md., goat.
- Marden, Mr. and Mrs. Lewis, \*2 flying squirrels.
- Marmelstein, Allan, Silver Spring, Md., \*capuchin monkey, 5 red-lined turtles.
- Martin, James Robert, Norfolk, Va., \*2 soft-shelled turtles.
- Maske, Jerry, domestic rabbit.
- Massey, C. C., Alexandria, Va., 2 Peking ducks.
- Mausert, Lt. Col. Ryerson N., Falls Church, Va., 7 Rouen ducks.
- Mayo, W. A., cottontail rabbit.
- Mendoza, R. H., domestic rabbit.
- Merchant, Mrs. R. A. Arlington, Va., domestic rabbit.
- Miller, Sam, domestic rabbit.
- Money, Mark L., Herndon, Va., spotted turtle.
- Mora, Jeanne, Arlington, Va., domestic rabbit.
- Moreland, Frances, domestic rabbit.
- Mork, M. W., black iguana.
- Munroe, Willard N., Jr., Rangeley Lakes, Maine, Virginia deer.
- Murphy, Greer M., Chevy Chase, Md., caiman.
- Murphy, Mrs. H. S., Arlington, Va., Peking duck.
- Murphy, Jay, Arlington, Va., snapping turtle.
- Murray, Thomas M., Green Meadows, Md., domestic rabbit.
- Murrow, Mrs. J. S., raccoon.
- Murrow, Roy, robin.
- Musser, George, Springfield, Va., red-shouldered hawk.
- Myers, Earl H., Falls Church, Va., pale capuchin monkey.
- McCormick, H. W., eastern skunk.
- McCune, Malcolm, Silver Spring, Md., 2 chinchillas.
- McDonald, Karen, Arlington, Va., 2 cottontail rabbits.
- McDonald, Tillman, Arlington, Va., prairie dog.
- McGeown, A. W., Chevy Chase, Md., \*crow.
- McKinney, Frank D., hog-nosed snake.
- McLean, Mrs. M., black-headed Gouldian finch.
- McLean, Paul, domestic rabbit.
- McNeil, Jean, Peking duck.
- Nathan, Dick, domestic rabbit.

- National Geographic Society, 2 beavers, tapafiasco or dwarf armadillo.
- National Institutes of Health, Bethesda, Md., 3 squirrel monkeys, \*rhesus monkey.
- Nelson, Sara L., squirrel monkey.
- Nelson, T. P., McLean, Va., snapping turtle.
- Newkirk, George F., Bladensburg, Md., night heron.
- New Zealand Government, 2 kea parrots.
- Nixon, Patricia and Julie, caiman.
- North Atlantic Fertilizer and Chemical Co., New York, N. Y., \*5 regal pythons, \*3 mangrove snakes, \*3 burrowing boas.
- Norton, Lorraine, domestic rabbit.
- Offutt, Courtney, Silver Spring, Md., 2 squirrels.
- Olmstead, R. M., Beltsville, Md., barn owl.
- Pakistan, Embassy of, \*20 chukar quail, \*6 immature quail.
- Pardue, Coolidge F., Seat Pleasant, Md., common goat.
- Parker, Dorothy, Arlington, Va., 2 Peking ducks.
- Parker, E. S., Fredericksburg, Va., Bantam fowl.
- Parrish, Margaret, Woodbridge, Va., caiman.
- Peppard, Kenneth, Alexandria, Va., Peking duck.
- Phelps, Mrs. James F., Hyattsville, Md., skunk.
- Pickeral, Charles, Falls Church, Va., pale capuchin.
- Pickett, Grant, Arlington, Va., alligator.
- Pinckard, Lois and Lucille, 2 alligators.
- Pinckney, A. J., Hyattsville, Md., domestic rabbit.
- Plummer, Warren, boa constrictor.
- Poppen, David, Arlington, Va., caiman.
- Portland Zoo, Portland, Oreg., 2 emperor geese.
- Post Office Department, horned lizard.
- Prosize, Mrs. Martin, Vienna, Va., 2 Peking ducks.
- Puerto Rico Zoological Gardens, Mayaguez, P. R., 29 anolis lizards.
- Pumphrey, Donald, Bladensburg, Md., \*Murray turtle.
- Queenin, Mrs. R., Jr., caiman.
- Ramberg, Walter, Chevy Chase, Md., domestic goose.
- Reed, Miss B. J., Silver Spring, Md., squirrel.
- Reinhart, Maj. J. W., Silver Spring, Md., horned lizard.
- Rhobotham children, Kensington, Md., domestic rabbit.
- Rice, George H., Jr., Arlington, Va., 2 squirrel monkeys.
- Richards, Randy, Falls Church, Va., crow.
- Richardson, O. O., Manassas, Va., mole snake.
- Richmond, Robert, Falls Church, Va., cottontail rabbit.
- Riggle, Gordon, Bethesda, Md., collared lizard.
- Riggs, Lowry, Rockville, Md., turtle.
- River, Joseph D., raccoon.
- Rivero, Dr. Juan, Puerto Rico, 30 specimens representing 3 species of anolis.
- Roach, Norman C., Arlington, Va., Peking duck.
- Roache, W. P., Hyattsville, Md., Canada goose.
- Roberts, Mrs. J. W., 2 opossums.
- Robertson, Alan, domestic rabbit.
- Robins, Mrs. N. B., Bethesda, Md., mole.
- Roonce, Mrs. Elizabeth, Alexandria, Va., 6 opossums.
- Rosenthal, William, domestic duck.
- Rubin, Carol, Alexandria, Va., Peking duck.
- Rucker, Eldred B., Falls Church, Va., skunk.
- Rupp, Elizabeth Ann, Arlington, Va., domestic rabbit.
- Saffeld, Lester W., 2 alligators.
- Sanborn, Thornton, Bethesda, Md., Peking duck.
- Sanders, Ray, painted turtle.
- Satchel, Mrs. R. T., Woodstock, Va., 2 bald eagles.
- Scheid, Carl Patrick, \*duck hawk.
- Schenk, Mrs. Robert, Peking duck.
- Schroeder, Louis W., Rockville, Md., black-tufted marmoset.

- Schwartz, William, \*ukari monkey, \*squirrel monkey.
- Scofield, John, \*sulphur-breasted toucan.
- Seegers, Mrs. Scott, McLean, Va., \*2 cardinals, \*wood thrush.
- Shaffer, Joseph T., Alexandria, Va., Virginia deer.
- Shaw, John, Chevy Chase, Md., caiman.
- Sheen, Michael, Falls Church, Va., opossum.
- Shepard, Mrs. H. L., domestic rabbit.
- Shields, Mrs. James W., Bethesda, Md., Peking duck.
- Shooshan, Mrs. H. M., Bethesda, Md., 2 doves.
- Shosteck, Robert, Brookville, Md., 6 mallard ducks.
- Shutt, Mrs. Evelyn, Falls Church, Va., indigo snake, tarantula.
- Sichel, Peter, opossum.
- Sidwell Friends School, 9 domestic rabbits, 4 bantam hens.
- Silvas, Mrs. Antonette, domestic rabbit.
- Sims, Jerry, Arlington, Va., DeKay's snake.
- Sisk, Mark, Takoma Park, Md., caiman.
- Skelly, Gerald, Ft. Belvoir, Va., \*3 copperheads.
- Small, Philip L., Martinsburg, W. Va., black-tufted marmoset.
- Smith, Roger, Arlington, Va., flying squirrel.
- Smith, T. W., Alexandria, Va., Muscovy duck.
- Smith, William P., Silver Spring, Md., domestic rabbit.
- Snapp, Randolph, McLean, Va., alligator.
- Speakes, Meredith E., Manassas, Va., Javan macaque.
- Spiller, Mrs. S. K., Peking duck.
- Sprehn, Stephen, caiman.
- Stagner, H. R., Bethesda, Md., domestic rabbit.
- Stambaugh, Dean D., \*2 owl finches, \*2 Gouldian finches, \*2 cordon bleu finches, \*2 sharp-tailed finches, \*star finch, \*2 orange waxbill finches, \*strawberry finch, \*European goldfinch, \*red-billed fire finch, \*3 canaries.
- Stanbury, Kenneth, Fairfax, Va., black-widow spider.
- Stiles, Bill, Falls Church, Va., snapping turtle.
- Stilter, Diane, Bethesda, Md., Peking duck.
- Swadley, Virgil, McLean, Va., common mole.
- Swank, Leslie, Arlington, Va., raccoon.
- Taylor, James, 2 domestic rabbits.
- Taylor, Mike, caiman.
- Taylor, R. L., Chevy Chase, Md., 2 ospreys.
- Tedron, R., Chevy Chase, Md., domestic rabbit.
- Thomsen, Evelyn R., Alexandria, Va., 4 Peking ducks.
- Thornton, Corp. Richard, Camp Lejeune, N. C., 2 Cooper's hawks.
- Tift, Bruce and Barbara, 2 guinea pigs.
- Tolley, Benton C., Woodacres, Md., domestic rabbit.
- Tote-em-In Zoo, George Tregembo, Wilmington, N. C., corn snake; black swamp snake.
- Towneley, Hanson, mockingbird.
- Traub, Lt. Col. Robert, Kuala Lumpur, Malaya, 4 regal pythons, 2 two-headed snakes, gliding snake, giant gecko, linsang, binturong, Phayre's langur.
- Travers, Connie, College Park, Md., mallard duck.
- Travis, C. W., wood turtle, ribbon snake.
- Trefflich, Henry, New York, N. Y., \*king cobra.
- Trew, Mrs. Fred, Chevy Chase, Md. caiman.
- Troiano, Mr. and Mrs. Frank, \*spider monkey.
- Trotter, M. E., domestic rabbit.
- Truitt, R. V., Stevensville, Md., 4 raccoons.
- Tyrrell, W. B., Takoma Park, Md., opossum, pygmy rattlesnake, fence lizard, greater five-lined skink.
- Tyrrell, W. B., Willows, Md., 3 pilot black snakes.
- U. S. Army Medical School, 7 chimpanzees, 3 Mongolian gerbils.
- Through Dr. J. A. Morris, 20 African galagos.



U. S. Department of Agriculture, race-runner snake.	Watson, Dr. Joseph, Chevy Chase, Md., ring-necked dove.
U. S. Fish and Wildlife Service: Through Gardner Bump, Karachi, Pakistan, and F. C. Lincoln, snow cock.	Watson, William D., Kensington, Md., caiman.
Through J. Stokley Ligon, Carlsbad, N. Mex., 2 sand grouse.	Wayland, O. D., Culpeper, Va., 3 grass parakeets.
Through David L. Spencer, Kenai, Alaska, and William Tierre, Alaskan brown bear.	Weber, Jeanne, and Mrs. Bill Quinter, snapping turtle.
Through Bruce Stollberg, Squaw Creek Refuge, Mound City, Mo., 2 blue geese.	Welbon, Henry G., Tokyo, Japan, Formosan flying squirrel.
Vanderhoof, Jonna, Rockville, Md., horned lizard.	Weston, Douglas, Arlington, Va., 2 Peking ducks.
Van Tassel, M. E., Arlington, Va., Brazilian cardinal.	Wheeler, William J., Falls Church, Va., 2 copperheads.
Vaughan, Merrill W., caiman.	Whitley, James F., *yellow-vented parrot.
Vigliotti, George A., Silver Spring, Md., kinkajou.	Wickenheisen, Walter, Kensington, Md., Muscovy duck.
Villa, Kathy, Chillum, Md., 2 domestic rabbits.	Willard, Dolores J., jaguarundi.
Vincent, Michael, snapping turtle.	Williams, Bobby and Johnny, Arlington, Va., 2 Peking ducks.
Virus Research Institute, Entebbe, Uganda, through Dr. J. A. Morris, Army Medical School, Walter Reed Hospital, 20 galagos.	Wills, Yvonne, domestic rabbit.
Wadsworth, Richard, 2 grass parakeets.	Witt, William, *pilot black snake, copperhead snake, 2 tree frogs, *milk snake, milk snake, king snake, 5 spotted turtles.
Walter, Harry, College Park, Md., caiman.	Wolk, Carolyn, gray squirrel.
Walter Reed Hospital, *5 Malayan tree shrews, 4 chimpanzees.	Wonn, Clifford P., *red-blue-and-yellow macaw.
Walters, Billy, *chicken snake.	Wood, Diana, domestic rabbit.
	Worthington, Mrs. Sandra, Takoma Park, Md., Peking duck.
	Yarbrough, Arthur, Arlington, Va., sparrow hawk.

## BIRTHS AND HATCHINGS

Conditions under which animals are kept on exhibition are usually not favorable for breeding or raising young. However, occasionally young are born or hatched that are of unusual interest to the public and are valuable as additions to the group or for exchange. Outstanding among the births at the Zoo were the following:

The herd of Nubian giraffes (*Giraffa camelopardalis*) again produced young, thus providing valuable exchange specimens.

The pygmy hippos (*Choeropsis liberiensis*) continue to produce young, the eighteenth having been born during the fiscal year.

The water civets (*Atilax paludinosus*), African relatives of the mongoose, continue to produce young.

The colony of rather attractive slender-tailed cloud rats (*Phloeomys cumingi*) continues to increase by births. The original pair have died of old age, but their progeny are carrying on.

The African porcupines (*Hystrix galeata*) continue to increase.

The crested screamers (*Chauna torquata*) again laid eggs and hatched three young, but they did not survive.

Through the painstaking care of Mario De Prato, principal keeper of the reptile house, reproduction among reptiles has been very gratifying. The most outstanding of these follow:

Eggs were laid by the flap-neck chameleon (*Chamaeleon dilepis*) on April 2, 1955, and 6 hatched on June 23. In spite of the utmost efforts the young refused to eat and so survived only a few days.

A three-horned chameleon (*Chamaeleon jacksoni*) gave birth to 16 young on January 9, 1956.

The five-lined skinks hatched six eggs August 11, 1955.

Fourteen young green water snakes (*Natrix cyclopion*) were born June 3, 1955. One egg of an indigo snake (*Drymarchon corais couperi*) was hatched, and 10 red-bellied water snakes (*Natrix erythrogaster*) were born.

An African house snake, or musaga (*Boaedon lineatum*), laid 21 eggs, and 7 of these hatched on December 11. These may be the first of their kind to have been hatched in captivity.

An Egyptian cobra (*Naja haje*) laid 19 eggs on November 4, 1955. On January 31, 1956, 3 of them hatched. Only one of the young could be induced to eat freely. It thrived on baby mice. This was the second time cobra eggs were hatched in the Zoo.

Eight rainbow boas (*Epicrates cenchria*) were born on March 12, 1956.

Following is a complete list of the births and hatchings:

## MAMMALS

Scientific name	Common name	Number
<i>Ammotragus lervia</i> .....	Aoudad, or Barbary sheep.....	8
<i>Anoa depressicornis</i> .....	Anoa.....	1
<i>Atilax paludinosus</i> .....	Water civet.....	1
<i>Axis axis</i> .....	Axis deer.....	2
<i>Bibos gaurus</i> .....	Gaur.....	1
<i>Bos taurus</i> .....	{ British Park cattle.....	4
	{ West Highland cattle.....	1
<i>Callosciurus</i> sp.....	Southern Asiatic squirrel.....	2
<i>Capra hircus</i> .....	Domestic goat.....	2
<i>Cercopithecus cephus</i> .....	Mustached monkey.....	1
<i>Cercopithecus neglectus</i> .....	DeBrazza's guenon.....	1
<i>Cervus canadensis</i> .....	American elk.....	2
<i>Cervus elaphus</i> .....	Red deer.....	1
<i>Cervus nippon</i> .....	Sika deer.....	1
<i>Choeropsis liberiensis</i> .....	Pygmy hippo.....	1
<i>Choloepus didactylus</i> .....	Two-toed sloth.....	1
<i>Dama dama</i> .....	{ Brown fallow deer.....	3
	{ White fallow deer.....	2

## MAMMALS—Continued

Scientific name	Common name	Number
<i>Dasyprocta punctata</i> .....	Speckled agouti.....	3
<i>Felis concolor</i> .....	Puma.....	1
<i>Felis leo</i> .....	Lion.....	3
<i>Felis pardus</i> .....	Black leopard.....	1
<i>Giraffa camelopardalis</i> .....	Giraffe.....	1
<i>Hippopotamus amphibius</i> .....	Hippopotamus.....	1
<i>Hydropotes inermis</i> .....	Chinese water deer.....	1
<i>Hylobates agilis</i> x <i>H. lar pileatus</i> .....	Hybrid gibbon.....	1
<i>Hystrix galeata</i> .....	African porcupine.....	3
<i>Lama glama</i> .....	Llama.....	4
<i>Lama pacos</i> .....	Alpaca.....	2
<i>Leontocebus rosalia</i> .....	Golden marmoset.....	2
<i>Macaca mulatta</i> .....	Rhesus monkey.....	1
<i>Macaca sylvanus</i> .....	Barbary ape.....	3
<i>Odocoileus virginianus</i> .....	Virginia deer.....	2
<i>Odocoileus virginianus costaricensis</i> .....	Costa Rican deer.....	3
<i>Ovis musimon</i> .....	Mouflon.....	1
<i>Pan satyrus</i> .....	Chimpanzee.....	1
<i>Phloeomys cumingii</i> .....	Slender-tailed cloud rat.....	2
<i>Thalarcos maritimus</i> x <i>Ursus middendorffi</i> .....	Hybrid bear (second generation).....	4
<i>Ursus horribilis</i> .....	Grizzly bear.....	2

## BIRDS

<i>Anas platyrhynchos</i> .....	Mallard duck.....	13
<i>Branta canadensis</i> .....	Canada goose.....	6
<i>Chauna torquata</i> .....	Crested screamer.....	3
<i>Melospittacus undulatus</i> .....	Grass parakeet.....	8
<i>Nycticorax nycticorax hoactli</i> .....	Black-crowned night heron.....	13

## REPTILES

<i>Ancistrodon piscivorus</i> .....	Water moccasin.....	4
<i>Boaedon lineatum</i> .....	African house snake, or musaga.....	7
<i>Chamaeleon dilepis</i> .....	Flap-necked chameleon.....	6
<i>Chamaeleon jacksoni</i> .....	Three-horned chameleon.....	16
<i>Chrysemys picta</i> .....	Painted turtle.....	7
<i>Diadophis punctatus edwardsi</i> .....	Ring-necked snake.....	6
<i>Drymarchon corais couperi</i> .....	Indigo snake.....	1
<i>Elaphe obsoleta obsoleta</i> .....	Pilot black snake.....	10
<i>Epicrates cenchria</i> .....	Rainbow boa.....	8
<i>Eumeces fasciatus</i> .....	Five-lined skink.....	6
<i>Naja haje</i> .....	Egyptian cobra.....	1
<i>Natrix cyclopion</i> .....	Green water snake.....	16
<i>Natrix erythrogaster</i> .....	Red-bellied water snake.....	10
<i>Natrix sipedon</i> .....	Water snake.....	29
<i>Storeria dekayi</i> .....	DeKay's snake.....	5

## FIFTIETH ANNIVERSARY

A Siberian crane (*Grus leucogeranus*) gave its hornlike calls and high-stepping dance, with appropriate wing movements, on June 26,

1956, the 50th anniversary of its arrival in the National Zoological Park as a full-grown bird. This is a noteworthy longevity record, and apparently the bird is in such condition that it should live considerably longer.

#### RESEARCH

The National Zoological Park has no general research program, as such. However, the successful keeping of any animal involves more or less specific research. If the habits and requirements of a species in captivity are not well known, they must be ascertained through research, which may have to be carried out with all possible speed if a newly received animal is to survive. The problems involved may concern any or all of the following: Temperament of the animal; its need for exercise and for companionship; diseases and external and internal parasites to which it is subject; food preferences; housing, temperature, ventilation, and bedding.

If it is known in advance that a new animal is to be received, information is sought from every possible source regarding its probable requirements. Upon its arrival its age and physical condition are noted, and any tentative plans for its care are modified or elaborated as circumstances dictate. External injuries, if any, are treated, and efforts are made to rid the animal of external parasites. Internal parasites are watched for, and treatment to eliminate them is undertaken. Observations on the animal are continued and changes are made in its environment if necessary. If it refuses to eat, new foods are offered and its preferences are noted.

The relatively low mortality rate among newly received animals and the general good health of those in the collection attest the success of the research that is carried on.

In addition to the problems concerned directly with the animals, there are many others that involve research. One relates to the types of construction materials most suitable for the housing and exhibition of the animals and most economical to maintain. This calls for constant study of various types of flooring, bars, wire fabrics, cage partitions, doors, locks, and numerous other materials. Much research has also been done on paints, and over a period of more than 25 years the Zoo has tried many different kinds and has generally been among the first to make use of new paints when they are suitable.

Another problem concerns the acquisition of ornamental plants and shrubs for the Park. Some that might be entirely suitable from an esthetic standpoint cannot be utilized for reasons peculiar to the Zoo.

Incidental research carried on by Ernest P. Walker, Assistant Director, mainly in his home and on his own time, has concerned the care of small animals about which little is known and which in many cases had not been kept successfully in captivity. Outstanding among

these were several different kinds of bats, African elephant shrews, and North American shrews. His success he attributes largely to the food formula<sup>1</sup> he developed, which is relished not only by these animals, but by many others.

Army medical research workers interested in the raising of tree shrews because of their possible value as laboratory animals have been impressed by Mr. Walker's success with the other types of shrews and have brought tree shrews to the Zoo. Given this food, the shrews thrived on it and produced four litters of young. Indeed, the results were so promising that the food has been canned in small quantities by the National Cannery Association, and two lots of it have been shipped to Malay and Borneo by the Army medical workers. Also, a small amount was recently taken to Mexico by Mr. Walker and turned over to the Pan American Sanitary Bureau, which requested this material for feeding bats they are studying in connection with research work on rabies.

Information supplied in response to the many requests received by mail, telephone, and from visitors is based on research by this Zoo, or has been assembled from various sources, and in many instances serves to facilitate scientific investigations that are being carried on by other Federal or State institutions. Occasionally animals are deposited with the Zoo by research institutions until they are needed for experimental purposes. Here they are cared for and are available to the depositors when desired. The facilities thus provided contribute indirectly to the research work of other organizations.

#### VETERINARIAN

For the first time since 1942 the National Zoological Park has a veterinarian—Dr. Theodore H. Reed, appointed July 15, 1955. The work of the veterinarian is threefold: to establish such a sound disease-preventive program through nutrition, sanitation, parasite control,

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<sup>1</sup> Ingredients: Yolk of 1 hard-boiled egg; approximately an equal amount of rather dry cottage cheese; approximately an equal amount of ripe banana; approximately an equal amount of mealworms; 6 drops of Jeculin; 6 drops of wheat-germ oil; 3 grains of Theragram.

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

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

laboratory examination, and environmental changes that the need for treatment and surgery is reduced to a minimum; to treat diseased and injured animals as necessary; and to carry on research looking toward better remedies and better health for the animals in captivity.

Changes in and additions to more than 92 of the diets have been made, and benefits are beginning to be evident. Two second-generation hybrid bear cubs now 6 months old were raised on synthetic bitches' milk and are developing normally. The two young gorillas continue to thrive. Nikumba, the male, weighed 17 pounds on arrival at 15 months of age, and Moka, the female, weighed 20 pounds. Their combined weight is now 100 pounds, the male being the heavier. Dr. Joseph Watson, a private physician, is consultant pediatrician for both the gorillas and orangutans.

A systematic parasite survey has been started, and treatment is given where necessary. The new anthelmintic piprizine sulfate has been used for roundworms with good results. It has the advantage of being highly effective, relatively palatable and nontoxic. A satisfactory method of treating reptiles for internal parasites is being sought, and results so far are promising.

During the year 20 minor surgical cases were treated. The three major operations were the removal of a fibroma between the two lower canine teeth of a 19-year-old Bengal tiger, the reduction of an umbilical hernia on a young male chimpanzee, and the removal of a large mass ( $\frac{1}{2}$  pint) of tapeworm cysts from the hind leg of a De Brazza's guenon. Lt. R. M. McCully, United States Air Force (Veterinarian Corps), was the chief surgeon. Two unusual surgical procedures were the removal of a marble-sized tumor from an African lungfish and the extraction of an impacted tooth from an 18-foot anaconda.

Treatment of infectious conditions has been as successful as could be expected considering the difficulty in handling some of the patients. In all, 119 mammals, 17 reptiles, and 25 birds were under treatment.

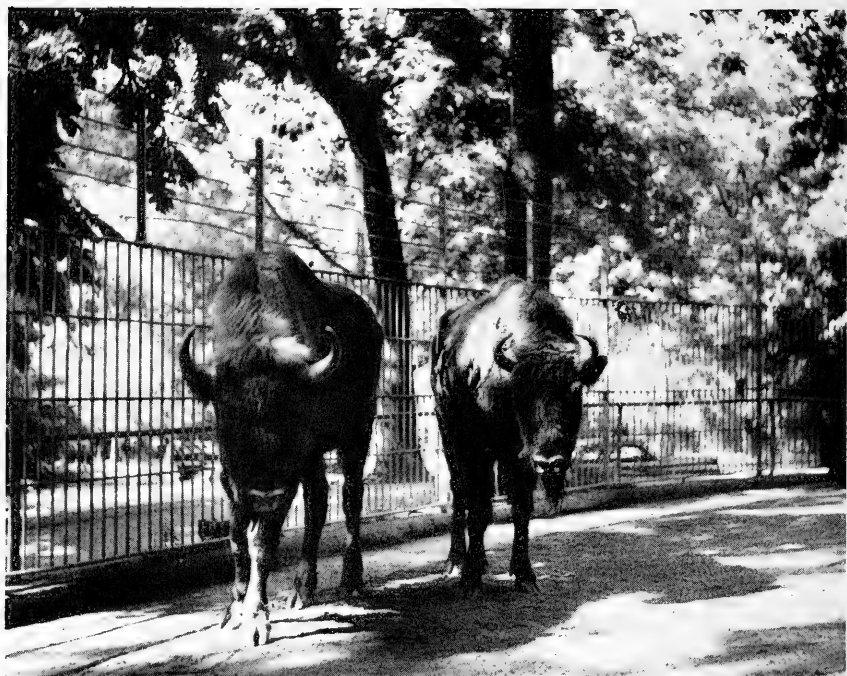
Every death that occurs at the Zoo is listed. When an animal dies every effort is made to determine the cause of death, and to profit from the findings.

The three emperor penguins received May 1, 1956, arrived infected with aspergillosis. Treatment with Mycostatin (Squibb) and Alivar (Winthrop) by inhalation with a DeVilbiss nebulizer was immediately started. One penguin died within 12 hours; the other two survived 5 days. The pathological reports on the two that died last showed that the mold was not sporulating, indicating that an early treatment against the disease would have been effective had there been opportunity.

Assistance in post-mortem procedures and all histopathologic examinations were given by Drs. Eyestone and Lombard, National In-



New building at National Zoological Park, opened March 15, 1956, which houses the police headquarters, women's and men's rest-rooms, and, in the basement, storage space and the gardener's office. Photograph by Ernest P. Walker.

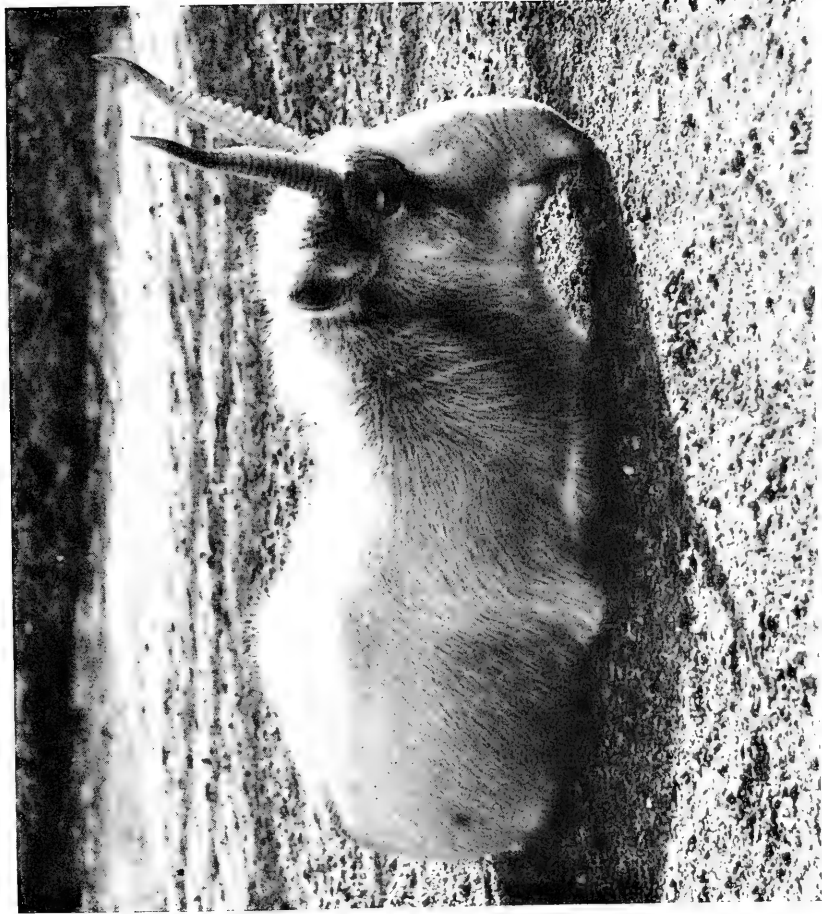


Wisent, or European bison (*Bison bonasus*). These are the first of these animals to be exhibited in the National Zoological Park. Wisents are extinct in the wild and there are only a few in captivity. This picture shows the high, narrow form characteristic of the animal. They are much less massive than the American bison. The photograph suggests slightly more of a hump than these animals possess.





2. Siberian crane (*Grus leucogeranus*) still living in the Zoo after more than 50 years.



1. Male saiga antelope (*Saiga tatarica*) in National Zoological Park. Photograph by Ernest P. Walker.



1. Dwarf armadillo (*Burmesteria retusa*), the first that has been exhibited in the National Zoological Park. It slept through a prolonged photographing session. Such extremely sound sleep is characteristic of some of the burrowing animals. The very large digging claws of the front foot are well shown. The Spanish name "tapafrasco" for these animals means bottle cap, in allusion to the hard plate that covers the rear of the animal.



2. Young olingo (*Bassaricyon* sp.), the first exhibited in the National Zoological Park. Photographs by Ernest P. Walker.

stitutes of Health, and the veterinary section of the Armed Forces Institute of Pathology.

#### IMPROVEMENTS AND MAINTENANCE

The new building containing restrooms, headquarters for the police, and office and storage space for the gardener, which was opened to the public March 15, 1956, was designed by the Department of Buildings and Grounds of the Government of the District of Columbia in accordance with provisions of law. The \$197,000 appropriated for the structure was carried in the District of Columbia Public Works Appropriation for 1955. With the small unexpended balance of the appropriation a driveway and a loading platform at the storeroom in the basement of the building are to be constructed.

The routine work of maintenance and construction, which is carried on practically every day of the year, consists of such varied tasks as the removal of stoppages from drains and sewers, repairs of faucets, doors, cages, water lines, steam lines, boilers, refrigeration equipment, buildings, roads, and walks, and innumerable miscellaneous jobs necessary to keep the National Zoological Park in a safe and presentable condition. The need for the exercise of great care in working around animals requires that practically all this kind of work be done by the Zoo's own specially trained workmen, who must not only perform mechanical work but also cooperate with the keeper force so that nothing is done that will injure the animals, the public, or themselves.

All designing, construction, repair, and maintenance work done in the Park during the year were performed by the Zoo's mechanical department; but because of inadequate funds this work was limited to that most urgently needed. It has been impossible to keep pace with the deterioration of the old structures that require extensive repairs, and some of them have had to be abandoned. The mechanical shops designed and built new metal skylights for several animal houses. Extensive repairs were necessary to some of the stone buildings constructed during WPA days about 20 years ago.

Over a period of years there has been a gradual increase in the amount of trimming of trees necessary along the roads, walks, and paths, and in the exhibition area. Because of disease or age, some of the trees are dying and must be cut down. Others must be trimmed to remove dead or broken limbs that might fall and injure persons or animals, or damage automobiles or structures.

The job of cleaning up the grounds is a major undertaking. Using all available manpower, it usually takes 5 to 10 days to pick up the trash and restore the park to a fair degree of presentability after Easter Sunday and Monday. This work has of necessity been reduced to a minimum. The lawns, shrubs, and trees cannot be kept in as

attractive condition as they might be because of lack of maintenance funds. However, curtailment of this work results in less harm than does the neglect of structures and fences.

From time to time during the year earth has been received for the fill across the road from the large-mammal house. After the fill is completed a sidewalk will be laid on that side of the road, providing a greater measure of safety for the public. Until the fill settles, the area will be used for a car-parking site, and later paddocks will be placed on it.

The accessibility of the police headquarters in the new building has so greatly increased the demands upon the police for first aid, information, and general assistance that it has been necessary to take two men off patrol to maintain the service in the office. This leaves the regular patrol force shorthanded, even with the temporary part-time policemen that have been employed.

In addition to routine maintenance considerable reconstruction, as well as new construction, is necessary to meet the requirements of animals or changed conditions. For example, with the prospect of obtaining more penguins from the Navy Antarctic Expedition, extensive work was done on the penguin room with a view to filtering the air to remove practically all air-borne germs and spores, maintaining slightly lower temperatures, providing chilled water for the swimming pool and for hosing down the cage. As the cooling system has been in use for 20 years and it is uncertain how much longer it will continue to function, an additional cooling unit for the cage was installed. This will be used when the old system fails or must be repaired.

The two young gorillas that were given the Zoo by Russell Arundel in 1955 have outgrown two cages, and a third had to be built. This involved not only building a new wall in the great apes room in the small-mammal house, but the construction of a retirement cage and the laying of a new floor. Also, a new thermostat was installed to provide better control of the temperature in this room for the gorillas.

With the appointment of a veterinarian it became necessary to provide an office for him and a hospital for the animals. An old stone building is being adapted for the purpose and a beginning made to equip it for surgery, treatment, and laboratory work. This has required installation of a new heating plant, remodeling of cages, and painting the inside of the building.

#### VISITORS

Attendance at the Zoo this year reached a total of 3,788,229, an all-time high record. In general this figure is based on estimated rather than on actual counts, but the following actual counts made by members of the police force on certain days are of interest: Reptile house,

Sunday, September 4, 1955, 11,813 persons; the next day, Labor Day, 9,661 at the same building; small-mammal house, Sunday, April 29, 1956, 9,517 visitors. On Sunday, June 3, 1956, a check of cars entering the Connecticut Avenue gate in 1 hour recorded 200 cars with 669 passengers.

*Estimated number of visitors for fiscal year 1956*

July (1955)-----	547, 500	February-----	180, 950
August-----	460, 300	March-----	199, 585
September-----	388, 720	April-----	470, 274
October-----	344, 000	May-----	435, 300
November-----	188, 700	June-----	364, 000
December-----	81, 550		
January (1956)-----	127, 350	Total-----	3, 788, 229

Groups came to the Zoo from schools in Formosa and 32 States, some as far away as Alabama, California, Florida, and Maine.

*Number of groups from schools*

Locality	Number of groups	Number in groups	Locality	Number of groups	Number in groups
Alabama-----	19	1, 279	Minnesota-----	5	173
Arkansas-----	1	38	Mississippi-----	4	205
Colorado-----	1	14	New Hampshire-----	1	46
Connecticut-----	10	764	New Jersey-----	19	1, 389
Delaware-----	7	326	New York-----	101	6, 589
District of Columbia-----	141	8, 049	North Carolina-----	186	11, 123
Florida-----	13	1, 789	Ohio-----	38	1, 965
Georgia-----	48	10, 437	Pennsylvania-----	238	11, 964
Illinois-----	5	172	South Carolina-----	73	2, 202
Indiana-----	8	540	South Dakota-----	1	32
Kansas-----	1	38	Tennessee-----	61	2, 973
Kentucky-----	11	666	Vermont-----	1	24
Louisiana-----	3	124	Virginia-----	562	32, 986
Maine-----	16	686	West Virginia-----	29	2, 833
Maryland-----	543	33, 481	Wisconsin-----	3	284
Massachusetts-----	11	657			
Michigan-----	8	631	Total-----	2, 168	134, 479

About 2 p. m. each day the cars then parked in the Zoo are counted and listed according to the State, Territory, or country from which they came. This is, of course, not a census of the cars coming to the Zoo, but is valuable in showing the percentage of attendance, by States, of people in private automobiles. Many District of Columbia, Maryland, and Virginia cars come to the Zoo to bring guests from other States. The tabulation for the fiscal year 1955 is as follows:

	<i>Percent</i>		<i>Percent</i>
Maryland-----	28. 1	Ohio-----	1. 3
Virginia-----	22. 7	West Virginia-----	1. 0
District of Columbia-----	22. 4	Massachusetts-----	0. 9
Pennsylvania-----	6. 9	Florida-----	0. 9
New York-----	2. 9	California-----	0. 8
North Carolina-----	2. 6		
New Jersey-----	1. 4		91. 9

The remaining 8.1 percent came from Alaska, Austria, British Columbia, Canada, Canal Zone, Costa Rica, England, France, Germany, Hawaii, Italy, Japan, Mexico, Newfoundland, Philippine Islands, and Puerto Rico.

On the days of even small attendance there are cars parked in the Zoo from at least 15 States, Territories, 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.

#### COOPERATION

At all times special efforts are made to maintain friendly contacts with other Government and State agencies, private concerns and individuals, and scientific workers for mutual assistance. As a result the Zoo receives much help and advice and many valuable specimens, and in turn it furnishes information and, whenever possible, specimens it does not need.

Special acknowledgment is due the United States Dispatch Agent in New York City, Howard Fyfe, an officer of the State Department, who has frequently been called upon to clear shipments of animals coming from abroad. This he has done, often at great personal inconvenience, and the animals have been forwarded to Washington without the loss of a single specimen.

U. S. Marshal Carlton G. Beall turned over to the Zoo 50 bags of rice and 200 pounds of poultry that had been condemned by the court. The National Institutes of Health, the Army Medical Center, the Navy Medical Center, and the Nutritional Laboratory of the Department of Agriculture gave the Zoo mice, rats, guinea pigs, rabbits, and other animals no longer suitable for their purposes. These are valuable foods for many animals. The poultry division of the Department of Agriculture gave a considerable number of day-old chicks that were hatched in connection with certain of its experiments. These are a highly desirable addition to the diet of many animals. The Fish and Wildlife Service also gave some young chicks.

Dr. John C. Pearson, of the Fish and Wildlife Service's aquarium, in the Commerce Building, has traded specimens and given much valuable assistance and advice.

Samuel M. Poiley, associate chief of the animal production section, National Institutes of Health, continued to supply surplus laboratory animals, some of which were desirable additions to the exhibition collection.

C. W. Phillips and P. R. Achenbach of the National Bureau of Standards and R. W. Seiders of the General Services Administration gave the Zoo valuable advice in connection with many of the problems incidental to improving conditions in the penguin cage.

The National Institutes of Health, the Armed Forces Institute of Pathology, the Johns Hopkins Medical School, and the Neurophysiology section of Walter Reed Medical School have given valuable assistance and advice in the treatment and handling of animals. The zoological division of the U. S. Department of Agriculture Research Center, Beltsville, Md., continued to identify parasites found on the animals.

Dr. Charles G. Curbin, associate veterinarian, medical division, bureau of medicine, Food and Drug Administration, has supplied the Zoo with surplus medicines, and the following commercial firms have been extremely kind in furnishing drugs for use and for clinical trials:

Lederle Laboratories.

Schenley Laboratory, Inc. (pharmaceutical division).

E. R. Squibb & Sons.

Upjohn Co.

Wyeth Laboratories.

The DeVilbiss Co. lent equipment for experimental purposes.

At the request of the Pan American Sanitary Bureau, a branch of the World Health Organization, Ernest P. Walker, Assistant Director of the Zoo, went to Mexico to photograph bats. Mr. Walker has specialized in the photographing of mammals and has taken many pictures of bats, both flying and at rest. Certain species in Central and South America have been found to be involved in the spread of rabies. There have been no satisfactory photographs or drawings that could be used by public health workers and others to determine and demonstrate the kind of bats that they might be studying or discussing. Therefore, they desired photographs that could be used in this work. Mr. Walker left Washington October 31 and returned December 22.

#### NEEDS OF THE ZOO

Because of the natural deterioration of structures and equipment, and rising costs, the need for more funds for maintenance, repair, and improvements becomes more critical every year. The newest of the exhibition buildings are 19 years old, the reptile house is 25 years old, and the bird house is 28 years old. These and the buildings and other structures that were erected during the depression days now require a constantly increasing amount of repairs. It has recently been necessary to abandon 10 enclosures that have deteriorated to such an extent that they can no longer be repaired. Large areas of the grounds have had to be neglected entirely, or given scant care, in order that

the meager funds available may be used to maintain the areas most used by the public.

Additional funds are most urgently needed for personnel, maintenance, installations, and the following construction :

*Buildings :*

A new administration building to replace the 151-year-old historic landmark that is still in use as an office building but that is neither suitably located nor well adapted for the purpose.

A building to house antelopes and other hoofed animals that require a heated building.

A fireproof service building for receiving animals shipped in, quarantining them, and caring for those in ill health or those that cannot be placed on exhibition.

*Enclosures :*

Enclosures and pools for beavers, otters, seals, and nutrias, which cannot be adequately cared for or exhibited under existing conditions.

New paddocks for the exhibition of such animals as deer, sheep, goats, and other hoofed animals, to provide for the exhibition of a greater assortment of these attractive and valuable animals.

*Installations :*

A new ventilation system for the bird house.

A vacuum pump to provide more efficient and economical operation of the heating system in the reptile house.

An air compressor for general use about the park, particularly for freeing sewers of stoppages, operating air hammers, blowing out boiler tubes, and for use in excavation and construction work.

Additional parking space to be developed on about 14,000 square yards of land in several different locations, mainly near the creek.

An additional coal bunker for storage of a reserve supply of coal.

*Personnel and maintenance :*

1 assistant director. The steadily increasing popularity of the Zoo as a source of both entertainment and education has developed such a volume of requests for information that there is now need for an additional scientist to share the load of answering queries and to assist in other administrative work so that the Director and Assistant Director can devote more time to general supervision of the Zoo.

1 general mechanic to assist the maintenance personnel in what has hitherto been a losing race in trying to keep pace with natural deterioration in the structures.

6 laborers for the mechanical force to replace 6 who were reallocated by the Wage Board to the position of truck drivers, thus cutting the laborer force from 13 to 7—a number way below the minimum



necessary to carry on even the most urgently needed work that must be done in the Zoo every day in the year.

1 gardener (foreman) and 1 laborer for the gardener's crew for proper maintenance of the grounds, removal of dead or fallen tree limbs and other safety hazards.

2 attendants for the public restrooms to maintain these rooms in a clean and sanitary condition and to prevent vandalism.

2 policemen to serve as station clerks in the new police headquarters.

3 property and supply clerks to comply with the requirements of keeping property and inventory records, in accordance with the program laid down by the General Services Administration.

### ANIMALS IN THE COLLECTION ON JUNE 30, 1956

Scientific name	MAMMALS		Number
	MONOTREMATA	Common name	
<b>Tachyglossidae:</b>			
<i>Tachyglossus aculeatus</i> .....	Echidna, or spiny anteater.....		2
<b>MARSUPIALIA</b>			
<b>Didelphiidae:</b>			
<i>Caluromys philander</i> .....	Woolly opossum.....		2
<b>Phalangeridae:</b>			
<i>Petaurus norfolcensis</i> .....	Lesser flying phalanger.....		3
<i>Trichosurus vulpecula</i> .....	Vulpine opossum.....		1
<b>Phascologyidae:</b>			
<i>Lasiornhinus latifrons</i> .....	Hairy-nosed wombat.....		3
<i>Vombatus hirsutus</i> .....	Mainland wombat.....		1
<b>Macropodidae:</b>			
<i>Dendrolagus inustus</i> .....	Tree kangaroo.....		1
<i>Hypsiprymnodon moschatus</i> .....	Rat kangaroo.....		5
<i>Macropus giganteus</i> .....	Gray kangaroo.....		3
<i>Macropus rufus</i> .....	Red kangaroo.....		1
<i>Protemnodon agilis</i> .....	Wallaby.....		1
<i>Protemnodon bicolor</i> .....	Swamp wallaby.....		2
<i>Protemnodon dorsalis</i> .....	Black-striped wallaby.....		1
<b>INSECTIVORA</b>			
<b>Erinaceidae:</b>			
<i>Erinaceus europaeus</i> .....	European hedgehog.....		1
<b>PRIMATES</b>			
<b>Lemuridae:</b>			
<i>Galago crassicaudatus</i> .....	Galago.....		4
<i>Galago senegalensis</i> .....	African galago.....		2
<i>Lemur macaco</i> .....	Acoumba lemur.....		2
<i>Lemur mongoz</i> .....	Mongoz lemur.....		1
<b>Lorisidae:</b>			
<i>Nycticebus coucang</i> .....	Slow loris.....		3
<i>Perodicticus potto</i> .....	Potto.....		1

Scientific name	Common name	Number
<b>Cebidae:</b>		
<i>Ateles fusciceps robustus</i> .....	Colombian black spider monkey.....	1
<i>Ateles geoffroyi geoffroyi</i> or <i>grisescens</i> .....	Spider monkey.....	1
<i>Ateles geoffroyi vellerosus</i> .....	Spider monkey.....	1
<i>Aotus trivirgatus</i> .....	Night monkey.....	5
<i>Cacajao rubicundus</i> .....	Red ukari.....	1
<i>Callimico goeldii</i> .....	Goeldi's marmoset.....	1
<i>Cebus albifrons</i> .....	Brown capuchin monkey.....	6
<i>Cebus capucinus</i> .....	White-throated capuchin monkey.....	3
<i>Cebus fatuellus</i> .....	Capuchin monkey.....	4
<i>Lagothrix lagotricha</i> .....	Woolly monkey.....	3
<i>Saimiri sciureus</i> .....	Squirrel monkey.....	8
<b>Callithricidae:</b>		
<i>Callithrix geoffroyi</i> .....	Geoffroy's marmoset.....	1
<i>Callithrix penicillata</i> .....	Black-tufted marmoset.....	1
<i>Cebuella pygmaea</i> .....	Pigmy marmoset.....	2
<i>Leontocebus rosalia</i> .....	Golden marmoset.....	5
<i>Marikina nigricollis</i> .....	Black and red marmoset.....	1
<b>Cercopithecidae:</b>		
<i>Allenopithecus nigroviridis</i> .....	Allen's monkey.....	3
<i>Cercocebus albigena</i> .....	Gray-cheeked mangabey.....	1
<i>Cercocebus aterrimus</i> .....	Black-crested mangabey.....	4
<i>Cercocebus aterrimus opdenboschii</i> .....	Crested mangabey.....	1
<i>Cercocebus chrysogaster</i> .....	Golden-bellied mangabey.....	1
<i>Cercocebus fuliginosus</i> .....	Sooty mangabey.....	4
<i>Cercocebus galeritus agilis</i> .....	Agile mangabey.....	1
<i>Cercocebus torquatus</i> .....	Red-crowned mangabey.....	2
<i>Cercopithecus aethiops pygerythrus</i> .....	Vervet guenon.....	2
<i>Cercopithecus aethiops sabaeus</i> .....	Green guenon.....	6
<i>Cercopithecus aethiops sabaeus</i> × <i>C.</i> <i>a. pygerythrus</i> .....	Hybrid, green guenon × vervet guenon.....	2
<i>Cercopithecus cephus</i> .....	Mustached monkey.....	4
<i>Cercopithecus diana</i> .....	Diana monkey.....	3
<i>Cercopithecus diana roloway</i> .....	Roloway monkey.....	1
<i>Cercopithecus neglectus</i> .....	De Brazza's guenon.....	3
<i>Cercopithecus nictitans</i> .....	White-nosed guenon.....	1
<i>Cercopithecus nictitans petaurista</i> .....	Lesser white-nosed guenon.....	1
<i>Cercopithecus preussi</i> .....	Preussi's guenon.....	1
<i>Colobus polykomos</i> .....	White-tailed colobus.....	1
<i>Comopithecus hamadryas</i> .....	Hamadryas baboon.....	2
<i>Macaca irus mordax</i> .....	Javan macaque.....	2
<i>Macaca maurus</i> .....	Moor macaque.....	1
<i>Macaca mulatta</i> .....	Rhesus monkey.....	14
<i>Macaca nemestrina</i> .....	Pig-tailed monkey.....	2
<i>Macaca philippinensis</i> .....	Philippine macaque.....	2
<i>Macaca sinica</i> .....	Toque or bonnet monkey.....	1
<i>Macaca speciosa</i> .....	Red-faced macaque.....	1
<i>Macaca sylvanus</i> .....	Barbary ape.....	12
<i>Mandrillus sphinx</i> .....	Mandrill.....	2
<i>Papio comatus</i> .....	Chacma baboon.....	1
<i>Papio cynocephalus</i> .....	Golden baboon.....	2
<i>Presbytis phayrei</i> .....	Spectacled langur.....	1
<i>Theropithecus gelada</i> .....	Gelada baboon.....	2

Scientific name	Common name	Number
<b>Pongidae:</b>		
<i>Gorilla gorilla</i> .....	Gorilla .....	2
<i>Hylobates agilis</i> × <i>H. lar pileatus</i> .....	Hybrid gibbon .....	1
<i>Hylobates hoolock</i> .....	Hoolock .....	1
<i>Hylobates lar</i> .....	White-handed gibbon .....	5
<i>Hylobates moloch</i> .....	Wau-wau gibbon .....	1
<i>Pan satyrus</i> .....	Chimpanzee .....	14
<i>Pongo pygmaeus abelii</i> .....	Bornean orangutan .....	1
<i>Pongo pygmaeus pygmaeus</i> .....	Sumatran orangutan .....	2

## ENDENTATA

<b>Myrmecophagidae:</b>		
<i>Myrmecophaga tridactyla</i> .....	Giant anteater .....	1
<i>Tamandua tetradactyla</i> .....	Tamandua .....	2
<b>Bradypodidae:</b>		
<i>Choloepus didactylus</i> .....	Two-toed sloth .....	4
<b>Dasypodidae:</b>		
<i>Burmeisteria retusa</i> .....	Tapafrasco, or dwarf armadillo .....	1
<i>Chaetophractus villosus</i> .....	Hairy armadillo .....	1

## LAGOMORPHA

<b>Leporidae:</b>		
<i>Oryctolagus cuniculus</i> .....	Domestic rabbit .....	10
<i>Sylvilagus floridana</i> .....	Cottontail rabbit .....	1

## RODENTIA

<b>Sciuridae:</b>		
<i>Callosciurus</i> sp. ....	Southern Asiatic squirrel .....	1
<i>Callosciurus caniceps</i> .....	Golden-backed squirrel .....	2
<i>Callosciurus erythraeus</i> .....	Pallas's squirrel .....	1
<i>Callosciurus nigrovittatus</i> .....	Southern Asiatic squirrel .....	6
<i>Citellus undulatus kennicottii</i> .....	Arctic ground squirrel .....	2
<i>Cynomys ludovicianus</i> .....	Prairie dog .....	20
<i>Glaucomys volans volans</i> .....	Eastern flying squirrel .....	10
<i>Menetes berdmorei</i> .....	Berdmore's squirrel .....	1
<i>Ratufa indica</i> .....	Giant Indian squirrel .....	1
<i>Sciurus niger</i> .....	Fox squirrel .....	1
<i>Tamias striatus</i> .....	Eastern chipmunk .....	1
<b>Heteromyidae:</b>		
<i>Perognathus parvus olivaceus</i> .....	Pocket mouse .....	1
<b>Castoridae:</b>		
<i>Castor canadensis</i> .....	Beaver .....	1
<b>Cricetidae:</b>		
<i>Mesocricetus auratus</i> .....	Hamster .....	6
<b>Muridae:</b>		
<i>Acomys caharinus</i> .....	Egyptian spiny mouse .....	10
<i>Aethomys kaiseri</i> .....	Rock rat .....	1
<i>Arvicanthus niloticus</i> .....	Kusu rat .....	1
<i>Cricetomys gambianus</i> .....	Giant pouched rat .....	4
<i>Meriones unguiculatus</i> .....	Mongolian gerbil .....	3
<i>Phloeomys cumingii</i> .....	Slender-tailed cloud rat .....	1
<i>Rattus infraluteus</i> .....	Kinabalu tree rat .....	1
<i>Rattus sabanus</i> .....	Large spiny-backed tree rat .....	1

Scientific name	Common name	Number
Gliridae:		
<i>Graphiurus murinus</i> .....	Dormouse.....	1
Hystricidae:		
<i>Acanthion brachyurum</i> .....	Malay porcupine.....	1
<i>Hystrix galeata</i> .....	African porcupine.....	5
Caviidae:		
<i>Cavia porcellus</i> .....	Guinea-pig.....	8
Hydrochoeridae:		
<i>Hydrochoerus hydrochoeris</i> .....	Capybara.....	4
Dasyproctidae:		
<i>Cuniculus paca</i> .....	Paca.....	5
<i>Dasyprocta</i> .....	Agouti.....	13
<i>Dasyprocta punctata</i> .....	Speckled agouti.....	6
<i>Dinomys branickii</i> .....	Branick's paca.....	2
Chinchillidae:		
<i>Chinchilla chinchilla</i> .....	Chinchilla.....	2
<i>Lagidium viscaccia</i> .....	Peruvian viscaccia.....	1
Capromyidae:		
<i>Myocastor coypus</i> .....	Coypu.....	2

## CARNIVORA

Canidae:			
<i>Canis antarcticus</i> .....	Dingo.....	1	
<i>Canis lupus nubilus</i> .....	Wolf.....	4	
<i>Canis mesomelas</i> .....	Black-backed jackal.....	1	
<i>Canis niger rufus</i> .....	Red wolf.....	1	
<i>Fennecus zerda</i> .....	Fennec fox.....	2	
<i>Lycan pictus</i> .....	African hunting dog.....	2	
<i>Nyctereutes procyonoides</i> .....	Raccoon dog.....	6	
<i>Otocyon megalotis</i> .....	Big-eared fox.....	4	
<i>Speothos venaticus</i> .....	Bush dog.....	2	
<i>Urocyon cinereoargenteus</i> .....	Gray fox.....	11	
<i>Vulpes fulva</i> .....	Red fox.....	18	
	Platinum fox.....	4	
Ursidae:			
<i>Euarctos americanus</i> .....	Black bear.....	2	
<i>Helarctos malayanus</i> .....	Malay sun bear.....	3	
<i>Selenarctos thibetanus</i> .....	Himalayan bear.....	2	
<i>Selenarctos thibetanus japonicus</i> .....	Japanese black bear.....	1	
<i>Selenarctos thibetanus ussuricus</i> .....	Korean bear.....	2	
<i>Thalarctos maritimus</i> .....	Polar bear.....	1	
<i>Thalarctos maritimus</i> × <i>Ursus middendorffi</i> .	Hybrid bear {	first generation.....	4
		second generation.....	3
<i>Tremarctos ornatus</i> .....	Spectacled bear.....	1	
<i>Ursus</i> sp.....	Alaskan brown bear.....	2	
<i>Ursus arctos</i> .....	European brown bear.....	1	
<i>Ursus arctos occidentalis</i> .....	Syrian brown bear.....	2	
<i>Ursus gyas</i> .....	Alaskan Peninsula bear.....	2	
<i>Ursus horribilis</i> .....	Grizzly bear.....	2	
<i>Ursus middendorffi</i> .....	Kodiak bear.....	2	
<i>Ursus sitkensis</i> .....	Sitka brown bear.....	3	

<i>Scientific name</i>	<i>Common name</i>	<i>Number</i>
<b>Procyonidae:</b>		
<i>Ailurus fulgens</i> .....	Lesser panda.....	2
<i>Bassaricyon gabbi</i> .....	Olingo.....	1
<i>Bassariscus astutus</i> .....	Ringtail, or cacomistle.....	2
<i>Nasua narica</i> .....	Coatimundi.....	4
<i>Nasua nasua</i> .....	Red coatimundi.....	1
<i>Potos flavus</i> .....	Kinkajou.....	6
<i>Procyon lotor</i> .....	Raccoon.....	19
<b>Mustelidae:</b>		
<i>Mustela eversmanni</i> .....	Albino ferret.....	2
<i>Mustela frenata noveboracensis</i> .....	Weasel.....	3
<i>Pteronura brasiliensis</i> .....	Flat-tailed otter.....	2
<i>Spilogale phenax</i> .....	California spotted skunk.....	2
<i>Taxidea taxus</i> .....	Badger.....	1
<i>Tayra barbara</i> .....	Tayra.....	2
<b>Cryptoproctidae:</b>		
<i>Cryptoprocta ferox</i> .....	Fossa.....	1
<b>Viverridae:</b>		
<i>Arctictis binturong</i> .....	Binturong.....	1
<i>Atilax paludinosus</i> .....	Water civet.....	4
<i>Civettictis civetta</i> .....	African civet.....	1
<i>Genetta genetta</i> .....	Genet.....	2
<i>Genetta genetta neumanii</i> .....	Genet.....	2
<i>Herpestes ichneumon</i> .....	African mongoose.....	2
<i>Ichneumia albicauda</i> .....	White-tailed mongoose.....	2
<i>Paguma larvata taivana</i> .....	Formosan masked civet.....	1
<i>Viverra zangalunga</i> .....	Ground civet.....	1
<b>Hyaenidae:</b>		
<i>Crocota crocota germinans</i> .....	Spotted hyena.....	2
<i>Hyaena hyaena</i> .....	Striped hyena.....	2
<b>Felidae:</b>		
<i>Acinonyx jubata</i> .....	Cheetah.....	2
<i>Felis chaus</i> .....	Jungle cat.....	10
<i>Felis concolor</i> .....	Puma.....	9
<i>Felis leo</i> .....	Lion.....	2
<i>Felis ocreata</i> .....	Kaffer cat.....	3
<i>Felis onca</i> .....	Jaguar.....	1
<i>Felis pajeros</i> .....	Pampas cat.....	1
<i>Felis pardalis</i> .....	Ocelot.....	4
<i>Felis pardus</i> .....	{ African leopard.....	2
	{ Black leopard.....	1
<i>Felis serval</i> .....	Serval cat.....	3
<i>Felis tigris</i> .....	Bengal tiger.....	1
<i>Felis wiedi</i> .....	Margay cat.....	1
<i>Lynx canadensis</i> .....	Lynx.....	1
<i>Lynx rufus</i> .....	Bob cat.....	2
PINNIPEDIA		
<b>Otariidae:</b>		
<i>Otaria flavescens</i> .....	Patagonian sea-lion.....	2
<i>Zalophus californianus</i> .....	Sea-lion.....	2

<i>Scientific name</i>	<i>Common name</i>	<i>Number</i>
TUBULIDENTATA		
Orycteropodidae:		
<i>Orycteropus afer</i> .....	Antbear, or aardvark .....	1
PROBOSCIDEA		
Elephantidae:		
<i>Elephas maximus</i> .....	Indian elephant .....	2
PERISSODACTYLA		
Equidae:		
<i>Equus asinus</i> .....	Burro, or donkey .....	1
<i>Equus burchelli antiquorum</i> .....	Chapman's zebra .....	1
<i>Equus burchelli boehmi</i> .....	Grant's zebra .....	3
<i>Equus grevy</i> .....	Grevy's zebra .....	3
<i>Equus kiang</i> .....	Asiatic wild ass, or kiang .....	1
<i>Equus onager</i> .....	Onager .....	1
<i>Equus przewalskii</i> .....	Mongolian wild horse .....	2
Tapiridae:		
<i>Acrocodia indica</i> .....	Indian tapir .....	2
<i>Tapirus terrestris</i> .....	Brazilian tapir .....	2
Rhinocerotidae:		
<i>Diceros bicornis</i> .....	African rhinoceros .....	2
<i>Rhinoceros unicornis</i> .....	Great Indian one-horned rhinoceros .....	1
ARTIODACTYLA		
Suidae:		
<i>Sus scrofa</i> .....	European wild boar .....	1
Tayassuidae:		
<i>Pecari tajacu angulatus</i> .....	Collared peccary .....	2
Hippopotamidae:		
<i>Choeropsis liberiensis</i> .....	Pygmy hippo .....	6
<i>Hippopotamus amphibius</i> .....	Hippopotamus .....	3
Camelidae:		
<i>Camelus bactrianus</i> .....	Bactrian camel .....	2
<i>Camelus dromedarius</i> .....	Single-humped camel .....	1
<i>Lama glama</i> .....	Llama .....	8
<i>Lama glama guanico</i> .....	Guanaco .....	4
<i>Lama pacos</i> .....	Alpaca .....	4
<i>Vicugna vicugna</i> .....	Vicuña .....	1
Cervidae:		
<i>Axis axis</i> .....	Axis deer .....	5
<i>Cervus canadensis</i> .....	American elk .....	6
<i>Cervus elaphus</i> .....	Red deer .....	4
<i>Cervus nippon</i> .....	Sika deer .....	8
<i>Cervus nippon manchuricus</i> .....	Dybowsky's deer .....	2
<i>Dama dama</i> .....	{ Brown fallow deer .....	19
	{ White fallow deer .....	11
<i>Elaphurus davidianus</i> .....	Père David's deer .....	2
<i>Hydropotes inermis</i> .....	Chinese water deer .....	4
<i>Muntiacus muntjak</i> .....	Rib-faced deer .....	2
<i>Odocoileus virginianus</i> .....	Virginia deer .....	14
<i>Odocoileus virginianus costaricensis</i> .....	Costa Rican deer .....	5

Scientific name	Common name	Number
<b>Giraffidae:</b>		
<i>Giraffa camelopardalis</i> .....	Nubian giraffe.....	5
<i>Giraffa camelopardalis reticulata</i> .....	Reticulated giraffe.....	1
<b>Antilocapridae:</b>		
<i>Antilocapra americana</i> .....	Pronghorn antelope.....	1
<b>Bovidae:</b>		
<i>Ammotragus lervia</i> .....	Aoudad.....	18
<i>Anoa depressicornis</i> .....	Anoa.....	2
<i>Bibos gaurus</i> .....	Gaur.....	5
<i>Bison bison</i> .....	American bison.....	7
<i>Bison bonasus</i> .....	European bison, or wisent.....	2
<i>Bos indicus</i> .....	Zebu.....	2
<i>Bos taurus</i> .....	{ West Highland or Kyloe cattle... British Park cattle.....	5 12
<i>Bubalus bubalis</i> .....	Water buffalo.....	1
<i>Capra aegagrus cretensis</i> .....	Cretian agrimi goat.....	1
<i>Capra hircus</i> .....	Domestic goat.....	12
<i>Cephalophus nigrifrons</i> .....	Black-fronted duiker.....	1
<i>Hemitragus jemlahicus</i> .....	Tahr.....	2
<i>Ovis musimon</i> .....	Mouflon.....	3
<i>Poephagus grunniens</i> .....	Yak.....	5
<i>Pseudois nayaur</i> .....	Blue sheep.....	1
<i>Saiga tatarica</i> .....	Saiga antelope.....	3
<i>Syncerus caffer</i> .....	African buffalo.....	3
<i>Taurotragus oryx</i> .....	Eland.....	2

## BIRDS

## SPHENISCIFORMES

<b>Spheniscidae:</b>		
<i>Aptenodytes patagonica</i> .....	King penguin.....	4
<i>Pygoscelis adeliae</i> .....	Adelie penguin.....	1
<i>Spheniscus humboldti</i> .....	Humboldt's penguin.....	8

## STRUTHIONIFORMES

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

## RHEIFORMES

<b>Rheidae:</b>		
<i>Rhea americana</i> .....	Rhea.....	2

## CASUARIIFORMES

<b>Casuariidae:</b>		
<i>Casuarus unappendiculatus unappendiculatus</i> .....	One-wattled cassowary.....	1

<b>Dromiceidae:</b>		
<i>Dromiceius novaehollandiae</i> .....	Emu.....	4

## PELECANIFORMES

<b>Pelecanidae:</b>		
<i>Pelecanus erythrorhynchus</i> .....	White pelican.....	6
<i>Pelecanus occidentalis occidentalis</i> .....	Brown pelican.....	2
<i>Pelecanus onocrotalus</i> .....	Rose-colored pelican.....	3
<b>Phalacrocoracidae:</b>		
<i>Phalacrocorax auritus albociliatus</i> .....	Farallon cormorant.....	1

<i>Scientific name</i>	<i>Common name</i>	<i>Number</i>
CICONIIFORMES		
Ardeidae:		
<i>Florida caerulea</i> .....	Blue heron .....	2
<i>Leucophoyx thula</i> .....	Snowy egret .....	3
<i>Notophoyx novaehollandiae</i> .....	White-faced heron .....	1
<i>Nycticorax nycticorax hoactli</i> .....	Black-crowned night heron .....	3
<i>Tigrisoma lineatum</i> .....	Tiger bittern .....	3
Balaenicipitidae:		
<i>Balaeniceps rex</i> .....	Shoebill .....	1
Cochleariidae:		
<i>Cochlearius cochlearius</i> .....	Boat-billed heron .....	2
Ciconiidae:		
<i>Dissoura episcopus</i> .....	Woolly-necked stork .....	1
<i>Leptoptilus crumeniferus</i> .....	Marabou stork .....	1
<i>Leptoptilus javanicus</i> .....	Lesser adjutant .....	2
Threskiornithidae:		
<i>Ajaia ajaia</i> .....	Roseate spoonbill .....	2
<i>Eudocimus alba</i> .....	White ibis .....	3
<i>Eudocimus ruber</i> .....	Scarlet ibis .....	3
<i>Mycteria americana</i> .....	Wood ibis .....	1
<i>Plegadis autumnalis</i> .....	Glossy ibis .....	2
<i>Threskiornis melanocephala</i> .....	Black-headed ibis .....	1
Phoenicopteridae:		
<i>Phoenicopiterus antiquorum</i> .....	Old World flamingo .....	1
<i>Phoenicopiterus chilensis</i> .....	Chilean flamingo .....	2
<i>Phoenicopiterus ruber</i> .....	Cuban flamingo .....	1
ANSERIFORMES		
Anhimidae:		
<i>Chauna torquata</i> .....	Crested screamer .....	5
Anatidae:		
<i>Aix sponsa</i> .....	Wood duck .....	7
<i>Aix sponsa</i> × <i>Aythya americana</i> .....	Hybrid, wood duck × red-headed duck .....	2
<i>Anas acuta</i> .....	Pintail duck .....	4
<i>Anas crecca carolinensis</i> .....	Green-winged teal .....	3
<i>Anas discors</i> .....	Blue-winged teal .....	3
<i>Anas platyrhynchos</i> .....	Mallard duck .....	15
	Rouen duck .....	6
	White mallard duck .....	1
<i>Anas platyrhynchos</i> × <i>A. p. domestica</i> .....	Hybrid, mallard × Peking duck .....	24
<i>Anas platyrhynchos domestica</i> .....	Peking duck .....	50
<i>Anas platyrhynchos</i> × <i>A. acuta</i> .....	Hybrid, mallard duck × American pintail duck .....	1
<i>Anas poecilorhyncha</i> .....	Indian spotted-bill duck .....	1
<i>Anas rubripes</i> .....	Black duck .....	1
<i>Anser albifrons</i> .....	White-fronted goose .....	2
<i>Anser anser domesticus</i> .....	Domestic Chinese goose .....	5
<i>Anseranus semipalmata</i> .....	Australian pied goose .....	1
<i>Aythya americana</i> .....	Red-headed duck .....	4
<i>Aythya valisineria</i> .....	Canvasback duck .....	3
<i>Branta canadensis</i> .....	Canada goose .....	44



Scientific name	Common name	Number
<b>Anatidae—Continued</b>		
<i>Branta canadensis canadensis</i> × <i>Chen caerulescens</i>	Hybrid, Canada goose × blue goose.	2
<i>Branta canadensis minima</i>	Cackling goose	14
<i>Branta canadensis occidentalis</i>	White-cheeked goose	29
<i>Cairina moschata</i>	Muscovy duck	12
<i>Cereopsis novaehollandiae</i>	Cape Barren goose	2
<i>Chen atlantica</i>	Snow goose	7
<i>Chen caerulescens</i>	Blue goose	3
<i>Chen hyperborea</i>	Lesser snow goose	2
<i>Chen rossi</i>	Ross's goose	4
<i>Chenopsis atrata</i>	Black swan	3
<i>Chloephaga leucoptera</i>	Upland goose	2
<i>Coscoroba coscoroba</i>	Coscoroba	1
<i>Cygnus columbianus</i>	Whistling swan	4
<i>Cygnus cygnus</i>	Whooper swan	2
<i>Cygnus olor</i>	Mute swan	2
<i>Dendrocygna autumnalis</i>	Black-bellied tree duck	35
<i>Dendronessa galericulata</i>	Mandarin duck	2
<i>Eulabeia indica</i>	Indian bar-headed goose	6
<i>Mareca americana</i>	Baldpate	1
<i>Netta rufina</i>	Red-crested pochard	1
<i>Nyroca affinis</i>	Lesser scaup	1
<i>Philacte canagica</i>	Emperor goose	2
<i>Plectropterus gambensis</i>	Spur-winged goose	1
<i>Sarkidiornis melanota</i>	Comb duck	1
<i>Somateria mollissima</i>	Eider duck	1
<i>Tadorna tadorna</i>	European shell duck	1

## FALCONIFORMES

## Cathartidae:

<i>Cathartes aura</i>	Turkey vulture	4
<i>Coragyps atratus</i>	Black vulture	6
<i>Gyps rueppelli</i>	Rüppell's vulture	2
<i>Pseudogyps africanus</i>	Vulture	1
<i>Sarcoramphus papa</i>	King vulture	1

## Sagittariidae:

<i>Sagittarius serpentarius</i>	Secretarybird	2
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## Accipitridae:

<i>Buteo jamaicensis</i>	Red-tailed hawk	7
<i>Buteo lineatus</i>	Red-shouldered hawk	1
<i>Buteo poecilochrous</i>	Buzzard eagle	1
<i>Buteo swainsoni</i>	Swainson's hawk	1
<i>Haliaeetus leucocephalus</i>	Bald eagle	10
<i>Haliaeetus leucogaster</i>	White-breasted sea eagle	1
<i>Haliastur indus</i>	Brahminy kite	1
<i>Harpia harpyja</i>	Harpy eagle	1
<i>Milvago chimachima</i>	Yellow-headed milvago	1
<i>Milvago chimango</i>	Chimango	2
<i>Milvus migrans parasitus</i>	African yellow-billed kite	2
<i>Morphnus guianensis</i>	Guianan crested eagle	1
<i>Pandion haliaetus carolinensis</i>	Osprey	6
<i>Pithechophagus jefferyi</i>	Monkey-eating eagle	1
<i>Spizaetus ornatus</i>	Manduit's hawk-eagle	2

Scientific name	Common name	Number
<b>Falconidae:</b>		
<i>Falco mexicanus</i> .....	Prairie falcon .....	1
<i>Falco peregrinus anatum</i> .....	Duck hawk .....	1
<i>Falco sparverius</i> .....	Sparrow hawk .....	2
<i>Polyborus plancus</i> .....	South America caracara .....	3
<b>GALLIFORMES</b>		
<b>Megapodiidae:</b>		
<i>Alectura lathami</i> .....	Brush turkey .....	1
<b>Cracidae:</b>		
<i>Craz alberti</i> .....	Blue-cered curassow .....	2
<i>Craz panamensis</i> .....	Panama curassow .....	1
<b>Phasianidae:</b>		
<i>Alectornis graeca</i> .....	Chukar quail .....	2
<i>Argusianus argus</i> .....	Argus pheasant .....	1
<i>Chrysolophus amherstiae</i> .....	Lady Amherst pheasant .....	3
<i>Chrysolophus pictus</i> .....	Golden pheasant .....	4
<i>Colinus virginianus</i> .....	{ Bobwhite quail .....	1
	{ Red bobwhite quail .....	1
<i>Crossoptilon auritum</i> .....	Blue-cered pheasant .....	1
	{ Red jungle fowl .....	3
	{ Long-tailed fowl .....	2
	{ Fighting fowl .....	7
<i>Gallus gallus</i> .....	{ Bantam chicken .....	26
	{ Silky bantam .....	1
	{ Silver-spangled Hamburg fowl .....	1
	{ Belgian bearded bantam .....	1
<i>Gennaeus leucomelanus</i> .....	Nepal pheasant .....	2
<i>Hierophasis swinhooi</i> .....	Swinhoe's pheasant .....	1
<i>Lophortyx californica vallicola</i> .....	California valley quail .....	1
<i>Lophortyx gambelii</i> .....	Gambel's quail .....	1
<i>Pavo cristatus</i> .....	Peafowl .....	8
<i>Phasianus colchicus torquatus</i> .....	{ Ring-necked pheasant .....	5
	{ White ring-necked pheasant .....	3
<i>Pterocles orientalis</i> .....	Sand grouse .....	2
<i>Tetraogallus h. himalayensis</i> .....	Snow cock .....	1
<b>Numididae:</b>		
<i>Numida meleagris</i> .....	White guinea fowl .....	3
<b>Meleagrididae:</b>		
<i>Meleagris gallopavo</i> .....	Domestic turkey .....	1
<b>GRUIFORMES</b>		
<b>Gruidae:</b>		
<i>Anthropoides virgo</i> .....	Demoiselle crane .....	1
<i>Balearica pavonina</i> .....	West African crowned crane .....	1
<i>Balearica regulorum gibbericeps</i> .....	East African crowned crane .....	1
<i>Grus canadensis</i> .....	Florida sandhill crane .....	1
<i>Grus leucogeranus</i> .....	Siberian crane .....	1
<b>Psophiidae:</b>		
<i>Psophia crepitans</i> .....	Gray-backed trumpeter .....	2

Scientific name	Common name	Number
<b>Rallidae:</b>		
<i>Fulica americana</i> .....	American coot.....	4
<i>Gallinula chloropus cachinnans</i> .....	Florida gallinule.....	4
<i>Laterallus leucopyrrhus</i> .....	Black-and-white crane.....	1
<i>Porphyrio poliocephalus</i> .....	South Pacific swamp hen.....	1
<i>Rallus limicola limicola</i> .....	Virginia rail.....	1
<b>Eurypygidae:</b>		
<i>Eurypyga helias</i> .....	Sun bittern.....	2
<b>Cariamidae:</b>		
<i>Cariama cristata</i> .....	Cariama, or seriama.....	2
<b>Otididae:</b>		
<i>Chlamydotis undulata macqueenii</i> .....	MacQueen's bustard.....	2

## GHARADRIIFORMES

<b>Recurvirostridae:</b>		
<i>Himantopus mexicanus</i> .....	Black-necked stilt.....	1
<b>Burhinidae:</b>		
<i>Burhinus bistriatus</i> .....	South American thick-knee.....	2
<b>Haematopodidae:</b>		
<i>Haematopus ostralegus</i> .....	Oystercatcher.....	2
<b>Charadriidae:</b>		
<i>Belonopterus cayennensis</i> .....	South American lapwing.....	2
<i>Charadrius vociferus</i> .....	Killdeer.....	1
<b>Stercorariidae:</b>		
<i>Catharacta maccormicki</i> .....	MacCormick's skua.....	5
<b>Laridae:</b>		
<i>Larosterna inca</i> .....	Inca tern.....	2
<i>Larus atricilla</i> .....	Laughing gull.....	1
<i>Larus delawarensis</i> .....	Ring-billed gull.....	2
<i>Larus dominicanus</i> .....	Kelp gull.....	2
<i>Larus novaehollandiae</i> .....	Silver gull.....	14

## COLUMBIFORMES

<b>Columbidae:</b>		
<i>Columba livia</i> .....	Domestic pigeon.....	3
<i>Columba nigrirostris</i> .....	Black-billed pigeon.....	1
<i>Gallinocolumba luzonica</i> .....	Bleeding-heart dove.....	6
<i>Geopelia cuneata</i> .....	Diamond dove.....	3
<i>Goura victoria</i> .....	Crowned pigeon.....	2
<i>Lophophaps ferruginea</i> .....	Red-plumed pigeon.....	6
<i>Streptopelia decaocto</i> .....	Ring-necked dove.....	41
<i>Streptopelia tranquebarica</i> .....	Blue-headed ring dove.....	3
<i>Zenaida asiatica</i> .....	White-winged dove.....	2
<i>Zenaidura macroura</i> .....	Mourning dove.....	5

## PSITTACIFORMES

<b>Psittacidae:</b>		
<i>Agapornis fischeri</i> .....	Yellow-collared lovebird.....	3
<i>Agapornis personata</i> .....	Masked lovebird.....	5
<i>Agapornis roseicollis</i> .....	Rosy-faced lovebird.....	1
<i>Amazona aestiva</i> .....	Blue-fronted parrot.....	2
<i>Amazona auropalliata</i> .....	Yellow-naped parrot.....	3
<i>Amazona finschi</i> .....	Finsch's parrot.....	1

Scientific name	Common name	Number
<b>Psittacidae—Continued</b>		
<i>Amazona leucocephala</i> .....	Cuban parrot.....	1
<i>Amazona ochrocephala</i> .....	Yellow-headed parrot.....	1
<i>Amazona oratrix</i> .....	Double yellow-headed parrot.....	4
<i>Anodorhynchus hyacinthinus</i> .....	Hyacinthine macaw.....	1
<i>Ara ararauna</i> .....	Yellow-and-blue macaw.....	4
<i>Ara chloroptera</i> .....	Red-and-blue macaw.....	3
<i>Ara macao</i> .....	Red-blue-and-yellow macaw.....	2
<i>Aratinga canicularis</i> .....	Petz's parakeet.....	1
<i>Aratinga pertinax</i> .....	Rusty-cheeked parrot.....	4
<i>Callocephalon fimbriatum</i> .....	Gang-gang cockatoo.....	4
<i>Calyptorhynchus magnificus</i> .....	Banksian cockatoo.....	2
<i>Domicella garrula</i> .....	Red lory.....	1
<i>Eclectus pectoralis</i> .....	Eclectus parrot.....	1
<i>Forpus cyanopygius</i> .....	Little green parakeet.....	1
<i>Kakatoe alba</i> .....	White cockatoo.....	2
<i>Kakatoe ducrops</i> .....	Solomon Islands cockatoo.....	1
<i>Kakatoe galerita</i> .....	Sulphur-crested cockatoo.....	8
<i>Kakatoe leadbeateri</i> .....	Leadbeater's cockatoo.....	10
<i>Kakatoe moluccensis</i> .....	Great red-crested cockatoo.....	1
<i>Kakatoe sanguineus</i> .....	Bare-eyed cockatoo.....	5
<i>Melopsittacus undulatus</i> .....	Grass parakeet.....	48
<i>Nestor notabilis</i> .....	Kea parrot.....	3
<i>Nymphicus hollandicus</i> .....	Cockatiel.....	3
<i>Pionus menstruus</i> .....	Blue-headed conure.....	1
<i>Platycercus elegans</i> .....	Pennant's parakeet.....	3
<i>Platycercus eximius</i> .....	Rosella parakeet.....	1
<i>Poicephalus senegalus</i> .....	Yellow-vented parrot.....	1
<i>Polytelis swainsoni</i> .....	Barraband's parakeet.....	2
<i>Psittacula eupatria</i> .....	Red-shouldered parakeet.....	1
<i>Psittacula krameri</i> .....	Kramer's parakeet.....	1
<i>Psittacus erithacus</i> .....	African gray parrot.....	2
<i>Trichoglossus moluccanus</i> .....	Rainbow lorikeet.....	3
<b>CUCULIFORMES</b>		
<b>Cuculidae:</b>		
<i>Eudynamis scolopacea</i> .....	Koel.....	1
<b>Musophagidae:</b>		
<i>Crinifer africanus</i> .....	Plantain-eater.....	2
<i>Tauraco corythaix</i> .....	South African turaco.....	1
<i>Tauraco donaldsoni</i> .....	Donaldson's turaco.....	1
<i>Tauraco persa</i> .....	Purple turaco.....	1
<b>STRIGIFORMES</b>		
<b>Tytonidae:</b>		
<i>Tyto alba pratincola</i> .....	Barn owl.....	8
<b>Strigidae:</b>		
<i>Bubo virginianus</i> .....	Great horned owl.....	8
<i>Bubo virginianus elutus</i> .....	Colombian great horned owl.....	1
<i>Ketupa ketupu</i> .....	Malay fishing owl.....	1
<i>Otus asio</i> .....	Screech owl.....	2
<i>Strix varia varia</i> .....	Barred owl.....	16

<i>Scientific name</i>	<i>Common name</i>	<i>Number</i>
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## CAPRIMULGIFORMES

## Podargidae:

<i>Podargus strigoides</i> .....	Frogmouth.....	1
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## TROGONIFORMES

## Trogoniidae:

<i>Pharomachus mocino</i> .....	Quetzal.....	2
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<i>Priotelus temnurus</i> .....	Cuban trogon.....	3
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## CORACIIFORMES

## Alcedinidae:

<i>Dacelo gigas</i> .....	Kookaburra.....	5
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## Bucerotidae:

<i>Aceros plicatus</i> .....	Wreathed hornbill.....	1
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<i>Aceros undulatus</i> .....	Malayan hornbill.....	1
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<i>Anthracoceros coronatus</i> .....	Pied hornbill.....	1
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<i>Buceros bicornis</i> .....	Concave-casqued hornbill.....	1
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<i>Buceros hydrocorax</i> .....	Philippine hornbill.....	1
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<i>Bucorvus abyssinicus</i> .....	Abyssinian ground hornbill.....	1
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<i>Bucanistes subcylindricus</i> .....	Black-and-white casqued hornbill.....	1
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<i>Tockus jacksoni</i> .....	Jackson's hornbill.....	1
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## Momotidae:

<i>Momotus lessoni</i> .....	Motmot.....	2
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## PICIFORMES

## Ramphastidae:

<i>Andigena bailloni</i> .....	Baillon's toucanet.....	1
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<i>Pteroglossus torquatus</i> .....	Ringed toucanet.....	4
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<i>Ramphastos carinatus</i> .....	Sulphur-breasted toucan.....	2
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<i>Ramphastos toco</i> .....	Toco toucan.....	3
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## PASSERIFORMES

## Cotingidae:

<i>Chasmorhynchus nudicollis</i> .....	Bellbird.....	1
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<i>Rupicola rupicola</i> .....	Orange cock-of-the-rock.....	2
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<i>Rupicola sanguinolenta</i> .....	Scarlet cock-of-the-rock.....	1
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## Tyrannidae:

<i>Pitangus sulphuratus</i> .....	Kiskadee flycatcher.....	2
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## Corvidae:

<i>Corvus alba</i> .....	White-breasted crow.....	1
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<i>Corvus brachyrhynchus</i> .....	Crow.....	3
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<i>Corvus corax principalis</i> .....	Raven.....	1
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<i>Corvus insolens</i> .....	Indian crow.....	2
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<i>Cyanocitta cristata</i> .....	Blue jay.....	2
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<i>Gymnorhina hypoleuca</i> .....	White-backed piping crow.....	1
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<i>Pica nuttalli</i> .....	Yellow-billed magpie.....	1
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<i>Pica pica hudsonica</i> .....	Magpie.....	3
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<i>Urocissa caerulea</i> .....	Formosan red-billed pie.....	1
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## Ptilonorhynchidae:

<i>Ptilonorhynchus violaceus</i> .....	Satin bowerbird.....	3
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## Timaliidae:

<i>Garrulax bicolor</i> .....	White-headed laughing thrush.....	2
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Scientific name	Common name	Number
<b>Pycnonotidae:</b>		
<i>Pycnonotus leucogenys</i> .....	White-cheeked bulbul.....	1
<b>Mimidae:</b>		
<i>Mimus polyglottos</i> .....	Mockingbird.....	1
<i>Mimus polyglottos leucopterus</i> .....	Western mockingbird.....	1
<b>Turdidae:</b>		
<i>Geokichla citrina</i> .....	Orange-headed ground thrush.....	1
<i>Platycichila flavipes</i> .....	Yellow-footed thrush.....	1
<i>Thamnolaea cinnamomeiventris</i> .....	Cliff chats.....	2
<i>Turdus migratorius</i> .....	{ Robin.....	1
	{ Albino robin.....	1
<b>Sturnidae:</b>		
<i>Acridotheres tristis</i> .....	Jungle mynah.....	1
<i>Gracula religiosa</i> .....	Hill mynah.....	2
<i>Gracula religiosa indica</i> .....	Lesser hill mynah.....	2
<i>Lamprocolius purpureus</i> .....	Burchell's glossy starling.....	3
<i>Spreo superbus</i> .....	Tricolored or superb starling.....	1
<i>Sturnia malabarica</i> .....	Gray-headed mynah.....	1
<i>Sturnus vulgaris</i> .....	Starling.....	1
<b>Ploceidae:</b>		
<i>Aidemosyne modesta</i> .....	Plum-headed finch.....	1
<i>Amadina fasciata</i> .....	Cut-throat weaver finch.....	11
<i>Cayleya picta</i> .....	Painted finch.....	1
<i>Diatropura procne</i> .....	Giant whydah.....	5
<i>Estrilda amandava</i> .....	Strawberry finch.....	2
<i>Estrilda angolensis</i> .....	Cordon bleu finch.....	4
<i>Estrilda astrild</i> .....	Red-eared waxbill.....	1
<i>Estrilda cinerea</i> .....	Common waxbill.....	4
<i>Estrilda melpada</i> .....	Orange-cheeked waxbill.....	7
<i>Estrilda senegala</i> .....	Fire finch.....	1
<i>Euplectes afra</i> .....	Yellow-crowned bishop weaver.....	14
<i>Euplectes orix</i> .....	Red bishop weaver.....	7
<i>Lonchura leucogastroides</i> .....	Bengali finch.....	4
<i>Lonchura maja</i> .....	White-headed nun.....	25
<i>Lonchura malacca</i> .....	Black-throated munia.....	2
<i>Lonchura punctulata</i> .....	Spice finch.....	1
<i>Padda oryzivora</i> .....	Java finch.....	3
<i>Ploceipasser mahali</i> .....	Mahali weaver.....	1
<i>Ploceus baya</i> .....	Baya weaver.....	14
<i>Ploceus vitellinus</i> .....	Vitelline masked weaver.....	3
<i>Poephila acuticauda</i> .....	Shaft-tailed finch.....	2
<i>Poephila gouldiae</i> .....	{ Gouldian finch.....	1
	{ Black-headed Gouldian finch.....	4
<i>Poephila guttata castanotis</i> .....	Zebra finch.....	41
<i>Poephila ruficauda</i> .....	Star finch.....	1
<i>Quelea quelea</i> .....	Red-billed weaver.....	1
<i>Steganopleura bichenovii</i> .....	Bicheno's finch.....	3
<i>Steganuara paradisea</i> .....	Paradise whydah.....	11
<b>Icteridae:</b>		
<i>Agelaius icterocephalus</i> .....	Yellow-headed marshbird.....	1
<i>Icterus giraudi</i> .....	Giraud's oriole.....	1
<i>Icterus icterus</i> .....	Troupial.....	2

<i>Scientific name</i>	<i>Common name</i>	<i>Number</i>
<b>Icteridae—Continued</b>		
<i>Quiscalus quiscula</i> .....	Purple grackle.....	1
<i>Xanthocephalus xanthocephalus</i> .....	Yellow-headed blackbird.....	1
<i>Xanthornus decumanus</i> .....	Crested oropendola.....	1
<b>Thraupidae:</b>		
<i>Calospiza ruficapilla</i> .....	Brown-headed tanager.....	1
<i>Ramphocelus dimidiatus</i> .....	Crimson tanager.....	6
<i>Ramphocelus passerini</i> .....	Passerini's tanager.....	4
<i>Thraupis cana</i> .....	Blue tanager.....	7
<i>Thraupis leucoptera</i> .....	White-edged tanager.....	2
<b>Fringillidae:</b>		
<i>Carduelis carduelis</i> .....	European goldfinch.....	5
<i>Carpodacus mexicanus frontalis</i> .....	House finch.....	1
<i>Paroaria cucullata</i> .....	Brazilian cardinal.....	1
<i>Paroaria gularis nigro-genis</i> .....	Black-eared cardinal.....	4
<i>Poospiza torquata</i> .....	Ringed warbling finch.....	2
<i>Serinus canarius</i> .....	Canary.....	19
<i>Sicalis luteola</i> .....	Saffron finch.....	6
<i>Sporophila gutturalis</i> .....	Yellow-billed finch.....	13

## REPTILES

## LORICATA

<b>Crocodylidae:</b>		
<i>Alligator mississippiensis</i> .....	Alligator.....	20
<i>Alligator sinensis</i> .....	Chinese alligator.....	2
<i>Caiman sclerops</i> .....	Caiman.....	16
<i>Crocodylus acutus</i> .....	American crocodile.....	3
<i>Crocodylus cataphractus</i> .....	Narrow-nosed crocodile.....	1
<i>Crocodylus niloticus</i> .....	African crocodile.....	1
<i>Crocodylus porosus</i> .....	Salt-water crocodile.....	1
<i>Osteolaemus tetraspis</i> .....	Broad-nosed crocodile.....	3
<i>Tomistoma schlegeli</i> .....	Gavial.....	1

## SAURIA

<b>Gekkonidae:</b>		
<i>Gecko smithi</i> .....	Giant gecko.....	1
<i>Tarentola mauritanica</i> .....	Gecko.....	1
<b>Gerrhosauridae:</b>		
<i>Gerrhosaurus major</i> .....	Plated lizard.....	8
<b>Iguanidae:</b>		
<i>Anolis carolinensis</i> .....	American anolis.....	15
<i>Anolis cristatellus</i> .....	Little crested anolis.....	5
<i>Anolis equestris</i> .....	Giant anolis.....	2
<i>Anolis krugi</i> .....	Krug's anolis.....	5
<i>Anolis stratulus</i> .....	West Indian anolis.....	4
<i>Ctenosaura acanthura</i> .....	Spiny-tailed iguana.....	5
<i>Cyclura macleayi</i> .....	Cuban iguana.....	1
<i>Cyclura stejnegeri</i> .....	Mona Island iguana.....	1
<i>Iguana iguana</i> .....	Common iguana.....	5
<i>Sceloporus undulatus</i> .....	Fence lizard.....	1
<b>Helodermatidae:</b>		
<i>Heloderma horridum</i> .....	Mexican beaded lizard.....	2
<i>Heloderma suspectum</i> .....	Gila monster.....	6

Scientific name	Common name	Number
Varanidae:		
<i>Varanus niloticus</i> .....	African monitor.....	1
<i>Varanus varius</i> .....	Australian lace monitor.....	2
Teiidae:		
<i>Tupinambis nigropunctatus</i> .....	Black tegu.....	2
Scincidae:		
<i>Chalcides sepoides</i> .....	Three-fingered skink.....	3
<i>Egernia luctuosa</i> .....	Mourning skink.....	2
<i>Egernia whitei</i> .....	White's skink.....	8
<i>Eumeces fasciatus</i> .....	Greater five-lined skink.....	2
<i>Scincus officinalis</i> .....	Sand skink.....	12
<i>Trachysaurus rugosus</i> .....	Stump-tailed lizard.....	1
Chamaeleontidae:		
<i>Chamaeleon dilepis</i> .....	Flap-necked chameleon.....	1

## SERPENTES

Boidae:		
<i>Boa enydris cookii</i> .....	Cook's tree boa.....	1
<i>Boa enydris enydris</i> .....	Tree boa.....	1
<i>Constrictor constrictor</i> .....	Boa constrictor.....	1
<i>Constrictor imperator</i> .....	Emperor boa.....	2
<i>Epicrates angulifer</i> .....	Cuban boa.....	4
<i>Epicrates cenchria</i> .....	Rainbow boa.....	5
<i>Epicrates inornatus</i> .....	Puerto Rican boa.....	1
<i>Eryx thebaicus</i> .....	Sharp-tailed sand boa.....	1
<i>Eunectes murinus</i> .....	Anaconda.....	7
<i>Python molurus</i> .....	Indian rock python.....	1
<i>Python regius</i> .....	Ball python.....	4
<i>Python reticulatus</i> .....	Regal python.....	5
<i>Python sebae</i> .....	African python.....	2
Colubridae:		
<i>Acrochordus javanicus</i> .....	Elephant trunk snake.....	1
<i>Arizona elegans</i> .....	Faded snake.....	1
<i>Boaedon lineatum</i> .....	African house snake, or musaga.....	2
<i>Boiga dendrophila</i> .....	Mangrove snake.....	1
<i>Carpophis amoena</i> .....	Worm snake.....	26
<i>Diadophis punctatus edwardsi</i> .....	Ring-necked snake.....	1
<i>Dispholidus typus</i> .....	Boomslang.....	6
<i>Drymarchon corais couperi</i> .....	Indigo snake.....	7
<i>Elaphe guttata</i> .....	{ Corn snake.....	1
	{ Albino corn snake.....	1
<i>Elaphe obsoleta confinis</i> .....	Southern pilot black snake.....	1
<i>Elaphe obsoleta obsoleta</i> .....	Pilot black snake.....	14
<i>Elaphe quadrivittata</i> .....	Chicken snake.....	2
<i>Heterodon contortrix</i> .....	Hog-nosed snake.....	1
<i>Lampropeltis doliata</i> .....	Scarlet king snake.....	1
<i>Lampropeltis getulus californiae</i> .....	California king snake.....	2
<i>Lampropeltis getulus floridana</i> .....	Florida king snake.....	1
<i>Lampropeltis getulus getulus</i> .....	King snake.....	1
<i>Lampropeltis getulus splendida</i> .....	Sonoran king snake.....	1
<i>Lampropeltis rhombomaculata</i> .....	Mole snake.....	2
<i>Lampropeltis triangulum</i> .....	Milk snake.....	2
<i>Leptophis occidentalis</i> .....	Parrot snake.....	1



Scientific name	Common name	Number
<b>Colubridae—Continued</b>		
<i>Natrix cyclopion</i> .....	Green water snake.....	2
<i>Natrix erythrogaster</i> .....	Red-bellied water snake.....	2
<i>Natrix sipedon</i> subsp.....	Water snake.....	3
<i>Natrix sipedon fasciata</i> .....	Southern banded water snake.....	1
<i>Natrix sipedon pictiventris</i> .....	Florida water snake.....	1
<i>Natrix sipedon sipedon</i> .....	Water snake.....	2
<i>Natrix taxispilota</i> .....	Brown water snake.....	4
<i>Natrix tessellata</i> .....	Tessellated snake.....	1
<i>Psammophis subtaeniatus</i> .....	Striped sand snake.....	1
<i>Rhamphiophis rostratus</i> .....	Sharp-nosed snake.....	2
<i>Storeria dekayi</i> .....	DeKay's snake.....	2
<i>Storeria o. occipitamaculata</i> .....	Red-bellied snake.....	1
<i>Thamnophis sauritus</i> .....	Ribbon snake.....	1
<i>Thamnophis sirtalis</i> .....	Garter snake.....	3
<i>Thelotornis kirtlandii</i> .....	African twig snake.....	1
<i>Zamenis florulentus</i> .....	Egyptian racer.....	2
<b>Elapidae:</b>		
<i>Naja haje</i> .....	Egyptian cobra.....	18
<i>Naja hannah</i> .....	King cobra.....	1
<i>Naja melanoleuca</i> .....	Black cobra.....	1
<i>Naja naja</i> .....	Indian cobra.....	5
<b>Crotalidae:</b>		
<i>Ancistrodon contortrix contortrix</i> .....	Southern copperhead snake.....	1
<i>Ancistrodon contortrix mokeson</i> .....	Northern copperhead snake.....	1
<i>Ancistrodon piscivorus</i> .....	Water moccasin.....	1
<i>Crotalus atrox</i> .....	Texas diamondback rattlesnake.....	4
<i>Crotalus horridus</i> .....	Timber rattlesnake.....	1
<i>Sistrurus miliarius</i> .....	Pygmy rattlesnake.....	1
<b>TESTUDINATA</b>		
<b>Chelyidae:</b>		
<i>Batrachemys nasuta</i> .....	South American side-necked turtle.....	2
<i>Chelodina longicollis</i> .....	Australian side-necked turtle.....	3
<i>Chelys fimbriata</i> .....	Matamata turtle.....	2
<i>Hydraspis</i> sp.....	South American side-necked turtle.....	1
<i>Hydromedusa tectifera</i> .....	Small side-necked turtle.....	2
<i>Phrynops geoffroyana</i> .....	Geoffroy's side-necked turtle.....	1
<i>Phrynops hilarii</i> .....	Large side-necked turtle.....	15
<i>Platemys platycephala</i> .....	Flat-headed turtle.....	5
<b>Kinosternidae:</b>		
<i>Kinosternum cruentatum</i> .....	South American mud turtle.....	1
<i>Kinosternon subrubrum</i> .....	Mud turtle.....	12
<i>Sternotherus odoratus</i> .....	Musk turtle.....	10
<b>Chelydridae:</b>		
<i>Chelydra serpentina</i> .....	Snapping turtle.....	15
<b>Emydidae:</b>		
<i>Batagur baska</i> .....	Indian fresh-water turtle.....	1
<i>Chrysemys picta</i> .....	Painted turtle.....	31
<i>Clemmys guttata</i> .....	Spotted turtle.....	6
<i>Clemmys insculpta</i> .....	Wood turtle.....	4
<i>Clemmys marmorata marmorata</i> .....	Pacific pond turtle.....	1
<i>Cyclemys amboinensis</i> .....	Kura kura box turtle.....	1

Scientific name	Common name	Number
<b>Emydidae—Continued</b>		
<i>Emydura krefftii</i> .....	Kreffft's turtle.....	3
<i>Emydura macquariae</i> .....	Murray turtle.....	8
<i>Emys orbicularis</i> .....	European pond turtle.....	3
<i>Graptemys barbouri</i> .....	Barbour's turtle.....	7
<i>Graptemys geographica</i> .....	Map turtle.....	3
<i>Graptemys pseudogeographica</i> .....	False map turtle.....	4
<i>Kinixys belliana</i> .....	Hinge-back turtle.....	2
<i>Malaclemys terrapin centrata</i> .....	Southern diamondback turtle.....	4
<i>Pseudemys decussata</i> .....	Cuban water turtle.....	1
<i>Pseudemys elegans</i> .....	Mobile turtle.....	12
<i>Pseudemys floridana</i> .....	Florida water turtle.....	8
<i>Pseudemys floridana suwannensis</i> .....	Suwannee turtle.....	7
<i>Pseudemys ornata</i> .....	Central American turtle.....	2
<i>Pseudemys rubriventris</i> .....	Red-bellied turtle.....	4
<i>Pseudemys scripta</i> .....	Red-lined turtle.....	12
<i>Pseudemys scripta callirostris</i> .....	South American red-lined turtle.....	12
<i>Pseudemys scripta troostii</i> .....	Cumberland turtle.....	10
<i>Rhinoclemmys punctularia</i> .....	South American red-headed turtle.....	1
<i>Terrapene carolina</i> .....	Box turtle.....	50
<i>Terrapene carolina triunguis</i> .....	Three-toed box turtle.....	3
<i>Terrapene o. ornata</i> .....	Western box turtle.....	2
<b>Pelomedusidae:</b>		
<i>Phrynops gibba</i> .....	South American gibba turtle.....	3
<i>Pelomedusa galeata</i> .....	African water turtle.....	1
<i>Pelusios nigricans</i> .....	African black mud turtle.....	8
<i>Pelusios sinuatus</i> .....	African snake-neck turtle.....	8
<i>Podocnemis unifilis</i> .....	Amazon spotted turtle.....	15
<b>Testudinidae:</b>		
<i>Testudo</i> sp.....	Galapagos turtle.....	1
<i>Testudo elephantina</i> .....	Giant Aldabra turtle.....	2
<i>Testudo ephippium</i> .....	Galapagos turtle.....	4
<i>Testudo marginata</i> .....	Margined turtle.....	1
<i>Testudo tabulata</i> .....	South American turtle.....	1
<i>Testudo vicina</i> .....	Galápagos turtle.....	1
<b>Trionychidae:</b>		
<i>Trionyx ferox</i> .....	American soft-shelled turtle.....	7
<i>Trionyx triunguis</i> .....	African soft-shelled turtle.....	2
<b>AMPHIBIANS</b>		
<b>CAUDATA</b>		
<b>Salamandridae:</b>		
<i>Diemictylus pyrrhogaster</i> .....	Red-bellied newt.....	31
<i>Diemictylus viridescens</i> .....	Red-spotted newt.....	5
<i>Taricha torosa</i> .....	California newt.....	2
<b>Amphiumidae:</b>		
<i>Amphiuma means</i> .....	Congo eel.....	1
<b>SALIENTIA</b>		
<b>Dendrobatidae:</b>		
<i>Dendrobates tintoria</i> .....	Arrow-poison frog.....	2
<b>Bufo</b>		
<b>Bufo</b>		
<i>Bufo americanus</i> .....	American toad.....	4
<i>Bufo marinus</i> .....	Giant toad.....	7

Scientific name	Common name	Number
<b>Bufonidae—Continued</b>		
<i>Bufo paracnemis</i> .....	Rococo toad.....	1
<i>Bufo pellocephalus</i> .....	Cuban toad.....	7
<i>Bufo viridis</i> .....	European toad.....	1
<b>Leptodactylidae:</b>		
<i>Ceratophrys calcarata</i> .....	Colombian horned frog.....	2
<i>Ceratophrys ornata</i> .....	Argentine horned frog.....	1
<b>Hylidae:</b>		
<i>Hyla cinerea</i> .....	Green tree frog.....	3
<i>Hyla crucifer</i> .....	Spring peeper.....	4
<i>Hyla squirella</i> .....	Squirrel tree frog.....	4
<i>Hyla versicolor</i> .....	Gray tree frog.....	2
<b>Microhylidae:</b>		
<i>Microhyla carolinensis</i> .....	Narrow-mouthed toad.....	2
<b>Pipidae:</b>		
<i>Pipa pipa</i> .....	Surinam toad.....	4
<b>Ranidae:</b>		
<i>Rana adspersa</i> .....	African bull frog.....	15
<i>Rana clamitans</i> .....	Green frog.....	4

## FISHES

<i>Acanthodoras spinosissimus</i> .....	Talking catfish.....	1
<i>Acanthopthalmus semicinctus</i> .....	Large kuhlii.....	3
<i>Anabas testudineus</i> .....	Climbing perch.....	5
<i>Astronotus ocellatus</i> .....	Peacock cichlid.....	4
<i>Barbus everetti</i> .....	Clown barb.....	2
<i>Betta</i> sp.....	Fighting fish.....	1
<i>Brachygnathus xanthozonus</i> .....	Bumblebee-fish.....	2
<i>Corydoras hastatus</i> .....	Corydoras.....	15
<i>Electrophorus electricus</i> .....	Electric eel.....	1
<i>Hyphessobrycon innesi</i> .....	Neon tetra.....	9
<i>Labeo chrysophekadion</i> .....	Black sharkfish.....	2
<i>Lebistes reticulatus</i> .....	{ Guppy.....	25
	{ Flag-tailed guppy.....	35
<i>Lepidosiren paradoxa</i> .....	South American lungfish.....	1
<i>Metynnis</i> sp.....	Metynnis.....	3
<i>Plecostomus plecostomus</i> .....	Armored catfish.....	2
<i>Protopterus annectens</i> .....	African lungfish.....	2
<i>Quintana atrizona</i> .....	Cuban mosquitofish.....	1
<i>Serrasalmus niger</i> .....	Piranha.....	1
<i>Sternarchella schottii</i> .....	African knifefish.....	3
<i>Tanichthys albonubes</i> .....	White Cloud Mountain fish.....	1
<i>Xiphophorus helleri</i> .....	Green swordtail.....	4

## ARACHNIDS

<i>Eurypelma</i> sp.....	Tarantula.....	1
<i>Latrodectus mactans</i> .....	Black-widow spider.....	1

## INSECTS

<i>Blaber</i> sp.....	Giant cockroach.....	100
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## MOLLUSKS

.....	Pond snails.....	10
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## STATUS OF THE COLLECTION

Class	Species or subspecies	Individuals
Mammals.....	246	786
Birds.....	300	1,212
Reptiles.....	148	625
Amphibians.....	21	107
Fish.....	22	123
Arachnids.....	2	2
Insects.....	2	100
Mollusks.....	1	10
Total.....	742	2,965
Animals on hand July 1, 1955.....		3,140
Accessions during the year.....		1,710
Total number of animals in collection during the year.....		5,120
Removals for various reasons such as death, exchanges, return of animals on deposit, etc. <sup>2</sup> .....		2,155
In collection on June 30, 1956.....		2,965

Respectfully submitted.

W. M. MANN, *Director.*

Dr. LEONARD CARMICHAEL,  
*Secretary, Smithsonian Institution.*

<sup>2</sup>The Zoo is given many small creatures that have been pets in homes where they are no longer welcome, or where circumstances necessitate giving them up. These include ducks, chickens, and rabbits given to children at Easter time, parakeets, alligators, caimans, guinea-pigs, etc. Also many of the common local wild things that are found by children or adults who think the creatures need help are brought to the Zoo. This includes a wide array, but particularly gray squirrels, cottontail rabbits, opossums, skunks, raccoons, foxes, woodchucks, blue jays, robins, sparrows, box turtles, as well as other less plentiful forms. The quantity of these received far exceeds the need for exhibition animals and facilities to care for them; therefore, some are used in exchange for other animals that are needed, and some are liberated. During the past year there were 215 individuals of 19 different kinds of such unneeded animals brought in. These were accessioned and therefore are recorded, which accounts in part for the large number of removals listed.

# 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, 1956. The principal portion of this report was prepared by James Zetek, who retired from the position of resident manager of this bureau on May 30, 1956. Mr. Zetek has been succeeded by Dr. Carl B. Koford who assumed his duties as resident naturalist on June 30, 1956.

## SCIENTISTS AND THEIR STUDIES

During the fiscal year 51 scientists, not including the Corrosion Conference group, came to the laboratory. Some of these, such as the research team from the University of Oslo, stayed for extended periods. In addition, there were many scientists who wanted to "get acquainted" with the island and had scheduled a one-day stopover to inspect the laboratory and the forest area.

<i>Investigator</i>	<i>Principal interest or special study</i>
Altman, Stuart, Walter Reed Medical Center.	Biology of mammals and birds, particularly howler monkeys.
Athern, D. D., Woods Hole Oceanographic Institution.	General biological survey.
Blew, Oscar, U. S. Forest Service.	Evaluation of reports on termite resistance tests.
Coursan, Blair, General Biological Supply House.	Bird and mammal studies.
Davis, Malcolm, National Zoological Park.	Biological survey.
Enders, Robt. K., Swarthmore College.	Histochemical studies and mammals surveys.
Enger, E. S., University of Oslo.	Member of Dr. Scholander's research group.
Gillespie, David M., Ohio State University.	Assistant to Dr. Hartman.
Haas, Theodore P., Philadelphia College of Pharmacy.	Plant studies.
Hartman, Frank A., Ohio State University.	Muscle studies of birds and adrenal gland.
Hartman, Armagedon, El Volcán, Chiriquí.	Assistant to Drs. Enders and Wislocki.
Henry, Mr. and Mrs. T. R., Washington, D. C.	Obtaining press release material for the Smithsonian Institution.

<i>Investigator</i>	<i>Principal interest or special study</i>
Heed, Dr. and Mrs. Wm. B., The Genetics Foundation, Austin, Tex.	Survey and collection of wild <i>Drosophila</i> for gene research.
Horning, Dr. and Mrs. E. C., National Heart Institute, Bethesda, Md.	Survey for future chemical studies.
Hoover, Mr. and Mrs. I. C., Arlington, Va.	Ornithological studies.
Hyman, Dr. Libbie, American Museum of Natural History.	General survey, especially of the soil fauna.
Johnson, H. R., U. S. Forest Service.	Examination of tests of treated woods against termite attacks.
Krog, John, University of Oslo.	Associate of Dr. Scholander.
Leivestad, Helge, University of Oslo.	Member of Dr. Scholander's research group.
Lloyd, Ivan M., Eastman Kodak Tropical Research Laboratory.	Deterioration and corrosion studies.
Lufburrow, R. A., Woods Hole Oceanographic Institution.	General biology.
Lundy, W. E., Assistant treasurer, Panama Canal.	Continuing studies of the birds, mammals, and insects.
Olivares, Ismael, Eastman Kodak Tropical Research Laboratory.	Fungi as affecting photographic equipment.
Pinney, Roy, New York City.	Photography of wildlife.
Reed, Mrs. Albert C., Salt Pines, Cape Cod, Mass.	Ornithology.
Rettenmeyer, Mr. and Mrs. Carl, University of Kansas.	Soil organisms and general entomology.
Riegel, Mr. and Mrs. H. J., Dwight, Ill.	Study of birds.
Rud, Berthe, University of Oslo.	Member of Dr. Scholander's research group.
Scholander, Dr. and Mrs. Per, University of Oslo.	Heat regulation in sloths and other mammals.
Schrader, Dr. Sally Hughes, Columbia University.	Cytological studies.
Stoutamier, Warren P., Fort Myers, Fla.	Wildlife protection studies.
Serafin, Mitrotti, Eastman Kodak Tropical Research Laboratory.	Corrosion and deterioration studies.
Soper, Cleveland C., Eastman Kodak Tropical Research Laboratory.	Corrosion and deterioration studies.

<i>Investigator</i>	<i>Principal interest or special study</i>
Swift, Paul F., Eastman Kodak Tropical Research Laboratory.	Physical and chemical studies related to corrosion and deterioration.
Verity, Erwin, Walt Disney Production.	Photography and study of mammals.
Verrall, A. F., U. S. Forest Service.	Inspection of controls for corrosion and termite installations.
Warren, James W., Walter Reed Army Medical Center.	Study of fungus-growing ants.
Weber, Neal A., Swarthmore College.	Study of fungus-growing ants.
Wetmore, Dr. and Mrs. Alexander, Smithsonian Institution.	Continuation of bird studies.
Wilmar, Mr. and Mrs. H., Walt Disney Production.	Photography and study of mammals.
Wislocki, Louis, Swarthmore College.	Associate of Dr. Enders.
Zeigler, John N., Woods Hole Oceanographic Institu- tion.	General biological observations.
Corrosion Conference (a group of United States scientists).	Annual conference on island.

## VISITORS

The visitors who spent at least a day on Barro Colorado Island <sup>1</sup> this year totaled 440. The majority of these were local people, but there were some who came by plane or boat to the mainland and had included a side trip to the laboratory in their plans. As in other years, all appeared to be very enthusiastic, and many expressed the wish that they could stay longer or return again at some later time.

## RAINFALL

In 1955, during the dry season (January through April) rains of 0.01 inch or more fell on 44 of the 120 days (128 hours) and amounted to 10.78 inches, as compared to 5.84 inches during 1954.

During the wet season of 1955 (May through December) rains of 0.01 inch or more fell on 202 of the 245 days and amounted to 103.64 inches as compared to 99.85 inches during 1954.

During 1955 rain fell on 246 days (975 hours), and averaged only 0.45 inch per day, almost 0.12 inch per hour.

March was the driest month of 1955 (0.21 inch) and November the wettest (17.14 inches). The wettest year of record (31 years) was

<sup>1</sup> Anyone contemplating a visit to this unique spot in the American Tropics should communicate with the Secretary of the Smithsonian Institution, Washington 25, D. C., or with the Resident Naturalist of the Canal Zone Biological Area, Drawer "C," Balboa, Canal Zone.

1935 with 143.42 inches, and the driest year of record was 1930 with only 76.57 inches.

The maxima of record for short periods were 5 minutes 1.30 inches; 10 minutes 1.65 inches; 1 hour 4.11 inches; 2 hours 4.81 inches.

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

Year	Total inches	Station average	Year	Total inches	Station average
1925	104.37	113.56	1941	91.82	108.41
1926	118.22	114.68	1942	111.10	108.55
1927	116.36	111.35	1943	120.29	109.20
1928	101.52	106.56	1944	111.96	109.30
1929	87.84	101.51	1945	120.42	109.84
1930	76.57	104.69	1946	87.38	108.81
1931	123.30	105.76	1947	77.92	107.49
1932	113.52	108.98	1948	83.16	106.43
1933	101.73	110.12	1949	114.86	106.76
1934	122.42	110.35	1950	114.51	107.07
1935	143.42	109.98	1951	112.72	107.28
1936	93.88	110.62	1952	97.68	106.94
1937	124.13	110.94	1953	104.97	106.87
1938	117.09	109.43	1954	105.68	106.82
1939	115.47		1955	114.42	107.09
1940	86.51				

TABLE 2.—*Comparison of 1954 and 1955 rainfall, Barro Colorado Island (inches)*

Month	Total		Station average	Years of record	Excess or deficiency	Accumulated excess or deficiency
	1954	1955				
January	1.24	9.05	2.08	30	+6.97	+6.97
February	1.29	0.46	1.22	30	-0.76	+6.21
March	0.21	0.90	1.16	30	-0.26	+5.95
April	3.10	0.37	3.07	31	-2.70	+3.25
May	11.09	10.58	10.83	31	-0.25	+3.00
June	12.06	13.54	11.25	31	+2.29	+5.29
July	15.05	11.49	11.56	31	-0.07	+5.22
August	12.92	11.36	12.27	31	-0.91	+4.31
September	11.19	9.27	9.93	31	-0.66	+3.65
October	13.14	16.33	13.75	31	+2.58	+6.23
November	17.14	18.35	19.02	31	-0.67	+5.56
December	7.25	12.72	10.95	31	+1.77	+7.33
Year	105.68	114.42	107.09			+7.33
Dry season	5.84	10.78	7.53			+3.25
Wet season	99.84	103.64	99.56			+4.08

## BUILDINGS, EQUIPMENT, AND IMPROVEMENTS

When the new laboratory building was constructed, the contractor could not obtain United States lumber for the flooring, and lumber cut and milled in Chiriquí, Panama, had to be used. During the year dry-wood termite infestation was observed, and though the damage was not extensive and appeared to be spreading slowly, immediate steps were undertaken to correct this condition. All the floor paint was scraped off and two very liberal brushings of Penta W-R were applied and allowed to soak in thoroughly. Since this treatment was given, no further signs of termite activity have been seen.



Water and electrical installations in this new building were completed, and the large darkroom is almost finished. It is expected that the building will soon be used to its full capacity and effectiveness.

All the screening on the original large laboratory was replaced with plastic screening, as expert advice had indicated this type was exceptionally good. Unfortunately, experience did not bear out that recommendation as rats ate the plastic with gusto, and cigarettes which accidentally came into contact with the screen caused holes to develop immediately. It is planned to replace all the plastic screening with the aluminum type.

Some of the lumber and other materials needed for rebuilding and repairing the laborers' quarters were purchased. This project includes the installation of indoor toilet facilities, a luxury to the laborers, but an added health protection factor on the island.

The roof of the Haskins Library Building appeared to be in poor condition, but a careful examination revealed that the damage was superficial, and the only repair needed was scraping and painting the existing covering. These projects were carried out thoroughly, and the roof is now in excellent condition. The runoff from the roof of this building is not used as a means of water supply, and so painting it presents no problem in this respect.

The new electric water heater furnishes hot water for the kitchen and shower baths and is proving to be a valuable addition. Though hot water cannot be used too freely when a large number of scientists are on the island, it has been a welcome convenience for all.

The 110-120-volt, 60-cycle, overhead electrical installation, completed in 1955, is giving satisfactory service. Excellent arrangements were made during the year for the maintenance and repair of the Diesel generators. A Caterpillar generator was obtained on transfer, and when this third unit is installed it is expected that no interruptions in the electric supply will be experienced.

Materials were purchased for building dry closets, electrically heated, in the various buildings. Some dehumidifiers have been installed, and they are doing an excellent job of drawing incredible amounts of water from each room.

The large wooden water tank north of the old laboratory was in danger of collapsing, and so some temporary, emergency repairs had to be made until the water-supply problem can be resolved. During the year it was discovered that a spring on the Snyder-Molino trail may be the solution. Before this can be determined, possible contamination from rain drainage during the wet season will have to be eliminated in order to obtain a good sample of water for analysis.

Minor necessary repairs were made to the launch *Moon*. Local regulations make it necessary to equip the speedboat with life preservers.

Further safety measures were taken by obtaining spotlights for the launch and by having all the fire extinguishers recharged by the Fire Division.

The dock proper is joined to a large platform covered with corrugated roofing and used for storage purposes. A portion of the roofing caved in because of rot-infested roof timbers. This damage was quickly repaired, and the new lumber was treated with preservatives to retard decay.

#### URGENT REQUIREMENTS

The most urgent requirement of the island, which has been referred to in the preceding section, is a safe and permanent supply of drinking water. This problem is expected to be resolved during the coming fiscal year.

The island dock still presents a perennial problem, but funds have been made available to provide for its relocation. Engineering studies will be made to determine the most suitable location for rebuilding the dock so that the silting of the channel will not present an annual problem.

The construction of the dry rooms referred to earlier in this report is urgently required so that scientists may store in safety such property as suitcases, cameras and their carrying cases, winter clothing, and shoes.

Since the termite infestation of the floor in the new building has been eliminated, the floors must be repainted soon.

The engine and hoist, which provide the only means of lifting heavy shipments of supplies and equipment from the dock to the laboratory level, must be replaced as soon as possible. Though the existing equipment has given many years of fine service, it is now worn out, breakdowns are frequent, and repairs are more and more difficult to make.

Only two of the trail-end houses, the Drayton and the Fuertes, are in usable condition, the others being in a very bad state of disrepair and so cannot be used.

Now that better facilities are available for preserving books, much work has to be done on the existing library, such as the rebinding and repair of old, valuable, and irreplaceable publications and the binding of series of scientific journals. Essential scientific reference texts and publications which are not included in the existing collection should be procured. Provision must be made to accommodate library material being transferred from the Balboa office to the island. Some of this is property of the bureau, but a large portion of it represents the personal collection of Mr. Zetek who has indicated that he plans to donate these fine publications to the island library. His generosity is greatly appreciated.

The laboratory in the new building and its related storerooms have to be equipped and properly organized. Funds have been provided

to obtain some of the required equipment and supplies, but more will be required.

An annual requirement, and one which is always a pressing problem in any tropical environment, is the constant need of painting all exterior and interior surfaces regularly to prevent wood rot.

#### FINANCES

The following institutions again contributed their table subscriptions, which were received with sincere appreciation inasmuch as without them the uninterrupted operation of the laboratory could not be accomplished:

Eastman Kodak Co.....	\$1, 000. 00
New York Zoological Society.....	300. 00
Smithsonian Institution .....	300. 00

Donations are also gratefully acknowledged from the following: Eugene Eisenmann, C. M. Goethe, D. S. Lee, and Harry C. Nichols.

A concerted effort must soon be made to interest additional groups in supporting a table subscription. Though the needs of the laboratory are great, its improved facilities are such that any participating group would find that an outlay of \$300 or \$400 would reap unforeseen dividends in the form of sound tropical research accomplishments.

The rate for one-day visits to the island is \$3 per person. Such visitors are met by launch at Frijoles and taken to the island and back again in time to board the evening train home. The fee also covers the noon meal and a guided trip into the forest.

Scientists from institutions which contribute to the support of the island through an annual table subscription are charged \$4 per person per day. For others the fee is \$5 per person per day. These rates provide for the two launch trips to and from the island, three consecutive meals, and lodging.

#### ACKNOWLEDGMENTS

Thanks are due the Canal Zone Government, its executive secretary and staff, the Customs and Immigration officials, the officials and employees of the Panama Railroad, and also the Police Division, for their excellent cooperation. The Panama Canal Company, particularly Mr. P. Alton White, chief of the Dredging Division, and his technical staff were also of great assistance.

Particular mention is made also of Dr. Cleveland C. Soper, director of the Eastman Kodak Company's Tropical Research Laboratory, and his efficient technical and clerical staff who despite their heavy research program found time to help with the problems of the CZBA, especially when emergencies arose. Without such kind and unfailing assistance the Area could not function as it does.

Special appreciation must be expressed for the constant cooperation and efficiency of Mrs. Adela Gomez, particularly when Mr. Zetek was hospitalized on February 23, 1956, and the burden of managing and operating the bureau fell on her shoulders.

Respectfully submitted.

J. E. GRAF,

*Assistant Secretary, Smithsonian Institution.*

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, 1956:

The Smithsonian Institution is the official United States agency for the exchange with other nations of governmental, scientific, and literary publications. The International Exchange Service, initiated by the Smithsonian Institution in the early years of its existence for the interchange of scientific publications between learned societies and individuals in the United States and those of foreign countries, serves as a means of developing and executing in part the broad and comprehensive objective, "the diffusion of knowledge." It was later designated by the United States Government as the agency for the transmission of official documents to selected depositories throughout the world, and it continues to execute the exchanges pursuant to conventions, treaties, and other international agreements.

The number of packages of publications received for transmission during the year increased by 14,983 to the yearly total of 1,161,855 but the weight of the packages decreased by 9,904 to the yearly total of 803,056 pounds. The average weight of the individual package decreased to 11.14 ounces, as compared to the 11.34-ounce average for the fiscal year of 1955.

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:

<i>Classification</i>	<i>Packages</i>		<i>Weight</i>	
	<i>Number</i>	<i>Number</i>	<i>Pounds</i>	<i>Pounds</i>
United States parliamentary documents sent abroad.....	668, 968	-----	253, 375	-----
Publications received in return for parliamentary documents.....	-----	6, 968	-----	11, 579
United States departmental documents sent abroad.....	250, 166	-----	245, 776	-----
Publications received in return for departmental documents.....	-----	7, 219	-----	17, 132
Miscellaneous scientific and literary publications sent abroad.....	165, 769	-----	191, 655	-----
Miscellaneous scientific and literary publications received from abroad for distribution in the United States.....	-----	62, 765	-----	83, 539
Total.....	1, 084, 903	76, 952	690, 806	112, 250
Grand total.....	1, 161, 855		803, 056	

The packages of publications are forwarded to the exchange bureaus of foreign countries by freight or, where shipment by such means is

impractical, to the foreign addressees by direct mail. Distribution in the United States of the publications received through the foreign exchange bureaus is accomplished primarily by mail, but by other means when more economical. The number of boxes shipped to the foreign exchange bureaus was 3,064, or 228 more than for the previous year. Of these boxes 986 were for depositories of full sets of United States Government documents, these publications being furnished in exchange for the official publications of foreign governments which are received for deposit in the Library of Congress. The number of packages forwarded by mail and by means other than freight was 228,394.

There was allocated to the International Exchange Service for transportation \$45,040. With this amount it was possible to effect the shipment of 837,188 pounds, which was 37,188 pounds more than was shipped the previous year. However, approximately 11,000 pounds of the full sets of United States Government documents accumulated during the year because the Library of Congress had requested suspension of shipment to certain foreign depositories.

Ocean freight rates to the Mediterranean ports were increased by 10 percent in June and the freight rates to and from the New York piers were increased by a 10-cent arbitrary in April.

The total outgoing correspondence was 2,497 letters, exclusive of information copies.

With the exception of Taiwan, no shipments are being made to China, North Korea, Outer Mongolia, Communist-controlled area of Viet-Nam, Communist-controlled area of Laos, or the Haiphong Enclave.

On May 14 the International Exchange Service received from the East German Exchange Service a shipment of 179 packages. This was the first shipment received from East Germany since 1939. On June 7 an announcement was received that another shipment containing 181 packages was in transit.

With certain exceptions the regulations of the Bureau of Foreign Commerce, Department of Commerce, provide that each package of publications exported bear a general license symbol and legend, "Export License Not Required." The International Exchange Service accepts for transmission to foreign destinations only those packages of publications that fall within the exception and those packages of publications to which the general license symbol and legend have been applied by the consignor.

#### FOREIGN DEPOSITORIES OF GOVERNMENTAL DOCUMENTS

The number of sets of United States official publications received by the Exchange Service for transmission abroad in return for the official publications sent by foreign governments for deposit in the Library

of Congress is now 104 (62 full and 42 partial sets), listed below. Changes that occurred during the year are shown in the footnotes.

## DEPOSITORIES OF FULL SETS

- ARGENTINA:** División Biblioteca, Ministerio de Relaciones Exteriores y Culto, Buenos Aires.
- AUSTRALIA:** Commonwealth Parliament and National Library, Canberra.  
**NEW SOUTH WALES:** Public Library of New South Wales, Sydney.  
**QUEENSLAND:** Parliamentary Library, Brisbane.  
**SOUTH AUSTRALIA:** Public Library of South Australia, Adelaide.  
**TASMANIA:** Parliamentary Library, Hobart.  
**VICTORIA:** Public Library of Victoria, Melbourne.  
**WESTERN AUSTRALIA:** Public Library of Western Australia, Perth.
- AUSTRIA:** Administrative Library, Federal Chancellery, Vienna.
- BEGIUM:** Bibliothèque Royale, Bruxelles.
- BRAZIL:** Biblioteca Nacional, Rio de Janeiro.
- BULGARIA:** Bulgarian Bibliographical Institute, Sofia.<sup>1</sup>
- 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.<sup>2</sup>
- COLOMBIA:** Biblioteca Nacional, Bogotá.
- COSTA RICA:** Biblioteca Nacional, San José.
- CUBA:** Ministerio de Estado, Canje Internacional, Habana.
- CZECHOSLOVAKIA:** National and University Library, Prague.<sup>1</sup>
- DENMARK:** Institut Danios des Échanges Internationaux, Copenhagen.
- EGYPT:** Bureau des Publications, Ministère des Finances, Cairo.
- FINLAND:** Parliamentary Library, Helsinki.
- FRANCE:** Bibliothèque Nationale, Paris.
- GERMANY:** Deutsche Staatsbibliothek, Berlin.  
 Free University of Berlin, Berlin.  
 Parliamentary Library, Bonn.
- GREAT BRITAIN:**  
**ENGLAND:** British Museum, London.  
**LONDON:** London School of Economics and Political Science. (Depository of the London County Council.)
- HUNGARY:** Library of Parliament, Budapest.<sup>1</sup>
- INDIA:** National Library, Calcutta.  
 Central Secretariat Library, New Delhi.
- INDONESIA:** Ministry for Foreign Affairs, Djakarta.
- IRELAND:** National Library of Ireland, Dublin.
- ISRAEL:** Government Archives and Library, Hakirya.
- ITALY:** Ministero della Pubblica Istruzione, Rome.
- JAPAN:** National Diet Library, Tokyo.<sup>3</sup>

<sup>1</sup> Shipment suspended.

<sup>2</sup> Changed from National Library of Peiping, Peiping, China.

<sup>3</sup> Receives two sets.

- MEXICO: Secretaría de Relaciones Exteriores, Departamento de Información para el Extranjero, México, D. F.
- NETHERLANDS: Royal Library, The Hague.
- NEW ZEALAND: General Assembly Library, Wellington.
- NORWAY: 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.<sup>1</sup>
- PORTUGAL: Biblioteca Nacional, Lisbon.
- SPAIN: Biblioteca Nacional, Madrid.
- SWEDEN: Kungliga Biblioteket, Stockholm.
- SWITZERLAND: Bibliothèque Centrale Fédérale, Berne.
- TURKEY: Department of Printing and Engraving, Ministry of Education, Istanbul.
- UNION OF SOUTH AFRICA: State Library, Pretoria, Transvaal.
- UNION OF SOVIET SOCIALIST REPUBLICS: All-Union Lenin Library, Moscow, 115.
- 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.<sup>3</sup>

DEPOSITORIES OF PARTIAL SETS

- AFGHANISTAN: Library of the Afghan Academy, Kabul.
- ANGLO-EGYPTIAN SUDAN: Gordon Memorial College, Khartoum.
- BOLIVIA: Biblioteca del Ministerio de Relaciones Exteriores y Culto, La Paz.
- BRAZIL:
- MINAS GERAIS: Directoria Geral de Estatistica em Minas, Belo Horizonte.
- BRITISH GUIANA: Government Secretary's Office, Georgetown, Demerara.
- CANADA:
- ALBERTA: Provincial Library, Edmonton.
- BRITISH COLUMBIA: Provincial Library, Victoria.
- NEW BRUNSWICK: Legislative Library, Fredericton.
- NEWFOUNDLAND: Department of Provincial Affairs, St. John's.
- NOVA SCOTIA: Provincial Secretary of Nova Scotia, Halifax.
- SASKATCHEWAN: Legislative Library, Regina.
- DOMINICAN REPUBLIC: Biblioteca de la Universidad de Santo Domingo, Ciudad Trujillo.
- ECUADOR: Biblioteca Nacional, Quito.
- EL SALVADOR:
- Biblioteca Nacional, San Salvador.
- Ministerio de Relaciones Exteriores, San Salvador.
- GREECE: National Library, Athens.
- GUATEMALA: Biblioteca Nacional, Guatemala.
- HAITI: Bibliothèque Nationale, Port-au-Prince.
- HONDURAS:
- Biblioteca y Archivo Nacionales, Tegucigalpa.
- Ministerio de Relaciones Exteriores, Tegucigalpa.
- ICELAND: National Library, Reykjavik.



INDIA: Secretary to the Government of India, Bombay.<sup>4</sup>

BIHAR AND ORISSA: Revenue Department, Patna.

UNITED PROVINCES OF AGRA AND OUDH:

University of Allahabad, Allahabad.

Secretariat Library, Uttar Pradesh, Lucknow.

WEST BENGAL: Library, West Bengal Legislative Secretariat, Assembly House, Calcutta.

IRAN: Imperial Ministry of Education, Tehran.

IRAQ: Public Library, Baghdad.

JAMAICA:

Colonial Secretary, Kingston.

University College of the West Indies, St. Andrew.

LEBANON: American University of Beirut, Beirut.

LIBERIA: Department of State, Monrovia.

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

MALTA: Minister for the Treasury, Valleta.

NICARAGUA: Ministerio de Relaciones Exteriores, Managua.

PAKISTAN: Central Secretariat Library, Karachi.

PANAMA: Ministerio de Relaciones Exteriores, Panamá.

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

SCOTLAND: National Library of Scotland, Edinburgh.

SIAM: National Library, Bangkok.

SINGAPORE: Chief Secretary, Government Offices, Singapore.

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

#### INTERPARLIAMENTARY EXCHANGE OF THE OFFICIAL JOURNAL

There are now being sent abroad 76 copies of the Federal Register and 88 copies of the Congressional Record. This is a decrease from the preceding year of 16 copies of the Federal Register and of 6 copies of the Congressional Record. The countries to which these journals are being forwarded are given in the following list.

#### DEPOSITORIES OF CONGRESSIONAL RECORD AND FEDERAL REGISTER

ARGENTINA:

Biblioteca del Poder Judicial, Mendoza.<sup>5</sup>

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 Parliament and National Library, Canberra.

NEW SOUTH WALES: Library of Parliament of New South Wales, Sydney.

QUEENSLAND: Chief Secretary's Office, Brisbane.

VICTORIA: Public Library of Victoria, Melbourne.<sup>5</sup>

WESTERN AUSTRALIA: Library of Parliament of Western Australia, Perth.

BRAZIL:

Biblioteca da Camera dos Deputados, Rio de Janeiro.

Secretaria de Presidencia, Rio de Janeiro.<sup>6</sup>

<sup>4</sup> Changed from Undersecretary to the Government of Bombay.

<sup>5</sup> Federal Register only.

<sup>6</sup> Congressional Record only.

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.<sup>6</sup>

CHINA:

Legislative Yuan, Taipei, Taiwan.<sup>6</sup>

Taiwan Provincial Government, Taipei, Taiwan.

CUBA:

Biblioteca del Capitolio, Habana.

Biblioteca Pública Panamericana, Habana.<sup>5</sup>

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

FRANCE:

Bibliothèque Assemblée Nationale, Paris.

Bibliothèque Conseil de la République, Paris.

Library, Organization for European Economic Cooperation, Paris.<sup>6</sup>

Research Department, Council of Europe, Strasbourg.<sup>6</sup>

Service de la Documentation Étrangère, Assemblée Nationale, Paris.<sup>6</sup>

GERMANY:

Amerika-Institut der Universität München, München.<sup>6</sup>

Archiv, Deutscher Bundesrat, Bonn.

Bibliothek der Instituts für Weltwirtschaft an der Universität Kiel, Kiel-Wik.

Bibliothek Hessischer Landtag, Wiesbaden.<sup>6</sup>

Der Bayrische Landtag, Munich.<sup>6,7</sup>

Deutscher Bundesrat, Bonn.<sup>6</sup>

Deutscher Bundestag, Bonn.<sup>6</sup>

Hamburgisches Welt-Wirtschafts-Archiv, Hamburg.

GOLD COAST: Chief Secretary's Office, Accra.<sup>6</sup>

GREAT BRITAIN:

Department of Printed Books, British Museum, London.<sup>6</sup>

House of Commons Library, London.<sup>6</sup>

Printed Library of the Foreign Office, London.

Royal Institute of International Affairs, London.<sup>6</sup>

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.<sup>5</sup>

INDIA:

Civil Secretariat Library, Lucknow, United Provinces.<sup>5</sup>

Indian Council of World Affairs, New Delhi.<sup>6</sup>

Jammu and Kashmir Constituent Assembly, Srinagar.<sup>6</sup>

Legislative Assembly, Government of Assam, Shillong.<sup>6</sup>

Legislative Assembly Library, Lucknow, United Provinces.

Legislative Assembly Library, Trivandrum.<sup>6</sup>

Madras State Legislature, Madras.<sup>6</sup>

Parliament Library, New Delhi.<sup>6</sup>

Servants of India Society, Poona.<sup>6</sup>

<sup>7</sup> Three copies.

<sup>8</sup> Added during year.

IRELAND: Dail Eireann, Dublin.

ISRAEL: Library of the Knesset, Jerusalem.

ITALY:

Biblioteca Camera dei Deputati, Rome.

Biblioteca del Senato della Repubblica, Rome.

European Office, Food and Agriculture Organization of the United Nations,  
Rome.<sup>5</sup>

International Institute for the Unification of Private Law, Rome.<sup>5</sup>

JAPAN:

Library of the National Diet, Tokyo.

Ministry of Finance, Tokyo.<sup>5</sup>

JORDAN: Parliament of the Hashemite Kingdom of Jordan, Amman.<sup>5</sup>

KOREA: Secretary General, National Assembly, Pusan.

LUXEMBOURG: Assemblée Commune de la C. E. C. A., Luxembourg.

MEXICO:

Dirección General Información, Secretaría de Gobernación, México, D. F.

Biblioteca Benjamin Franklin, México, D. F.

AGUASCALIENTES: Gobernador del Estado de Aguascalientes, Aguascalientes.

BAJA CALIFORNIA: Gobernador del Distrito Norte, Mexicali.

CHAMPECHE: Gobernador del Estado de Campeche, Campeche.

CHIAPAS: Gobernador del Estado de Chiapas, Tuxtla Gutiérrez.

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.

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, Palacia de Gobierno, Oaxaca.<sup>5</sup>

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 Gober-  
nación y Justicia, Jalapa.

YUCATÁN: Gobernador del Estado de Yucatán, Mérida.

NETHERLANDS: Koninklijke Bibliotheek, The Hague.<sup>5</sup>

NEW ZEALAND: General Assembly Library, Wellington.

NORWAY: Library of the Norwegian Parliament, Oslo.

PANAMA: Biblioteca Nacional, Panama City.<sup>5</sup>

PORTUGUESE TIMOR: Repartição Central de Administração Civil, Dili.<sup>5</sup>

SWITZERLAND: Bibliothéque, Bureau International du Travail, Geneva.<sup>5</sup>

International Labor Office, Geneva.<sup>5, 9</sup>

Library, United Nations, Geneva.

UNION OF SOUTH AFRICA:

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

TRANSVAAL: State Library, Pretoria.

<sup>9</sup> Two copies.

UNION OF SOVIET SOCIALIST REPUBLICS: Fundamental'nii Biblioteka Obschestvennykh Nauk, Moscow.<sup>6</sup>

URUGUAY: Diario Oficial, Calle Florida 1178, Montevideo.

#### FOREIGN EXCHANGE SERVICES

Exchange publications for addresses in the countries listed below are forwarded by freight to the exchange services of those countries. Exchange publications for addresses in other countries are forwarded directly by mail.

#### LIST OF EXCHANGE SERVICES

AUSTRIA: Austrian National Library, Vienna.

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

CHINA: National Central Library, Taipei, Taiwan.

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

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

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

FINLAND: Delegation of the Scientific Societies, Snellmaninkatu 9-11, Helsinki.

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

GERMANY (Eastern): Deutsche Staatsbibliothek, Berlin.

GERMANY (Western): Notgemeinschaft der Deutschen Wissenschaft, Bad Godesberg.

GREAT BRITAIN AND IRELAND: Wheldon & Wesley, 83/84 Berwick Street, London, W. 1.<sup>10</sup>

HUNGARY: National Library, Széchényi, Budapest.

INDIA: Government Printing and Stationery, Bombay.

INDONESIA: Minister of Education, Djakarta.

ISRAEL: Jewish National and University Library, Jerusalem.

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

JAPAN: Division of International Affairs, National Diet Library, Tokyo.

NETHERLANDS: International Exchange Bureau of the Netherlands, Royal Library, The Hague.

NEW SOUTH WALES: Public Library of New South Wales, Sydney.

NEW ZEALAND: General Assembly Library, Wellington.

NORWAY: Service Norvégien des Échanges Internationaux, Bibliothèque de l'Université Royale, Oslo.

PHILIPPINES: Bureau of Public Libraries, Department of Education, Manila.

POLAND: Service Polonais des Échanges Internationaux, Bibliothèque Nationale, Warsaw.

PORTUGAL: Secção de Trocas Internacionais, Biblioteca Nacional, Lisbon.

QUEENSLAND: Bureau of Exchanges of International Publications, Chief Secretary's Office, Brisbane.

<sup>10</sup> Between the United States and England only.

- SOUTH AUSTRALIA:** South Australian Government Exchanges Bureau, Government Printing and Stationery Office, Adelaide.
- SPAIN:** Junta de Intercambio y Adquisición de Libros y Revistas para Bibliotecas Públicas, Ministerio de Educación Nacional, Avenida Calvo Sotelo 20, Madrid.
- SWEDEN:** Kungliga Biblioteket, Stockholm.
- SWITZERLAND:** Service Suisse des Échanges Internationaux, Bibliothèque Centrale Fédérale, Palais Fédéral, Berne.
- TASMANIA:** Secretary of the Premier, Hobart.
- TURKEY:** Ministry of Education, Department of Printing and Engraving, Istanbul.
- UNION OF SOUTH AFRICA:** Government Printing and Stationery Office, Cape Town, Cape of Good Hope.
- UNION OF SOVIET SOCIALIST REPUBLICS:** Bureau of Book Exchange, State Lenin Library, Moscow 19.
- VICTORIA:** Public Library of Victoria, Melbourne.
- WESTERN AUSTRALIA:** Public Library of Western Australia, Perth.
- YUGOSLAVIA:** Bibliografski Institut FNRJ, Belgrade.

Respectfully submitted.

D. G. WILLIAMS, *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 nineteenth annual report of the National Gallery of Art, for the fiscal year ended June 30, 1956. This report is made pursuant to the provisions of section 5 (d) of Public Resolution No. 14, Seventy-fifth Congress, first session, approved March 24, 1937 (50 Stat. 51).

## ORGANIZATION

The statutory members of the Board of Trustees of the National Gallery of Art are the Chief Justice of the United States, the Secretary of State, the Secretary of the Treasury, and the Secretary of the Smithsonian Institution, ex officio. On September 22, 1955, Samuel H. Kress, trustee and President of the Gallery, died, and Rush H. Kress was elected a general trustee to succeed him. Chester Dale was elected President of the Gallery. The four other general trustees continuing in office during the fiscal year ended June 30, 1956, were Ferdinand Lamot Belin, Duncan Phillips, Chester Dale, and Paul Mellon. The Board of Trustees held its annual meeting on May 1, 1956. Chester Dale was reelected President and Ferdinand Lamot Belin Vice President, to serve for the ensuing year.

David E. Finley retired as Director of the Gallery on June 30, 1956, and John Walker, Chief Curator of the Gallery, was elected by the Board of Trustees as Director to succeed Dr. Finley effective July 1, 1956. The other executive officers of the Gallery continuing in office as of June 30, 1956 are:

Huntington Cairns, Secretary-Treasurer.	Huntington Cairns, General Counsel.
Ernest R. Feidler, Administrator.	Macgill James, Assistant Director.

The three standing committees of the Board, as constituted at the annual meeting May 1, 1956, were as follows:

### EXECUTIVE COMMITTEE

Chief Justice of the United States, Earl Warren, Chairman.	Secretary of the Smithsonian Institution, Dr. Leonard Carmichael.
Chester Dale, Vice Chairman.	Paul Mellon.
Ferdinand Lamot Belin.	

### FINANCE COMMITTEE

Secretary of the Treasury, George M. Humphrey, Chairman.	Secretary of the Smithsonian Institution, Dr. Leonard Carmichael.
Chester Dale, Vice Chairman.	Ferdinand Lamot Belin.
	Paul Mellon.

## ACQUISITIONS COMMITTEE

Ferdinand Lamot Belin, Chairman. Paul Mellon.  
 Duncan Phillips. David E. Finley.  
 Chester Dale.

## PERSONNEL

On June 30, 1956, full-time Government employees on the staff of the National Gallery of Art numbered 312, as compared with 301 employees as of June 30, 1955. The United States Civil Service Regulations govern the appointment of employees paid from appropriated public funds.

## APPROPRIATIONS

For the fiscal year ended June 30, 1956, the Congress of the United States appropriated for the National Gallery of Art \$1,436,000, 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). The following obligations were incurred:

Personal services (including \$409,143 for guard protection) -----	\$1,265,700.00
Other than personal services -----	170,268.65
Unobligated balance -----	31.35
<b>Total -----</b>	<b>\$1,436,000.00</b>

## ATTENDANCE

There were 1,013,246 visitors to the Gallery during the fiscal year 1956—an increase of 198,314 over the attendance for the fiscal year 1955. The average daily number of visitors was 2,791.

## FIFTEENTH ANNIVERSARY CELEBRATION

March 17, 1956, was the fifteenth anniversary of the opening of the National Gallery of Art. On that date a special night opening was held from 9:00 p. m. until midnight. As part of the celebration a special exhibition was arranged of important paintings and sculpture acquired in the last five years by the Samuel H. Kress Foundation. The Samuel H. Kress Collection of Renaissance Bronzes, installed in three specially prepared rooms, was also opened to the public. The number of guests attending the special evening exhibition was 11,690.

## ACCESSIONS

There were 477 accessions by the National Gallery of Art as gifts, loans, or deposits during the fiscal year 1956.

## GIFTS

A total of 112 paintings and 22 sculptures of the highest quality, which had been given to the National Gallery of Art by the Samuel H. Kress Foundation in 1952, were placed on permanent exhibition, some of them in galleries newly finished for them. Especially notable in this generous gift were the following:

<i>Artist</i>	<i>Title</i>
Botticelli.....	Giuliano de' Medici.
Master of Heiligenkreuz.....	The Death of St. Clare.
Altdorfer.....	The Fall of Man.
Memling.....	St. Veronica.
Desiderio.....	Tabernacle.
Verrocchio, Circle of (possibly Leonardo).	Madonna and Child with a Pomegranate.
Bosch.....	Death and the Miser.
Giorgione.....	The Holy Family.
Titian.....	Ranuccio Farnese.
Dürer.....	Portrait of a Clergyman.
Fra Angelico and Fra Filippo Lippi.....	The Adoration of the Magi.
Tiepolo.....	Apollo Pursuing Daphne.
Chardin.....	The Kitchen Maid.
Bruegel, Pieter the Elder.....	The Temptation of St. Anthony.

In exchange for these 134 outstanding masterpieces, the National Gallery of Art returned to the Samuel H. Kress Foundation 266 paintings and 2 sculptures which had previously been given to the Gallery by the Foundation and which had become less suitable for the Gallery's collection.

During the year, the following gifts or bequests were also accepted by the Board of Trustees:

## PAINTINGS

<i>Donor</i>	<i>Artist</i>	<i>Title</i>
Mrs. A. J. Beveridge.....	Drouais.....	Marquis d'Ossun.
Count C. C. Pecci-Blunt ..	Corot.....	L'Etang de Ville d'Avray.
Dr. and Mrs. Walter Timme.	Rembrandt.....	Old Woman Plucking a Fowl.
Howard Sturges.....	Tiepolo.....	Small oval ceiling design.
Col. and Mrs. E. W. Garbisch.	A. E. Zeliff.....	The Barnyard.
Col. and Mrs. E. W. Garbisch.	L. Sachs.....	The Herbert Children.
Col. and Mrs. E. W. Garbisch.	Unknown.....	Mounting of the Guard.
Col. and Mrs. E. W. Garbisch.	Unknown.....	Allegory of Freedom.
Col. and Mrs. E. W. Garbisch.	Unknown.....	Miss Arnold Holding an Apple.
Col. and Mrs. E. W. Garbisch.	Unknown.....	Miss Arnold Knitting.



<i>Donor</i>	<i>Artist</i>	<i>Title</i>
Col. and Mrs. E. W. Garbisch.	Unknown.....	Henry Wells.
Col. and Mrs. E. W. Garbisch.	Susane Walters.....	Memorial to Nicholas Catlin.
Col. and Mrs. E. W. Garbisch.	Samuel Jordan.....	Eaton Family Memorial.
Col. and Mrs. E. W. Garbisch.	A. A. Lamb.....	Emancipation Proclamation.
Col. and Mrs. E. W. Garbisch.	A. R. Stanley.....	Eliza Wells.
Col. and Mrs. E. W. Garbisch.	Unknown.....	New England Village.
Col. and Mrs. E. W. Garbisch.	J. C. Robinson.....	Portrait of an Old Man.
Col. and Mrs. E. W. Garbisch.	J. C. Robinson.....	Portrait of an Old Lady.
Col. and Mrs. E. W. Garbisch.	C. Hofmann.....	View of Benjamin Reber's Farm.
Col. and Mrs. E. W. Garbisch.	Attributed to Stettinius.	Wellington.
Col. and Mrs. E. W. Garbisch.	Samuel Enredy.....	Van Reid.
Col. and Mrs. E. W. Garbisch.	Samuel Enredy.....	Jane L. Van Reid.
Col. and Mrs. E. W. Garbisch.	Erastus S. Field.....	Portrait of a Man.
Col. and Mrs. E. W. Garbisch.	Erastus S. Field.....	Portrait of a Lady.
Col. and Mrs. E. W. Garbisch.	Unknown.....	Columbia.
Col. and Mrs. E. W. Garbisch.	Unknown.....	Dr. Alva Cook.
Col. and Mrs. E. W. Garbisch.	Unknown.....	General Washington on White Charger.
Col. and Mrs. E. W. Garbisch.	Unknown.....	The Hobby Horse.
Col. and Mrs. E. W. Garbisch.	Unknown.....	Portrait of a Young Man Wearing White Stock.

## SCULPTURE

Winston Guest.....	Benin style, Nigeria..	Bronze Cock.
Mrs. Herbert N. Straus...	Attributed to Verrocchio.	Alexander the Great.

## PRINTS AND DRAWINGS

Howard Sturges.....	Gabriel de St. Aubin..	"La Parade Chez Nicolle."
Howard Sturges.....	Watteau.....	The Violin Player.
Howard Sturges.....	Gainsborough.....	Cart and Horse.
Howard Sturges.....	Cosway.....	Lady's Portrait.
Howard Sturges.....	Tiepolo.....	Mother, Child and Angel.
Howard Sturges.....	Tiepolo.....	Ceiling design.

<i>Donor</i>	<i>Artist</i>	<i>Title</i>
Howard Sturges.....	Chardin.....	Baby's Portrait.
Howard Sturges.....	Guardi.....	Classic Ruins.
Howard Sturges.....	Guardi.....	Classic Ruins.
Howard Sturges.....	Guardi.....	Venice.
Howard Sturges.....	Guardi.....	Venice.
Howard Sturges.....	Bérard, C.....	French Soldier and Child.
Howard Sturges.....	Canaletto.....	Grand Canal, Venice.
W. G. Russell Allen.....	Rembrandt.....	19 etchings.
George Matthew Adams...	Legros.....	51 prints.

## EXCHANGE OF WORKS OF ART

The Board of Trustees accepted the offer of Lessing J. Rosenwald to exchange a Gauguin woodcut entitled "Interior de Case" for a finer impression of the same work.

## WORKS OF ART ON LOAN

In connection with the fifteenth anniversary of the opening of the National Gallery of Art, 96 works of art from the Samuel H. Kress Collection were lent to the Gallery. Notable among these were the following:

<i>Artist</i>	<i>Title</i>
Andrea del Sarto.....	Charity.
Bellini, Giovanni.....	The Infant Bacchus.
Carpaccio.....	Madonna and Child.
Clouet, François.....	Diane de Poitiers.
David, Jacques-Louis.....	Napoleon in His Study.
Fragonard.....	Blindman's Buff.
Fragonard.....	The Swing.
Ghirlandaio, Domenico.....	Madonna and Child.
El Greco.....	Christ Cleansing the Temple.
Grünewald.....	The Small Crucifixion.
Memling.....	The Presentation in the Temple.
Pontormo.....	Monsignor della Casa.
Rubens.....	Decius Mus Addressing the Legions.
Saenredam.....	Cathedral of St. John at 'S-Hertogenbosch.
Tintoretto.....	The Conversion of St. Paul.
Titian.....	Doge Andrea Gritti.
Titian.....	St. John the Evangelist on Patmos.
Benedetto da Maiano.....	Madonna and Child.
Bernini, Gian Lorenzo.....	Cardinal Francesco Barberini.
Nino Pisano.....	The Archangel Gabriel.
Nino Pisano.....	The Virgin Annunciate.

During the fiscal year 1956 the following works of art were also received on loan by the Gallery:

<i>From:</i>	<i>Artist</i>
Chester Dale, New York, N. Y.:	
Isaac de Peyster.....	F. V. Doornick.
Anne de Peyster.....	F. V. Doornick.
The Sacrament of the Last Supper.....	Salvador Dali.
Claiborne Pell, Washington, D. C.:	
The Jolly Flatboatmen.....	Bingham.
Mr. and Mrs. C. B. Wrightsman, Palm Beach, Fla.:	
La Causette.....	Pissarro.
Portrait of a Young Girl.....	Vermeer.
Sketch for staircase ceiling in Würzburg.....	Tiepolo.
Robert Woods Bliss, Washington, D. C.:	
Thirty-seven objects of Pre-Columbian art.	

## 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>
J. H. Whittemore Co., Naugatuck, Conn.:	
Three Ballet Girls Behind the Scenes.....	Degas.
Chester Dale, New York, N. Y.:	
Isaac de Peyster.....	F. V. Doornick.
Anne de Peyster.....	F. V. Doornick.
Portrait of a Young Woman in Riding Dress.....	David d'Avignon.
Col. and Mrs. Edgar W. Garbisch, New York, N. Y.:	
Fourteen American primitive paintings.	
Robert Woods Bliss, Washington, D. C.:	
Nine objects of Pre-Columbian art.	
Samuel H. Kress Foundation, New York, N. Y.:	
Sacrifice of Iphigenia.....	Tiepolo.
Adoration.....	Titian.
St. Christopher.....	Massys.
Sir Robert Sheffield.....	Mabuse.
Lady Sheffield.....	Mabuse.
Landscape.....	Ruysdael, Salomon.

## 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>
Boston Museum of Fine Art, Boston, Mass.:	
Repose.....	Sargent.
Mrs. William C. Endicott.....	Sargent.
Pennsylvania State University, State College, Pa.:	
Flax Scutching Bee.....	Linton Park.
Traveling Exhibition Service, Smithsonian Institution, Washington, D. C.:	
Flax Scutching Bee.....	Linton Park.
Peale Museum, Baltimore, Md.:	
Portrait of Richardson Stuart.....	Rembrandt Peale.

<i>To:</i>	<i>Artist</i>
Woodlawn Plantation, Virginia:	
General Washington at Princeton.....	C. P. Polk.
Cincinnati Art Museum, Cincinnati, Ohio:	
The Return of Rip Van Winkle.....	Quidor.
Birmingham Museum of Art, Birmingham, Ala.:	
Portrait of a Young Man Wearing White Stock.....	Unknown.
Houston Museum of Fine Arts, Houston, Tex.:	
Vermont Lawyer.....	Horace Bundy.
View of Benjamin Reber's Farm.....	C. Hofmann.
The Sargent Family.....	Unknown.
Fruit and Flowers.....	Unknown.
Columbia.....	Unknown.
Virginia Museum of Fine Arts, Richmond, Va.:	
Tête-à-Tête.....	Boucher.
La Petite Loge.....	Moreau le Jeune.
Washington County Museum, Hagerstown, Md.:	
Twenty-five American portraits.	

## EXHIBITIONS

The following exhibitions were held at the National Gallery of Art during the fiscal year 1956:

American Primitive Paintings. From the Collection of Edgar William and Bernice Chrysler Garbisch. Continued from previous fiscal year, through August 1, 1955.

Miniatures and Prints. From the Lessing J. Rosenwald Collection. Continued from previous fiscal year, through August 1, 1955.

American Paintings. From the Collection of the National Gallery of Art. August 7 through September 18, 1955.

German Drawings—Masterpieces from Five Centuries. Through the cooperation of the Federal Republic of Germany, the Staatliche Graphische Sammlung in Munich, and the German Embassy in Washington. October 10 through October 31, 1955.

A Collection of Contemporary German Prints. Presented by the people of the Federal Republic of Germany to the United States of America. November 9, 1955, through January 4, 1956.

Asian Artists in Crystal. From Steuben Glass. In addition to the Asian crystal, designs by contemporary American glassmakers were exhibited by the Corning Museum of Glass. January 18 through February 19, 1956.

Masterpieces of Graphic Art. From the Lessing J. Rosenwald Collection. January 21 through April 9, 1956. Reopened May 23, 1956.

Exhibition of Paintings and Sculpture Acquired by the Samuel H. Kress Foundation, 1951-1956. Opened on the occasion of the Fifteenth Anniversary of the Opening of the National Gallery of Art. Evening celebration March 17, 1956. Public opening March 18, 1956, to continue on indefinite loan.

The Sacrament of the Last Supper. By Salvador Dali. First exhibition. Placed on view March 31, 1956, on indefinite loan.

A Century and a Half of Painting in Argentina. Exhibition assembled under the direction of a committee including the Counselor in charge of Cultural Affairs of the Argentine Embassy in Washington. April 17 through May 17, 1956.

#### TRAVELING EXHIBITIONS

*Rosenwald Collection.*—Special exhibitions of prints from the Rosenwald Collection were circulated to the following places during the fiscal year 1956:

Michigan State University, Mich.:

Ten German prints.

October–November 1955.

Marion Koogler McNay Art Institute, San Antonio, Tex.:

Thirteen Degas prints.

October–November 1955.

University of Nebraska Art Galleries, Lincoln, Nebr.:

Exhibition of work of Ernst Barlach.

October–November 1955.

Norfolk Museum, Norfolk, Va.:

Two illuminations, Anonymous Flemish, XV Century.

November 1955.

Museum of Modern Art, New York, N. Y.:

Nolde, "The Prophet."

November 1955–January 1956.

Lowe Gallery, Coral Gables, Fla.:

Fifty-seven prints and drawings for prints.

December 1955.

Henry Gallery, University of Washington, Seattle, Wash.:

Exhibition of work of Ernst Barlach.

December 1955–January 1956.

American Federation of Arts—Traveling Exhibition:

Exhibition of Abraham Bosse.

1956.

Art Institute, Dayton, Ohio:

Exhibition of work of Ernst Barlach.

January–February 1956.

Michigan State College, Mich.:

Thirty-three Italian prints, XV Century–XVIII Century.

January–February 1956.

Four Arts Society, Palm Beach, Fla.:

Exhibition of Gauguin prints.

February 1956.

Smith College, Northampton, Mass.:

Exhibition of Abraham Bosse.

February–March 1956.

Denver Art Museum, Denver, Colo.:

Prints by Bosse, Callot, Hollar.

Spring, 1956.

- Atlanta Art Association, Atlanta, Ga. :  
Ninety-three Toulouse-Lautrec prints.  
March-April 1956.
- Busch-Reisinger Museum, Harvard University, Cambridge, Mass. :  
Exhibition of work of Ernst Barlach.  
March-April 1956.
- Contemporary Arts Museum, Houston, Tex. :  
Exhibition of Steinlen and Munch.  
March-April 1956.
- Watkins Gallery, American University, Washington, D. C. :  
Exhibition "Art and Theatre."  
March-April 1956.
- Citizens' Committee for Children of N. Y. C., Inc., New York, N. Y. :  
Gauguin exhibition.  
April-May 1956.
- City Art Museum of St. Louis, St. Louis, Mo. :  
Sixty XV-Century woodcuts and engravings.  
April-May 1956.
- Corcoran Gallery of Art, Washington, D. C. :  
Meryon, "Malingre Cryptogramme."  
April-May 1956.
- Museum of Art, University of Oregon, Eugene, Oreg. :  
Exhibition of "Music."  
April-May 1956.
- Philadelphia Art Alliance, Philadelphia, Pa. :  
Klee, Lautrec, and Biddle.  
May-June 1956.
- Rijksmuseum, Amsterdam, Holland :  
Three Rembrandt drawings.  
Opened May 1956.

*Index of American Design.*—During the fiscal year 1956, 28 traveling exhibitions of original watercolor renderings of this collection, with 42 bookings, were sent to the following States:

<i>State</i>	<i>Number of exhibitions</i>	<i>State</i>	<i>Number of exhibitions</i>
Arkansas -----	1	Michigan -----	4
California -----	2	Minnesota -----	1
District of Columbia -----	1	New York -----	1
Florida -----	1	North Carolina -----	5
Illinois -----	2	Pennsylvania -----	2
Iowa -----	1	South Carolina -----	3
Kansas -----	1	Tennessee -----	1
Kentucky -----	1	Texas -----	4
Maine -----	1	Wisconsin -----	1
Maryland -----	1	Virginia -----	6
Massachusetts -----	2		

#### CURATORIAL ACTIVITIES

The Curatorial Department accessioned 118 gifts to the Gallery during the fiscal year 1956. Advice was given regarding 324 works of art brought to the Gallery for expert opinion and 61 visits to

collections were made by members of the staff in connection with offers of gift or for expert opinion. About 1,550 inquiries requiring research were answered verbally and by letter. John Walker, Chief Curator of the Gallery, gave a lecture at the Newark, N. J., Museum before the opening of an exhibition of Old Masters from American Collections. He also lectured to Miss Porter's School in Farmington, Conn., on the Kress paintings which were placed on exhibition on March 17. Miss Elizabeth Mongan assisted with seminar courses on prints at Beaver College, Bryn Mawr College, and Swarthmore College. She also lectured to school and adult groups in and around Philadelphia. Erwin O. Christensen gave a lecture on the decorative arts in the National Gallery to an adult women's group at the University of Maryland. He also delivered one of the Sunday afternoon Gallery lectures on the decorative arts. John Pancoast gave one of the regular weekly tours on the Italian Sculpture in the Samuel H. Kress Collection. Hereward Lester Cooke lectured at Washington University in St. Louis on "Picasso in the Chester Dale Collection."

Mr. Cooke assisted in the judging of seven art exhibitions during the course of the year in Maryland, Virginia, and the District of Columbia.

Mr. Walker served as trustee of the American Federation of Arts, the American Academy in Rome, and the Bureau of University Travel. He also served on the following committees: Dumbarton Oaks Visiting Committee; Harvard University Press Visiting Committee; Advisory Council, University of Notre Dame. Mr. Walker is also a member of the United States National Commission for UNESCO. Perry B. Cott served as a member of the Board of Governors of the Archaeological Institute of America, Washington Society. Katharine Shepard served as secretary of this organization and was official delegate to its General Meeting in Chicago.

For the first half of the year members of the curatorial staff were intensively engaged in the preparation of new installations and re-hanging of the Samuel H. Kress Collection, which was opened to the public on March 18. These included 26 galleries containing paintings, 6 galleries containing sculpture, and 3 rooms especially designed for the exhibition of Renaissance bronzes. These installations were under the supervision of the Director, Dr. Finley; the Chief Curator, Mr. Walker; and Mr. Cott.

#### RESTORATION

Francis Sullivan, Resident Restorer of the Gallery, made regular and systematic inspection of all works of art in the Gallery's collections and on loan at the Gallery, and periodically removed dust and bloom as required. Mr. Sullivan relined 12 paintings, cleaned and

restored 21 paintings, and gave special treatment as required on 10 paintings. Fourteen paintings were X-rayed as an aid in research. The X-ray developing baths were redesigned, and experiments were continued with the application of 27H and other synthetic varnishes developed by the National Gallery of Art Fellowship at the Mellon Institute of Industrial Research, Pittsburgh, Pa. Proofs of all color reproductions of Gallery paintings were checked and approved, and technical advice on the conservation of paintings was furnished to the public upon request.

Mr. Sullivan also gave advice on and special treatment to works of art belonging to other Government agencies including The White House, the Freer Gallery of Art, and the Smithsonian Institution.

#### PUBLICATIONS

John Walker wrote the text for a portfolio of paintings which was published by the Harry N. Abrams Co. in the spring. Mr. Cott contributed an article to the Orange Disc, published by the Gulf Oil Co. Mrs. Fern R. Shapley was coauthor with Dr. William Suida of the painting section of the catalog, "Paintings and Sculpture from the Kress Collection acquired by the Samuel H. Kress Foundation, 1951-1956." Mr. Pancoast compiled the text of the sculpture section of the same catalog. An article by Mrs. Shapley on "The Holy Family" by Giorgione appeared in the winter issue of the Art Quarterly. She also wrote an article on the Gallery acquisitions 1945-54 which was published in *The Studio*. Mr. Christensen's book entitled "Primitive Art" was published by Crowell-Studio in the fall. He also revised the Gallery handbook on Chinese porcelains. Mr. Cooke contributed an article to the *College Art Journal* on "The Exhibition of German Drawings at the National Gallery of Art."

Mr. Cooke wrote an article for the *Burlington Magazine* entitled "Three Unknown Drawings by G. L. Bernini." He also prepared a series of ten short articles for publication in the *Ladies Home Journal*. Three of these articles have appeared this year. An article by Mr. Cooke entitled, "Il Museo e gli Artisti" appeared in *Atti del convegno di Museologia*, Ministry of Public Instruction, Rome. Mr. Cooke prepared the texts for 20 brief articles which were published to accompany reproductions of paintings in the Samuel H. Kress Collection, which are on sale in Kress stores throughout the country.

During the past fiscal year the Publications Fund published 44 new 11-x-14" color reproductions and a new color postcard, and made plates of two prints for new Christmas folders; four additional new color postcards were also on order. Three more large collotype reproductions of paintings on exhibition, distributed by a New York publisher, were placed on sale.



Portfolio No. 5 entitled "Masterpieces of the Samuel H. Kress Collection, 1956" was published, as well as a catalog of the 1956 exhibition of paintings acquired by the Samuel H. Kress Foundation. A fourth printing of Handbook No. 1, "How to Look at Works of Art; the Search for Line," was on order, and a book entitled "A Gallery of Children" covering paintings of children in the National Gallery was placed on sale.

Exhibition catalogs of the Asian Artists in Crystal, German Drawings, and A Century and a Half of Painting in Argentina exhibitions were distributed.

#### EDUCATIONAL PROGRAM

The attendance for the general tours, Congressional tours, "Tours for the Week," and "Pictures of the Week," totaled 45,797, while that for the 42 auditorium lectures on Sunday afternoons was approximately 9,470 during the fiscal year 1956.

Tours, lectures, and conferences arranged by appointment were given to 299 groups and individuals. The total number of people served in this manner was 7,290. This is an increase of 43 groups and 1,248 people served over last year. These special appointments were made for such groups as representatives from leading high schools, universities, museums, other governmental agencies, and distinguished visitors.

Three separate training programs for selected members of the Junior League and the American Association of University Women of Arlington County and Montgomery County were carried forward during the year in connection with the programs of those organizations to assist school children in tours of the Gallery. This training was under the general supervision of the Curator in Charge of Education and the specific supervision of members of the Education Department staff.

Lecture programs on "American Cultural Life" were prepared for librarian members of the USIA and for members of the State Department, who may act as cultural attachés on overseas duty. The lectures for these are given by three members of the Education Department, joined by the Curator of the Index of American Design and a representative from the National Trust for Historic Preservation in America.

The staff of the Education Office delivered 9 lectures in the auditorium on Sunday afternoons, while 33 were given by guest speakers. During April and May, Prof. Ernst H. Gombrich, lecturer at the Warburg Institute in London and Slade Professor of Fine Arts at Oxford, delivered the Fifth Annual Series of seven A. W. Mellon Lectures in the Fine Arts, on the theme "The Visible World and the Language of Art."

During the past year 184 persons borrowed 4,996 slides from the lending collection. The centers throughout the country which distribute the National Gallery of Art film, report that approximately 55,538 viewers throughout the country saw the film in 298 bookings.

Members of the Education Department prepared and recorded 34 broadcasts for use during intermission periods of the National Gallery concerts.

The printed Calendar of Events announcing all Gallery activities and publications is distributed monthly to a mailing list of approximately 5,100 names.

#### LIBRARY

The most important acquisitions to the Library this year were 2,140 books, pamphlets, periodicals, subscriptions and photographs purchased from private funds made available for this purpose. Gifts included 296 books, pamphlets, and periodicals, while 663 books, pamphlets, periodicals, and bulletins were received on exchange from other institutions. More than 400 persons other than Gallery staff spent time in the Library for study or research during this fiscal year. More than 600 reference requests were answered by telephone.

The Library is the depository for photographs of the works of art in the collections of the National Gallery of Art. A stock of reproductions is maintained for use in research occupations by the curatorial staff and other departments of the Gallery; for the dissemination of knowledge to qualified sources; for exchange with other institutions; for reproduction in scholarly works; and for sale at the request of any interested individual.

#### INDEX OF AMERICAN DESIGN

The Curator in Charge of the Index of American Design continued to take part in the orientation program for United States Information Agency personnel with a series of eleven 50-minute illustrated lectures given in the National Gallery auditorium.

A new project of lecture notes for 20 loan sets of 2-x-2" color slides was begun, for the purpose of making the slide sets more useful to students and lecturers. Arrangements have been made to offer Index slide sets for sale to individuals and institutions.

Approximately 668 persons (566 of whom were new users) studied Index material during the fiscal year for the purpose of special research, exhibition, gathering material for publication and design, and by those wanting to become familiar with the collection.

There were 37 sets of 2-x-2" color slides (consisting of 1,444 slides in all) circulated in 84 bookings in 18 States and Alaska.

Mr. Christensen contributed two articles to historical bulletins and delivered seven lectures to art and museum groups throughout the country.

#### MAINTENANCE OF BUILDING AND GROUNDS

The building, its mechanical equipment, and the grounds were maintained at the established standard throughout the year.

Rolling screens in art storage room G-35 were installed by contract in June 1956. A cold house was constructed by the Gallery staff in the southwest moat area to control the development of plants propagated in the greenhouse, thereby making available a wider variety of flower and plant decorations for the Garden Courts and special events.

Gallery 25 was altered so that the Titian painting "Saint John on Patmos" could be exhibited on the ceiling with special lighting.

Two additional gallery rooms, galleries 49 and 50, were completed in March 1956.

A portion of the Library area was remodeled, and the space divided into three rooms in which the Samuel H. Kress collection of Renaissance bronzes has been installed.

#### OTHER ACTIVITIES

Forty Sunday evening concerts were given during the fiscal year 1956 in the East Garden Court. The National Gallery Orchestra, conducted by Richard Bales, played 11 concerts at the Gallery. Two of the orchestral concerts were made possible by the Music Performance Trust Fund of the American Federation of Musicians. Between May 13 and June 10, 1956, five Sunday evenings were devoted to the Gallery's Thirteenth American Music Festival. All the concerts were broadcast in their entirety by Station WGMS-AM and FM, Washington, and the Good Music Network. The National Gallery concert on June 10, 1956, featured the premiere performance of Richard Bales' "The Union," a cantata on music of the North during the years 1861-1865. During the fiscal year 16 works by American composers were given their first Washington performance; and 4 were given world premieres.

The Photographic Laboratory of the Gallery produced 11,148 prints, 300 black-and-white slides, 1,131 color slides, 170 color transparencies, in addition to 1,868 negatives, color-separation negatives, infrared and ultraviolet photographs, and X-ray shadowgraphs; also 1,705 lantern slides were bound.

During the fiscal year 4,246 copies of 16 press releases were issued in connection with Gallery activities, while 190 permits to copy, and 171 permits to photograph in the Gallery were also issued.

## OTHER GIFTS

Gifts of money were made during the fiscal year 1956 by the Old Dominion Foundation, the Avalon Foundation, Lessing J. Rosenwald, Douglas Dillon, Mrs. George M. Humphrey, and Louis B. Fleming.

## AUDIT OF PRIVATE FUNDS OF THE GALLERY

An audit of the private funds of the Gallery has been made for the fiscal year ended June 30, 1956, 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, 1956:

The acquisitions section recorded the receipt of 78,715 publications during the year, the larger number of which came, as usual, from scientific, technical, and cultural organizations all over the world, in exchange for Smithsonian publications. There were 237 new exchanges arranged, and issuing agencies, new and old, were generous in supplying 3,124 publications, mostly parts of periodicals and other serials, needed to fill gaps in the collections.

In moving its quarters from the Arts and Industries Building, the American Association of Museums generously turned over to the library more than 30,000 books, periodicals, and pamphlets which had served their purpose in the offices of the Association. Many items from this rich collection have already been added to the library, some 12,000 pieces found to be duplicates or otherwise not needed were sent to the United States Book Exchange for exchange credit, and the checking and processing of the remainder of the material are still in progress.

The library is greatly indebted to other organizations and to the many individual donors who sent multiple or single gifts of books and papers. Many members of the staff of the Institution were thoughtful and generous in making gifts of books and papers frequently throughout the year.

From the estate of the late Gerrit S. Miller, Jr., came 537 volumes selected from Mr. Miller's large personal library. The majority of them were works on mammals and other zoological subjects, but the others reflected the catholic interests and cultivated tastes of this distinguished former member of the Smithsonian staff.

Mrs. John P. Marble's gift of 157 handsomely bound volumes of journals and individual works on geochemistry, from the library of her late husband, was also a noteworthy addition.

Probably no library ever has enough money for the purchase of books, and the Smithsonian library is certainly no exception. Faced with the responsibility of serving the whole Institution with the literature needed by the curators and other specialists working in many different subject fields, books and journals that cannot be obtained in exchange or as gifts must be selected with great care for purchase from

limited funds. The general principle of selection is that priority shall be given to important works of reference for the common use of all, and to primary sources of special information. After buying 575 books and subscribing to 426 periodicals, funds for the year were exhausted, leaving large numbers of requisitions still unprocessed in the acquisitions section.

There was little opportunity to reduce the library's continuing file of desiderata among the out-of-print source books so important in museum work. Far too seldom are there funds available when one or another of these works appears, unpredictably, in the old-book market. The library has no interest in acquiring collectors' items, *per se*, but a good many of the most-needed older books, especially in the fields of natural history and the fine arts, fall into that category and are likely to be prohibitively costly. One of the library's continually recurring problems is how to get the use of rare books not in its own collections. Rare books seldom can be borrowed from other libraries, microfilms are not very satisfactory, especially when they must be read and referred to in comparison with specimens, and photostats of more than a few pages are likely to be almost as expensive as the original works.

The library added 5,918 publications to the Smithsonian Deposit, and sent more than 20,000 other publications to the Library of Congress without recording them individually. These included doctoral dissertations, foreign and state documents, and miscellaneous books, papers, and periodicals on subjects not pertinent to the work of the Institution. There were 657 medical dissertations sent to the Armed Forces Medical Library.

The catalog section classified and cataloged 4,784 volumes, entered 20,534 periodicals, and filed 29,553 catalog cards. In the latter part of the year, the staff of the section, after an initial survey of the very large accumulation of wholly or incompletely cataloged material in the library of the Bureau of American Ethnology, made a very good beginning in sorting and arranging it for processing or other disposition. With the advice of the Director of the Bureau, 2,675 of the pieces so far handled were discarded. The work will be continued, as time permits, during the coming year.

The library recorded the loan of 9,276 volumes, 1,127 of which were interlibrary loans to 88 different libraries throughout the United States. The record of intramural loans never represents more than a fractional part of the circulation of books and periodicals among members of the staff of the Institution. Publications assigned to the different sectional libraries for filing circulate freely within the section, without being counted, except in the Division of Insects where

there is a member of the library staff in charge of the sectional library. Most of the 4,247 currently acquired publications assigned to sectional libraries during the year probably circulated within the respective sections, in addition to the circulation of the books and periodicals previously assigned. No reasonably accurate numerical estimate of the actual use of books throughout the Institution can be made.

The reference service of the library is the most difficult to measure statistically. To say that more than 13,000 reference questions were answered is to give no idea of the time, ingenuity, and imagination required to find the answers to many of the more perplexing questions asked. There was a time, not too long ago, when little was expected of librarians except to be custodians of books. The prime requirement of the library nowadays is service from and through books. Many years ago, Lord Rayleigh said, "By a fiction as remarkable as any to be found in law, what has once been published . . . is usually spoken of as 'known' and it is often forgotten that the rediscovery in the library may be a more difficult and uncertain process than the first discovery in the laboratory." All the modern refinements of cataloging and the invention of fabulous fact-finding push-button machines are directed toward making "rediscovery" easy, but in the last analysis the ultimate dependence is still upon human brains and skills.

For the first time in many years, a much-increased allotment for library binding made it possible not only to send current periodicals to the bindery as soon as each volume was completed, but to reduce the arrearage of binding or rebinding of older periodicals and books to a very considerable extent. It is gratifying to report that 8,016 volumes were sent to the bindery, and that 1,386 worn and fragile volumes requiring special handling were expertly repaired in the library.

There were several major changes in the staff during the year. The death of Mrs. Hope Hanna Simmons, chief of the acquisitions section, on June 16, 1956, was a sad loss. Mrs. Simmons had served the library most efficiently since 1927.

Miss Minna Gill, chief of the catalog section, resigned on November 30, 1955, and Mrs. Ruth W. Dawson, also of the catalog section, retired on December 31, after more than 30 years of service. Miss Ruth Blanchard was appointed chief of the catalog section on January 23, 1956.

The most serious handicaps to good library service continue to be the scattered and inefficiently arranged housing of the library, overcrowding of the shelves, the need for a larger staff of trained assistants, and for more money to buy books.

## SUMMARIZED STATISTICS

## ACCESSIONS

	Volumes	Total recorded volumes, 1956
Smithsonian Deposit at the Library of Congress	855	586, 447
Smithsonian main library (including former Office and Museum libraries)	3, 106	300, 383
Astrophysical Observatory (including Radiation and Organisms)	141	14, 842
Bureau of American Ethnology	387	35, 977
National Air Museum	98	433
National Collection of Fine Arts	161	13, 870
National Zoological Park	0	4, 205
Total	4, 748	956, 157

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	237
Specially requested publications received	3, 124

## CATALOGING

Volumes cataloged	4, 748
Catalog cards filed	29, 553

## PERIODICALS

Periodical parts entered	20, 534
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5,089 were sent to the Smithsonian Deposit.

## CIRCULATION

Loans of books and periodicals	9, 276
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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, 016
Volumes repaired in the library	1, 386

Respectfully submitted.

LEILA F. CLARK, *Librarian.*

Dr. LEONARD CARMICHAEL,  
*Secretary, Smithsonian Institution.*



## Report on Publications

SIR: I have the honor to submit the following report on the publications of the Smithsonian and its branches for the year ended June 30, 1956:

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, the National Collection of Fine Arts, and the Astrophysical Observatory) and partly from private endowment funds (Smithsonian Miscellaneous Collections, publications of the Freer Gallery of Art, and some special publications). The Institution also edits and publishes under the auspices of the Freer Gallery of Art the series *Ars Orientalis*, which appears under the joint imprint of the University of Michigan and the Smithsonian Institution. The second volume in this series was ready to go to the printer at the end of the year. In addition, the Smithsonian publishes a guide book, a picture pamphlet, postcards and a postcard folder, a color-picture album, color slides, 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 13 papers and title page and contents of 3 volumes in the Miscellaneous Collections; 1 Annual Report of the Board of Regents and separates of 18 articles in the Report Appendix; 1 Annual Report of the Secretary; reprints of 3 papers in the Miscellaneous Collections and 1 Report separate; and 1 special publication.

The United States National Museum issued 1 Annual Report, 24 Proceedings papers, 1 Bulletin, and 1 paper in the series Contributions from the United States National Herbarium.

The Bureau of American Ethnology issued 1 Annual Report and 1 Bulletin.

The Smithsonian Institution Traveling Exhibition Service, under the National Collection of Fine Arts, published special catalogs for 6 of its circulating exhibits, and a catalog of its available exhibits for 1956-1957.

The Freer Gallery of Art issued title page and contents of volume 2 of its Occasional Papers series, and 4 special publications.

There were distributed 424,389 copies of publications and miscellaneous items. Publications: 58 Contributions to knowledge, 32,131 Miscellaneous Collections, 9,126 Annual Reports and 16,561 pamphlet copies of Report separates, 629 War Background Studies, 19,463 special publications, 231 reports of the Harriman Alaska Expedition, 61,060 publications of the National Museum, 17,018 publications of the Bureau of American Ethnology, 30,351 publications of the National Collection of Fine Arts, 37 publications of the Astrophysical Observatory, 19 publications of the Freer Gallery of Art, 4,137 reports of the American Historical Association, and 1,906 publications not issued by the Smithsonian Institution. Miscellaneous: 202 sets and 10,013 prints of North American Wildflowers and 1 Pitcher Plant volume, 44,933 Guide Books, 19,713 picture pamphlets, 74,571 postcards and 12,180 postcard folders, 4,260 photo sets, 8,482 color slides, 10,621 color picture albums, 47,765 information leaflets, 23 New Museum of History and Technology pamphlets, and 98 statuettes.

The 1956 allotment from Government funds of \$162,000 for printing and binding was entirely obligated at the close of the year.

The Astrophysical Observatory during the year inaugurated a new series entitled Smithsonian Contributions to Astrophysics, which will publish the results of the research of the Observatory and its collaborators, with particular emphasis on problems of the study of the sun, the earth, and the solar system. At the close of the year the first number of the new series was in press, consisting of a group of papers under the general title "New Horizons in Astronomy" and supported jointly by the National Science Foundation.

## SMITHSONIAN PUBLICATIONS

### SMITHSONIAN MISCELLANEOUS COLLECTIONS

#### VOLUME 126

- No. 1. The Bromeliaceae of Brazil, by Lyman B. Smith. 290 pp., 129 figs. (Publ. 4184.) September 7, 1955. (\$3.50.)

#### VOLUME 127

- Chazyan and related brachiopods, by G. Arthur Cooper. Pt. I, text, pp. i-xvi+1-1024; Pt. II, plates (269), with legends, pp. 1025-1245. (Publ. 4253.) June 12, 1956. (\$20.00.)

#### VOLUME 128

- No. 5. Revision of some Recent foraminiferal genera, by Alfred R. Loeblich, Jr., and Helen Tappan. 37 pp., 4 figs. (Publ. 4214.) July 21, 1955. (45 cents.)  
 No. 7. Lower Cambrian ptychopariid trilobites from the conglomerates of Quebec, by Franco Rasetti. 35 pp., 6 pls. (Publ. 4216.) Aug. 11, 1955. (60 cents.)  
 No. 8. A review of the upper Eocene Artiodactyla of North America, by C. Lewis Gazin. 96 pp., 18 pls., 2 figs. (Publ. 4217.) September 28, 1955. (\$1.60.)  
 No. 9. Distribution and ecology of the marine invertebrates of Point Barrow, Alaska, by G. E. MacGinitie. 201 pp., 8 pls., 3 figs. (Publ. 4221.) November 30, 1955. (\$2.25.)

## VOLUME 131

- No. 1. Leading operations of the Smithsonian Astrophysical Observatory, 1895-1955, by C. G. Abbot. 8 pp. (Publ. 4222.) September 22, 1955. (15 cents.)
- No. 2. The last cruise of H. M. S. *Loo*, by Mendel L. Peterson. 55 pp., 17 pls., 3 figs. (Publ. 4224.) November 23, 1955. (\$1.00.)
- No. 3. Synonymical notes on neotropical flies of the family Tabanidae (Diptera), by G. B. Fairchild. 38 pp. (Publ. 4225.) January 11, 1955. (60 cents.)
- No. 4. New Cretaceous Brachiopoda from Arizona, by G. Arthur Cooper. 18 pp., 4 pls. (Publ. 4227.) December 21, 1955. (45 cents.)
- No. 5. A checklist of fossil and prehistoric birds of North America and the West Indies, by Alexander Wetmore. 105 pp. (Publ. 4228.) January 25, 1956. (70 cents.)
- No. 6. Paleocene mammalian faunas of the Bison Basin in south-central Wyoming, by C. Lewis Gazin. 57 pp., 16 pls., 2 figs. (Publ. 4229.) February 28, 1956. (\$1.00)

## VOLUME 132

An index to the genera and species of the Foraminifera, Parts 1 and 2, by Charles Davies Sherborn, with foreword by Alfred R. Loeblich. (Reprint of Smithsonian Miscellaneous Collections Publs. 856 and 1031.) 485 pp. (Publ. 4226.) August 18, 1955. (\$3.50.)

## ANNUAL REPORTS

*Report for 1954.*—The complete volume of the Annual Report of the Board of Regents for 1954 was received from the printer October 17, 1955:

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, 1954. ix+455 pp., 77 pls., 29 figs. (Publ. 4190.)

The general appendix contained the following papers (Publs. 4191-4208):

- The nature of the upper atmosphere, by H. S. W. Massey.
- Solar influence on the earth, by John W. Evans.
- Fifty years of flying progress, by Grover Loening.
- Tektites and the lost planet, by Ralph Stair.
- On comparing the brain with machines, by D. M. MacKay.
- A glimpse of incomprehensibles, by George W. Corner.
- The electron microscope in biology, by Ralph W. G. Wyckoff.
- The spread of the cattle egret, by Alexander Sprunt, Jr.
- The migration of mammals, by L. Harrison Matthews.
- The flight of animals, by James Gray.
- Botanical studies in Fiji, by Albert C. Smith.
- The romance of domesticated plants, by Glenn W. Blaydes.
- The scientific detection of crime, by Charles Sannié.
- The great Piltdown hoax, by William L. Straus, Jr.
- Our State names, by John P. Harrington.
- Shanidar cave, a Paleolithic site in northern Iraq, by Ralph S. Solecki.
- Medicine, warfare, and history, by John F. Fulton.
- Harriet Lane Johnston and the National Collection of Fine Arts, by Thomas M. Beggs.

*Report for 1955.*—The Report of the Secretary, which will form part of the Annual Report of the Board of Regents to Congress, was issued January 13, 1956:

Report of the Secretary of the Smithsonian Institution and financial report of the Executive Committee of the Board of Regents for the year ended June 30, 1955. ix+173 pp., 7 pls. (Publ. 4230.)

#### REPRINTS

- Utilizing heat from the sun, by C. G. Abbot. Smithsonian Misc. Coll., vol. 98, No. 5, 11 pp., 4 pls., 1 fig. (Publ. 3530.) (30 cents.)  
 Smithsonian Physical Tables, compiled by W. E. Forsythe. Smithsonian Misc. Coll., vol. 120 (whole vol.). (Publ. 4169.) (\$10.00.)  
 Solar variation a leading weather element, by C. G. Abbot. Smithsonian Misc. Coll., vol. 122, No. 4, 35 pp., 22 figs. (Publ. 4135.) (60 cents.)  
 Solar radiation as a power source, by C. G. Abbot. Smithsonian Ann. Rep. 1943, 9 pp., 3 pls., 3 figs. (Publ. 3742.)  
 The Smithsonian Institution. 35 pp., 15 pls. (Publ. 4145.) 1956. (50 cents.)

#### PUBLICATIONS OF THE UNITED STATES NATIONAL MUSEUM

##### REPORT

The United States National Museum annual report for the year ended June 30, 1955. v+102 pp., illustr. [1956.]

##### PROCEEDINGS

###### VOLUME 102

Title page, table of contents, and index. Pp. i-iv, 529-549. February 13, 1956.

###### VOLUME 103

Title page, table of contents, and index. Pp. i-v, 633-667. March 12, 1956.

###### VOLUME 104

- No. 3342. Biology and taxonomy of North American beetles of the subfamily Geotrupinae, with revisions of the genera *Bolbocerosoma*, *Eucanthus*, *Geotrupes*, and *Peltotrupes* (Scarabaeidae), by Henry F. Howden. Pp. 151-319, pls. 1-18. November 28, 1955.  
 No. 3343. Fruit flies of the genus *Tomoplagia* Coquillett (Diptera, Terphritidae), by Martin L. Aczél. Pp. 321-411, figs. 90-102, pls. 19-26. September 28, 1955.  
 No. 3344. Scarab beetles of the genus *Psammodyus* in the Western Hemisphere, by O. L. Cartwright. Pp. 413-462. August 24, 1955.  
 No. 3345. A further contribution to the ornithology of northeastern Venezuela, by Herbert Friedmann and Foster D. Smith, Jr. Pp. 463-524, figs. 103-107, pls. 27-30. December 2, 1955.  
 No. 3346. Modifications of pattern in the aortic arch system of birds and their phylogenetic significance, by Fred H. Glenny. Pp. 525-621, figs. 108-119. December 16, 1955.  
 No. 3347. Fishes of the family Percophididae from the coasts of eastern United States and the West Indies, with descriptions of four new species, by Isaac Ginsburg. Pp. 623-639, figs. 120-122. October 13, 1955.  
 No. 3348. Neotropical Miridae, LXV: New genera and species of bugs of the tribe Termatophylini (Hemiptera: Deraeocorinae), by José C. M. Carvalho. Pp. 641-649, fig. 123, pl. 31. October 27, 1955.

## VOLUME 105

- No. 3349. Notes on shrimps from the Marshall Islands, by Fenner A. Chace, Jr. Pp. 1-22, 8 figs. August 12, 1955.
- No. 3350. Lanternflies of the family Issidae of the Lesser Antilles (Homoptera: Fulgoroidea), by R. G. Fennah. Pp. 23-47, 5 figs. November 23, 1955.
- No. 3351. An anatomical study of the peregrine megascolecoid earthworm *Pheretima hupeiensis* in the eastern United States, by William C. Grant, Jr. Pp. 49-63, 4 figs. October 17, 1955.
- No. 3352. Some polyclad flatworms from Polynesia and Micronesia, by Libbie H. Hyman. Pp. 65-82, 5 figs. September 6, 1955.
- No. 3353. Biting lice of the genus *Saemundssonina* (Mallophaga: Philopteridae) occurring on terns, by Ronald A. Ward. Pp. 83-100, 1 fig. September 8, 1955.
- No. 3354. Three Miocene porpoises from the Calvert Cliffs, Maryland, by Remington Kellogg. Pp. 101-154, 1 fig., 21 pls. December 14, 1955.
- No. 3355. A review of the New World flies of the genus *Conops* and allies (Diptera: Conopidae), by Sidney Camras. Pp. 155-187. September 28, 1955.
- No. 3356. Populations of the berycoid fish family Polymixiidae, by Ernest A. Lachner. Pp. 189-206, 1 pl. October 21, 1955.
- No. 3357. Contributions to the nomenclature, systematics, and morphology of the Octocorallia, by Frederick M. Bayer. Pp. 207-220, 8 pls. December 21, 1955.
- No. 3358. Bryozoa of the United States Navy's 1947-1948 Antarctic Expedition, I-IV, by Mary D. Rogick. Pp. 221-317, 35 pls. March 13, 1956.
- No. 3359. Type species of the genera and subgenera of parasitic wasps comprising the superfamily Proctotrupoidea (order Hymenoptera), by C. F. W. Muesebeck and Luella M. Walkley. Pp. 319-419. February 16, 1956.
- No. 3360. The Spongilla-flies, with special reference to those of the Western Hemisphere (Sisyridae, Neuroptera), by Sophy I. Parfin and Ashley B. Gurney. Pp. 421-529, 24 figs., 3 pls. May 16, 1956.
- No. 3361. Marine polychaete worms from Labrador, by Marian H. Pettibone. Pp. 531-584, 1 fig. March 29, 1956.

## VOLUME 106

- No. 3362. Revision of the milliped genus *Dixioria* (Polydesmida: Xystodesmidae), by Richard L. Hoffman. Pp. 1-19, 4 figs. March 29, 1956.
- No. 3363. A revision of the flies of the genus *Rivellia* (Otitidae, Diptera) of America north of México, by Ryoji Namba. Pp. 21-84, 10 figs. June 5, 1956.

## BULLETINS

208. The honey-guides, by Herbert Friedmann. vii+292 pp., 6 figs., 25 pls. October 20, 1955.

## CONTRIBUTIONS FROM THE U. S. NATIONAL HERBARIUM

## VOLUME 32

- Part 1. The American species of *Aeschynomene*, by Velva E. Rudd. iii+172 pp., 10 figs. October 13, 1955.

## PUBLICATIONS OF THE BUREAU OF AMERICAN ETHNOLOGY

## ANNUAL REPORT

- Seventy-second Annual Report of the Bureau of American Ethnology, 1954-1955. ii+24 pp. 1956.

## BULLETIN

Bulletin 163. *The Diné: Origin myths of the Navaho Indians*, by Aileen O'Bryan. vii+187 pp., 1 pl., 24 figs. June 27, 1956.

## PUBLICATIONS OF THE NATIONAL COLLECTION OF FINE ARTS

- Contemporary Finnish architecture. (Smithsonian Institution Traveling Exhibition Service catalog.) 20 pp., illustr. [October 1955.]
- German drawings. Masterpieces from five centuries. (Smithsonian Institution Traveling Exhibition Service catalog.) 59 pp., illustr. [November 1955.]
- Tapestries by Hannah Ryggen. (Smithsonian Institution Traveling Exhibition Service catalog.) 8 pp., illustr. [November 1955.]
- Photographs of Venetian villas. (Smithsonian Institution Traveling Exhibition catalog.) 13 pp., illustr. [November 1955.]
- Smithsonian Institution Traveling Exhibitions. 1956-1957 catalog. (Smithsonian Institution Traveling Exhibition Service catalog.) [1956.]
- Italian arts and crafts. (Smithsonian Institution Traveling Exhibition catalog.) 15 pp., illustr. [February 1956.]
- Finnish crafts. Tapio Wirkkala and Rut Bryk. (Smithsonian Institution Traveling Exhibition catalog.) 13 pp., illustr. [April 1956.]

## PUBLICATIONS OF THE FREER GALLERY OF ART

- Title page and table of contents, *Occasional Papers*, vol. 2. (Publ. 4223.) [September] 1955.
- The Charles Lang Freer Medal (first presentation). Booklet containing a partial bibliography by Prof. Osvald Sirén.
- Charles Lang Freer Centennial Exhibition (1856-1956). Booklet listing objects on exhibition in galleries.
- First presentation of the Charles Lang Freer Medal. 27 pp., 3 pls. February 25, 1956.
- Chinese porcelains from the Ardebil Shrine, by John Alexander Pope. 194 pp., 142 pls., 19 figs. [June] 1956. (Publ. 4231.)

## REPORT OF THE AMERICAN HISTORICAL ASSOCIATION

The annual reports of the American Historical Association are transmitted by the Association to the Secretary of the Smithsonian Institution and are by him communicated to Congress, as provided in the act of incorporation of the Association. The following reports were issued during the year:

- Annual Report of the American Historical Association for the year 1953. Vol. 2. *Writings on American History, 1951.* 544 pp. 1956.
- Annual Report of the American Historical Association for the year 1954. Vol. 1. *Proceedings and list of members.* 179 pp. 1956.

REPORT OF THE NATIONAL SOCIETY, DAUGHTERS OF THE AMERICAN  
REVOLUTION

The manuscript of the Fifty-eighth Report of the National Society, Daughters of the American Revolution, was transmitted to Congress, in accordance with law, on April 4, 1956.

Respectfully submitted.

PAUL H. OEHSER,  
*Chief, Editorial and Publications Division.*

Dr. LEONARD CARMICHAEL,  
*Secretary, Smithsonian Institution.*

# Report of the Executive Committee of the Board of Regents of the Smithsonian Institution

For the Year Ended June 30, 1956

*To the Board of Regents of the Smithsonian Institution:*

Your executive committee respectfully submits the following report in relation to the funds of the Smithsonian Institution, together with a statement of the appropriations by Congress for the Government bureaus in the administrative charge of the Institution.

## SMITHSONIAN ENDOWMENT FUND

The original bequest of James Smithson was £104,960 8s. 6d.—\$508,318.46. Refunds of money expended in prosecution of the claim, freight, insurance, and other incidental expenses, together with payment into the fund of the sum of £5,015, which had been withheld during the lifetime of Madame de la Batut, brought the fund to the amount of \$550,000.

Since the original bequest, the Institution has received gifts from various sources, the income from which may be used for the general work of the Institution. These, plus accretions, are listed below, together with a statement showing the income for the present year.

### ENDOWMENT FUNDS

(Income for the unrestricted use of the Institution)

Partly deposited in the United States Treasury at 6 percent and partly invested in stocks, bonds, and other holdings

Fund	Investment 1956	Income 1956
Parent fund (original Smithson bequest, plus accumulated savings) . . .	\$729, 190. 53	\$43, 739. 96
Subsequent bequests, gifts, and other funds, partly deposited in the U. S. Treasury and partly invested in the consolidated fund:		
Abbott, W. L., special . . . . .	18, 922. 27	967. 93
Avery, Robert S., and Lydia . . . . .	64, 167. 58	3, 478. 68
Endowment . . . . .	448, 899. 22	23, 449. 59
Habel, Dr. S. . . . .	500. 00	30. 00
Hachenberg, George P., and Caroline . . . . .	5, 107. 95	268. 66
Hamilton, James . . . . .	3, 012. 70	176. 97
Henry, Caroline . . . . .	1, 536. 06	80. 79
Hodgkins, Thomas G . . . . .	154, 474. 02	8, 983. 63
Olmsted, Helen A . . . . .	1, 017. 56	18. 44
Porter, Henry Kirke . . . . .	363, 745. 33	19, 132. 12
Rhees, William Jones . . . . .	1, 190. 89	67. 02
Sanford, George H. . . . .	2, 230. 62	125. 47
Witherspoon, Thomas A . . . . .	163, 905. 23	8, 621. 03
Total . . . . .	1, 228, 709. 43	65, 400. 33
Grand total . . . . .	1, 957, 899. 96	109, 140. 29



The Institution holds also a number of endowment gifts, the income of each being restricted to specific use. These, plus accretions to date, are listed below, together with income for the present year.

Fund	Investment 1956	Income 1956
Abbott, William L., for investigations in biology.....	\$132,709.55	\$6,952.38
Arthur, James, for investigations and study of the sun and annual lecture on same.....	50,795.15	2,671.68
Bacon, Virginia Purdy, for traveling scholarship to investigate fauna of countries other than the United States.....	63,632.50	3,346.93
Baird, Lucy H., for creating a memorial to Secretary Baird.....	30,579.78	1,608.40
Barney, Alice Pike, for collection of paintings and pastels and for encouragement of American artistic endeavor.....	36,428.22	1,916.04
Barstow, Frederick D., for purchase of animals for Zoological Park.....	1,269.78	66.72
Canfield Collection, for increase and care of the Canfield collection of minerals.....	48,577.20	2,555.02
Casey, Thomas L., for maintenance of the Casey collection and promotion of researches relating to Coleoptera.....	15,919.92	837.37
Chamberlain, Francis Lea, for increase and promotion of Isaac Lea collection of gems and mollusks.....	35,766.35	1,881.21
Dykes, Charles, for support in financial research.....	54,687.82	2,876.11
Eickemeyer, Florence Brevoort, for preservation and exhibition of the photographic collection of Rudolph Eickemeyer, Jr.....	13,805.60	726.13
Hillyer, Virgil, for increase and care of Virgil Hillyer collection of lighting objects.....	8,347.27	439.03
Hitchcock, Albert S., for care of the Hitchcock Agrostological Library.....	2,004.11	105.43
Hodgkins, specific, for increase and diffusion of more exact knowledge in regard to nature and properties of atmospheric air.....	100,000.00	6,000.00
Hrdlička, Aleš and Marie, to further researches in physical anthropology and publication in connection therewith.....	47,170.96	2,358.30
Hughes, Bruce, to found Hughes alcove.....	24,311.23	1,278.73
Loeb, Morris, for furtherance of knowledge in the exact sciences.....	110,691.94	5,822.10
Long, Annette and Edith C., for upkeep and preservation of Long collection of embroideries, laces, and textiles.....	689.64	36.27
Maxwell, Mary E., for care and exhibition of Maxwell collection.....	24,912.29	1,310.34
Myer, Catherine Walden, for purchase of first-class works of art for use and benefit of the National Collection of Fine Arts.....	25,654.56	1,349.38
Nelson, Edward W., for support of biological studies.....	21,121.66	987.37
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.....	1,220.25	64.18
Pell, Cornelia Livingston, for maintenance of Alfred Duane Pell collection.....	9,414.49	495.18
Poore, Lucy T. and George W., for general use of the Institution when principal amounts to \$250,000.....	206,261.18	10,498.81
Rathbun, Richard, for use of division of U. S. National Museum containing Crustacea.....	13,508.64	710.52
Reid, Addison T., for founding chair in biology, in memory of Asher Tunis.....	33,983.01	1,857.14
Roebing Collection, for care, improvement, and increase of Roebing collection of minerals.....	153,284.82	8,062.39
Roebing Solar Research.....	43,539.32	2,290.07
Rollins, Miriam and William, for investigations in physics and chemistry.....	119,258.21	6,272.71
Smithsonian employees' retirement.....	32,571.49	1,744.56
Springer, Frank, for care and increase of the Springer collection and library.....	22,776.34	1,198.00
Strong, Julia D., for benefit of the National Collection of Fine Arts.....	12,698.95	667.93
Walcott, Charles D. and Mary Vaux, for development of geological and paleontological studies and publishing results of same.....	606,998.14	31,980.87
Walcott, Mary Vaux, for publications in botany.....	73,519.36	3,866.91
Younger, Helen Walcott, held in trust.....	82,899.00	4,382.46
Zerbee, Frances Brinckle, for endowment of aquaria.....	1,204.74	63.34
Total.....	2,262,213.47	119,280.01

## FREER GALLERY OF ART FUND

Early in 1906, by deed of gift, Charles L. Freer, of Detroit, gave to the Institution his collection of Chinese and other Oriental objects of art, as well as paintings, etchings, and other works of art by Whistler, Thayer, Dewing, and other artists. Later he also gave funds for construction of a building to house the collection, and finally in his will, probated November 6, 1919, he provided stocks and securities to the estimated value of \$1,958,591.42, as an endowment fund for the operation of the Gallery. The fund now amounts to \$7,422,474.98.

## SUMMARY OF ENDOWMENTS

Investment endowment for general purposes.....	\$1, 957, 899. 96
Investment endowment for specific purposes other than Freer endowment.....	2, 262, 213. 47
	<hr/>
Total invested endowment other than Freer.....	4, 220, 113. 43
Freer invested endowment for specific purposes.....	7, 422, 474. 98
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Total invested endowment for all purposes.....	11, 642, 588. 41
	<hr/> <hr/>

## 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, 163, 133. 61
Stocks.....	1, 982, 829. 93
Real estate and mortgages.....	5, 891. 00
Uninvested capital.....	68, 258. 89
	<hr/>
Total investments other than Freer endowment.....	3, 220, 113. 43
	<hr/>
Investments of Freer endowment (cost or market value at date acquired):	
Bonds.....	\$4, 242, 034. 31
Stocks.....	2, 973, 956. 30
Uninvested capital.....	206, 484. 37
	<hr/>
Total investments.....	7, 422, 474. 98
	<hr/>
Total investments.....	11, 642, 588. 41
	<hr/> <hr/>

**CASH BALANCES, RECEIPTS, AND DISBURSEMENTS DURING  
FISCAL YEAR 1956<sup>1</sup>**

Cash balance on hand June 30, 1955.....		\$586, 853. 38
Receipts, other than Freer endowment:		
Income from investments.....	\$247, 422. 84	
Gifts and contributions.....	646, 732. 82	
Books and publications.....	49, 433. 13	
Miscellaneous.....	27, 910. 05	
Employees' payroll withholdings and refund of advances (net).....	8, 562. 04	
Proceeds from real estate.....	45. 00	
Proceeds from sale of securities (net).....	224, 658. 71	
Proceeds from sale of cash securities (net)....	(98, 798. 14)	
Total receipts other than Freer endowment.....		1, 105, 966. 45
Receipts from Freer endowment:		
Income from investments.....		357, 880. 32
Total.....		2, 050, 700. 15
Disbursements other than Freer endowment:		
Administration.....	\$103, 989. 88	
Publications.....	32, 349. 47	
Library.....	1, 210. 42	
Custodian fees and servicing securities.....	4, 623. 26	
Miscellaneous.....	2, 941. 63	
Researches and explorations.....	521, 537. 58	
S. I. Retirement System.....	2, 323. 32	
Total disbursements other than Freer endowment.....		668, 975. 56
Disbursements from Freer endowment:		
Salaries.....	\$130, 906. 22	
Purchases for collection.....	164, 325. 00	
Custodian fees and servicing securities.....	10, 889. 23	
Miscellaneous.....	41, 248. 55	
Total disbursements from Freer endowment.....		347, 369. 00
Total disbursements.....		1, 016, 344. 56
Cash balance June 30, 1956.....		1, 034, 355. 59
Total.....		2, 050, 700. 15

<sup>1</sup> This statement does not include Government appropriations under the administrative charge of the Institution.

## ASSETS

## Cash:

United States Treasury current account.....	\$434, 750. 25
In banks and on hand.....	599, 605. 34

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 1, 034, 355. 59

Less uninvested endowment funds.....	274, 743. 26
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\$759, 612. 33

Travel and other advances.....	2, 603. 00
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Cash invested (U. S. Treasury notes).....	823, 986. 48
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 \$1, 586, 201. 81

## Investments—at book value:

## Endowment funds:

## Freer Gallery of Art:

Stocks and bonds..	\$7, 215, 990. 61
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Uninvested cash..	206, 484. 37
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 7, 422, 474. 98

## Investments at book value other than Freer:

Stocks and bonds.....	3, 061, 535. 03
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Uninvested cash.....	68, 258. 89
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Special deposit in U. S. Treasury at 6 percent interest.....	1, 000, 000. 00
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Other stocks and bonds...	84, 428. 51
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Real estate and mortgages..	5, 891. 00
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 4, 220, 113. 43

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 11, 642, 588. 41

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 13, 228, 790. 22

## UNEXPENDED FUNDS AND ENDOWMENTS

## Unexpended funds:

Income from Freer Gallery of Art endowment.....	\$557, 709. 90
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## Income from other endowments:

Restricted.....	\$350, 815. 28
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General.....	276, 104. 13
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 626, 919. 41

Gifts and grants.....	401, 572. 50
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 1, 586, 201. 81

## Endowment funds:

Freer Gallery of Art.....	\$7, 422, 474. 98
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## Other:

Restricted.....	2, 262, 213. 47
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General.....	1, 957, 899. 96
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 11, 642, 588. 41

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 Total..... 13, 228, 790. 22
 

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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 \$4,759.33.

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 Philosophical Society, gift for hybridization studies of stink bugs.  
American Philosophical Society, grant to further research on the color prints of John Baptist Jackson.

Atomic Energy Commission, additional gift for the studies on the regulation of plant growth by radiation.

Atomic Energy Commission, additional gift for mechanism of action of ionizing radiation.

Mr. and Mrs. J. Bruce Bredin, gift to establish "The Bredin Expedition Fund 1955-1956."

Mrs. Agnes Chase, additional gift for copying the index to grass names.

Department of the Army, Chemical Corps, additional gift for research studies to determine the influence of plant regulators.

Entomological Society of America, gift to aid in printing of manuscript entitled "History of Entomology in World War II."

Edward P. Henderson, gift for research on meteorites.

Humble Oil & Refining Co. and California Research Corp., grants-in-aid to the Planktonic Foraminifera Project.

Idaho Power Company, grant for Snake River Archeological Project.

John Simon Guggenheim Memorial Foundation, additional grant for the wax metabolism fund.

Edwin A. Link, additional gift for historical research (marine archeology).

National Academy of Sciences, grant for preparing a manuscript translation of a "Flora of Japan" by Jisaburo Ohwi.

National Academy of Sciences, grant for support of research on U. S. National Museum collection of ascidians.

National Geographic Society, grant to complete the excavations and related work at the archeological site in Jackson County, Ala.

National Science Foundation, grant for taxonomic study of the phanerogams of Colombia.

National Science Foundation, additional grant to make possible the continuation of work of the Canal Zone Biological Area on Barro Colorado Island.

National Science Foundation, grant for the support of research entitled "Monograph of Fresh-water Calanoid Copepods."

National Science Foundation, grant for an optical tracking and scientific analysis program for the U. S. Earth Satellite Program.

National Science Foundation, grant for research on recent Foraminifera from Ifaluk Atoll.

National Science Foundation, grant for study of physical changes in the Indian population of Hacienda Vicos.

National Science Foundation, grant for botanical studies in southeastern Brazil.

National Science Foundation, additional grant for research on "Taxonomy of the Bamboos."

National Science Foundation, grant for publication of manuscript entitled "New Horizons in Astronomy."

Nelson & Goldman Orchard Co., additional gift for the support of biological studies.

Office of Naval Research, gift for research on mammalian hosts and their parasites.

Office of Naval Research, additional gift to perform psychological research studies.

Office of Naval Research, gift to assist work in progress on the preparation of a synoptic catalog of the mosquitoes of the world.

Helen A. Olmsted, bequest, to be added to the Smithsonian Institution endowment fund.

Research Corp., gift to be used in partially defraying the cost of publishing a current edition of the Smithsonian Geographical Tables.

Research Corp., grant for the support of a project entitled "Application of X-ray Techniques to the Study of the Osteology and Relationships of Fishes in Systematic Ichthyology."

The Chicago Zoological Society, San Diego Zoo, and New York Zoological Society, gifts for the Penguin Fund.

Gene M. Stirling, additional gift for the study of the archeology and ethnology of Florida.

The Link Foundation, gift for guided-tour materials and service.

The Museum of Natural History of Houston, gift for improvement of the U. S. National Herbarium collection.

The Rockefeller Foundation, grant for continued research by J. J. Murayama on scolytid and scarabaeid beetles.

United States Air Force, grant for study of atmospheric entry and impact of high-velocity meteorites.

United States Air Force, grant for research directed toward the study of the rate of accretion of interplanetary matter by the earth.

United States Information Agency, additional grant for exhibition "American Primitive Paintings."

Wenner-Gren Foundation and American Philosophical Society, grants to aid archeological research in Shanidar cave, northern Iraq.

Miss Madeline Wilkinson, gift for cleaning and repairing historic dresses or linens.

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 1956:

Salaries and expenses-----	\$4, 166, 000
National Zoological Park-----	690, 900
Museum of History and Technology-----	2, 288, 000

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-----	\$92, 360
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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 5, 1956.*

THE BOARD OF REGENTS,  
SMITHSONIAN INSTITUTION,  
*Washington 25, D. C.*

We have examined the financial statements and schedules, as listed in the accompanying index, of the Smithsonian Institution relative to its private endowment funds and gifts (but excluding the National Gallery of Art and other departments, bureaus, or operations administered by the Institution under Federal appropriations) for the year ended June 30, 1956. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

The Institution maintains its accounts on a cash basis and does not accrue income and expenses. Land, buildings, furniture, equipment, works of art, living and other specimens and certain sundry property are not included in the accounts of the Institution.

In our opinion, the accompanying financial statements present fairly the position of the private funds and the cash and investments thereof of the Smithsonian Institution at June 30, 1956 (excluding the National Gallery of Art and other departments, bureaus, or operations administered by the Institution under Federal appropriations), and the cash receipts and disbursements for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

PEAT, MARWICK, MITCHELL & Co.

Respectfully submitted.

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

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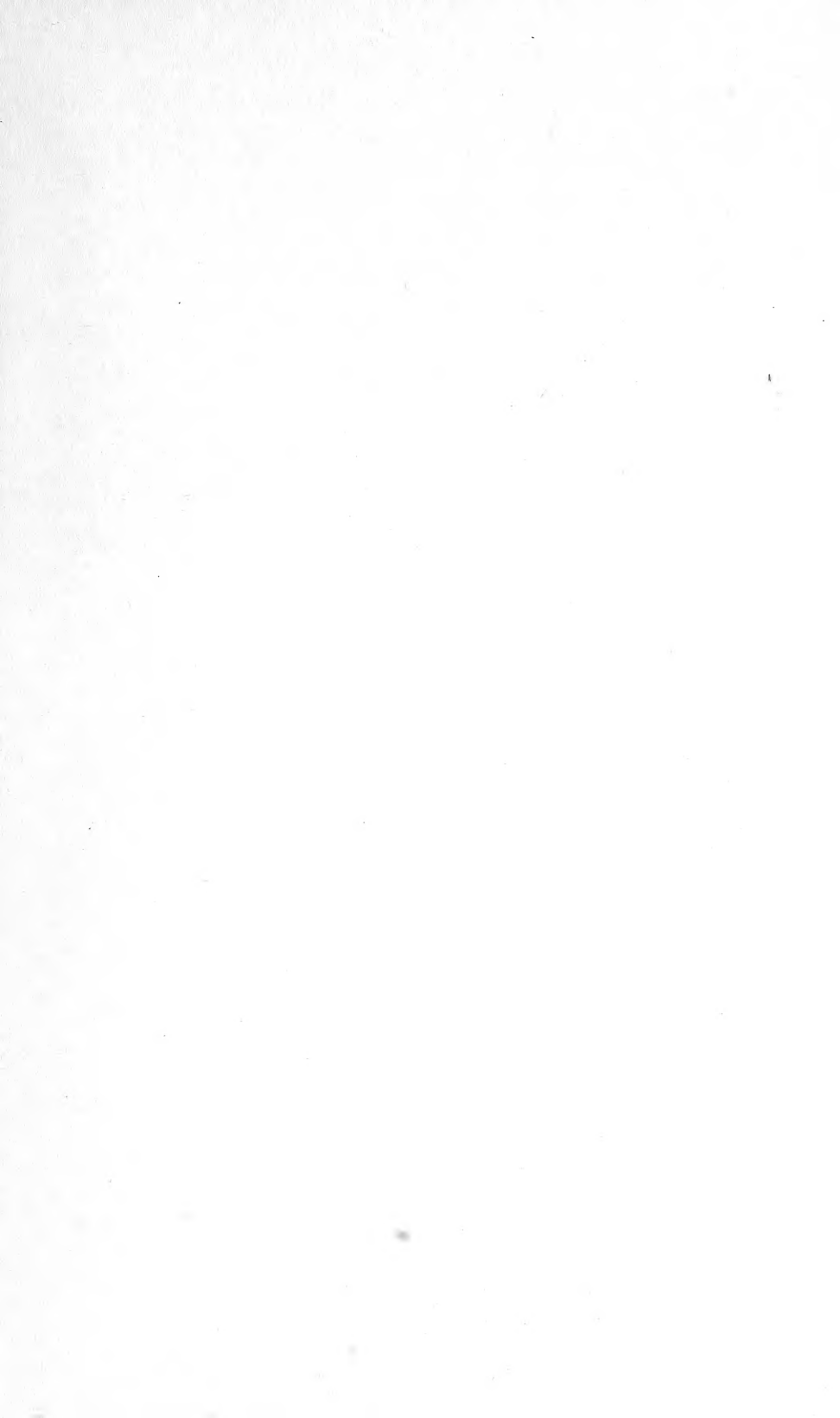
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SMITHSONIAN INSTITUTION LIBRARIES



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