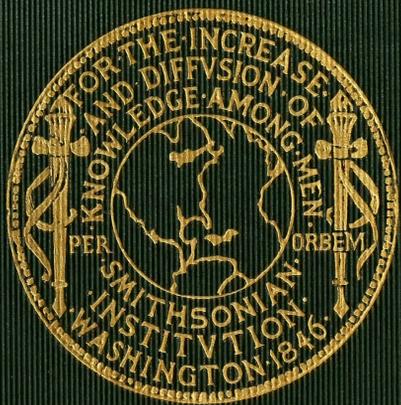
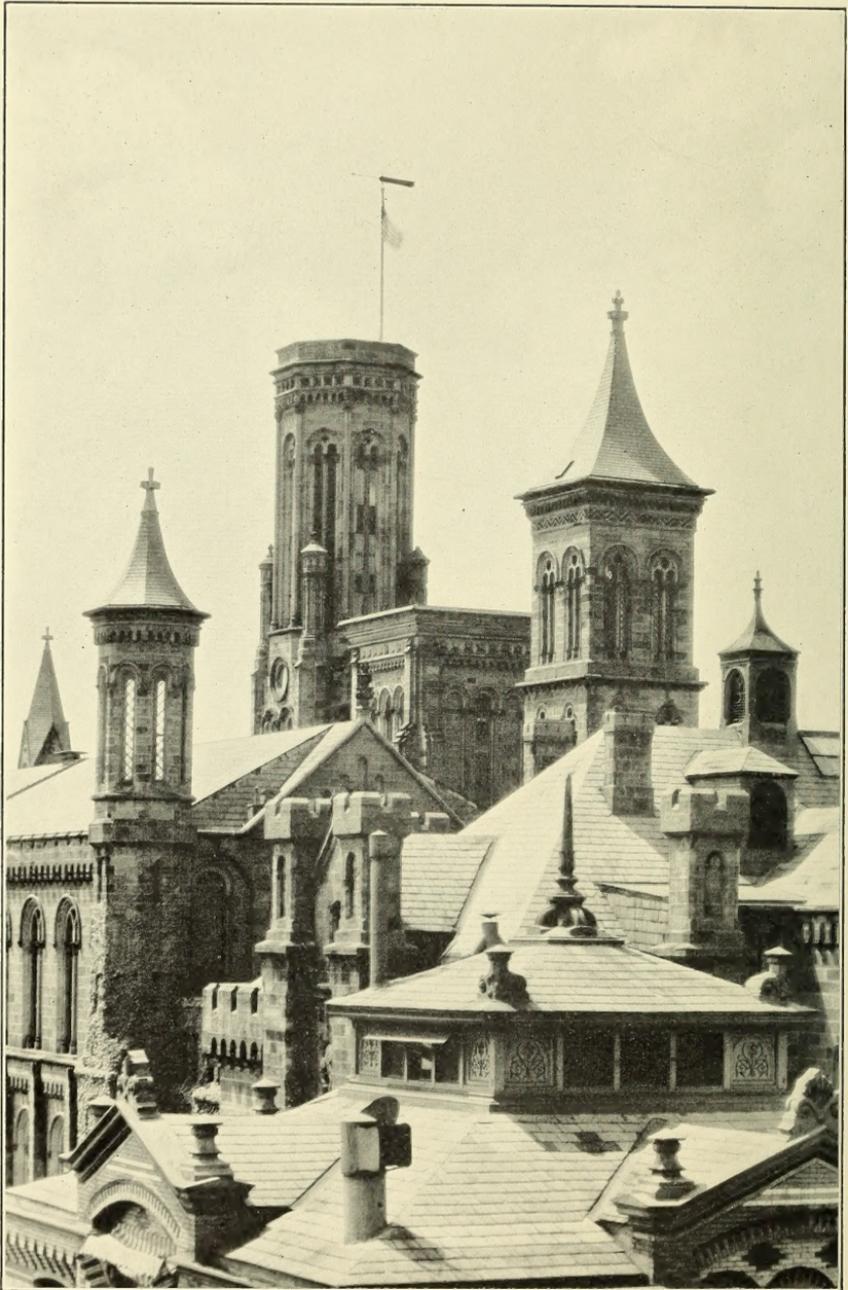


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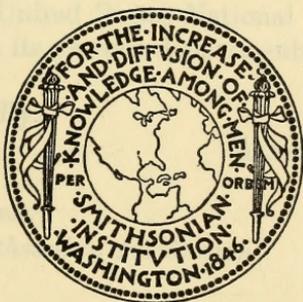




A VIEW OF THE SMITHSONIAN TOWERS FROM THE ARTS AND INDUSTRIES BUILDING

SMITHSONIAN INSTITUTION
UNITED STATES NATIONAL MUSEUM

REPORT ON THE PROGRESS
AND CONDITION OF THE UNITED STATES
NATIONAL MUSEUM FOR THE YEAR
ENDED JUNE 30, 1931



UNITED STATES
GOVERNMENT PRINTING OFFICE
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CONTENTS

UNITED STATES NATIONAL MUSEUM,
UNDER DIRECTION OF THE SMITHSONIAN INSTITUTION,
Washington, D. C., October 15, 1931.

SIR: I have the honor to submit herewith a report upon the present condition of the United States National Museum and upon the work accomplished in its various departments during the fiscal year ended June 30, 1931.

Very respectfully,

ALEXANDER WETMORE,
Assistant Secretary.

Dr. CHARLES G. ABBOT,
Secretary, Smithsonian Institution.

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STAFF OF UNITED STATES NATIONAL MUSEUM

[June 30, 1931]

CHARLES G. ABBOT, Secretary of the Smithsonian Institution, keeper *ex officio*.
ALEXANDER WETMORE, Assistant Secretary, Smithsonian Institution, in charge
United States National Museum.
JOHN E. GRAF, Associate Director, United States National Museum.
WILLIAM DE C. RAVENEL, Administrative Assistant to the Secretary.

SCIENTIFIC STAFF

DEPARTMENT OF ANTHROPOLOGY:

Walter Hough, head curator; W. H. Egberts, chief preparator.

Division of Ethnology: Walter Hough, curator; H. W. Krieger, curator;
H. B. Collins, jr., assistant curator; Arthur P. Rice, collaborator.

Section of Musical Instruments: Hugo Worch, custodian.

Section of Ceramics: Samuel W. Woodhouse, collaborator.

Division of Archeology: Neil M. Judd, curator; F. M. Setzler, assistant
curator; R. G. Paine, aid.

Division of Physical Anthropology: Aleš Hrdlička, curator; Thomas D.
Stewart, aid.

Collaborator in anthropology: George Grant MacCurdy.

Collaborator in Old World archeology: J. Townsend Russell, jr.

Associate in historic archeology: Cyrus Adler.

DEPARTMENT OF BIOLOGY:

Leonhard Stejneger, head curator; W. L. Brown, chief taxidermist.

Division of Mammals: Gerrit S. Miller, jr., curator; Remington Kellogg,
assistant curator; A. J. Poole, scientific aid; A. Brazier Howell, collabo-
rator.

Division of Birds: Herbert Friedmann, curator; Charles W. Richmond,
associate curator; J. H. Riley, assistant curator; Alexander Wetmore,
custodian of alcoholic and skeleton collections; Edward J. Brown, col-
laborator; Casey A. Wood, collaborator; Arthur C. Bent, collaborator.

Division of Reptiles and Batrachians: Leonhard Stejneger, curator; Doris
M. Cochran, assistant curator.

Division of Fishes: Barton A. Bean, assistant curator; E. D. Reid, aid.

Division of Insects: L. O. Howard, honorary curator; J. M. Aldrich, asso-
ciate curator; William Schaus, honorary assistant curator; B. Preston
Clark, collaborator.

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

Section of Myriapoda: O. F. Cook, custodian.

Section of Diptera: J. M. Aldrich, in charge; Charles T. Greene,
assistant custodian.

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

Section of Lepidoptera: J. T. Barnes, collaborator.

Section of Orthoptera: A. N. Caudell, custodian.

Section of Hemiptera: W. L. McAtee, acting custodian.

Section of Forest Tree Beetles: A. D. Hopkins, custodian.

DEPARTMENT OF BIOLOGY—Continued.

Division of Marine Invertebrates: Waldo L. Schmitt, curator; C. R. Shoemaker, assistant curator; James O. Maloney, aid; Mrs. Harriet Richardson Searle, collaborator; Max M. Ellis, collaborator; William H. Longley, collaborator; Maynard M. Metcalf, collaborator; Joseph A. Cushman, collaborator in foraminifera.

Division of Mollusks: Paul Bartsch, curator; William B. Marshall, assistant curator; Mary Breen, collaborator.

Section of Helminthological Collections: C. W. Stiles, custodian; M. C. Hall, assistant custodian.

Division of Echinoderms: Austin H. Clark, curator.

Division of Plants (National Herbarium): Frederick V. Coville, honorary curator; W. R. Maxon, associate curator; Ellsworth P. Killip, associate curator; Emery C. Leonard, assistant curator; Conrad V. Morton, aid; Egbert H. Walker, aid; John A. Stevenson, custodian of C. G. Lloyd Mycological Collection.

Section of Grasses: Albert S. Hitchcock, custodian.

Section of Cryptogamic Collections: O. F. Cook, assistant curator.

Section of Higher Algae: W. T. Swingle, custodian.

Section of Lower Fungi: D. G. Fairchild, custodian.

Section of Diatoms: Albert Mann, custodian.

Associates in Zoology: C. Hart Merriam, W. L. Abbott, Mary J. Rathbun, David Starr Jordan.

Associate Curator in Zoology: Hugh M. Smith.

Associate in Marine Sediments: T. Wayland Vaughan.

Collaborator in Zoology: Robert Sterling Clark.

DEPARTMENT OF GEOLOGY:

R. S. Bassler, head curator; Margaret W. Moodey, aid.

Division of Physical and Chemical Geology (systematic and applied): W. F. Foshag, curator, Edward P. Henderson, assistant curator.

Division of Mineralogy and Petrology: W. F. Foshag, curator; Frank L. Hess, custodian of rare metals and rare earths.

Division of Stratigraphic Paleontology: Charles E. Resser, curator; Gustav A. Cooper, assistant curator; Jessie G. Beach, aid.

Section of Invertebrate Paleontology: T. W. Stanton, custodian of Mesozoic collection; Paul Bartsch, curator of Cenozoic collection.

Section of Paleobotany: David White, associate curator.

Division of Vertebrate Paleontology: Charles W. Gilmore, curator; James W. Gidley, assistant curator of mammalian fossils; Norman H. Boss, chief preparator.

Associate in Mineralogy: W. T. Schaller.

Associate in Paleontology: E. O. Ulrich.

Associate in Petrology: Whitman Cross.

DEPARTMENT OF ARTS AND INDUSTRIES, AND DIVISION OF HISTORY:

William deC. Ravenel, director of arts and industries.

Divisions of Mineral and Mechanical Technology: Carl W. Mitman, curator; F. A. Taylor, assistant curator; Paul E. Garber, assistant curator; Fred C. Reed, scientific aid; Chester G. Gilbert, honorary curator of mineral technology.

Division of Textiles: Frederick L. Lewton, curator; Mrs. E. W. Rosson, aid.

Section of Wood Technology: William N. Watkins, assistant curator.

Section of Organic Chemistry: Aida M. Doyle, aid.

Division of Medicine: Charles Whitebread, assistant curator.

DEPARTMENT OF ARTS AND INDUSTRIES, AND DIVISION OF HISTORY—Continued.

Division of Graphic Arts: R. P. Tolman, assistant curator.

Section of Photography: A. J. Olmsted, assistant curator.

Division of History: T. T. Belote, curator; Charles Carey, assistant curator;
Mrs. C. L. Manning, philatelist.

ADMINISTRATIVE STAFF

Chief of correspondence and documents, H. S. Bryant.

Assistant chief of correspondence and documents, L. E. Commerford.

Superintendent of buildings and labor, J. S. Goldsmith.

Assistant superintendent of buildings and labor, R. H. Trembly.

Editor, Paul H. Oehser.

Engineer, C. R. Denmark.

Disbursing agent, N. W. Dorsey.

Photographer, A. J. Olmsted.

Property clerk, W. A. Knowles.

Assistant librarian, Leila G. Forbes.

REPORT OF THE PROGRESS AND CONDITION OF THE UNITED STATES NATIONAL MUSEUM FOR THE YEAR ENDED JUNE 30, 1931

By ALEXANDER WETMORE

Assistant Secretary, Smithsonian Institution

FOREWORD

The Congress of the United States in the act of August 10, 1846, founding the Smithsonian Institution, recognized that an opportunity was afforded, in carrying out the design of Smithson for the increase and diffusion of knowledge, to provide for the custody of the Museum of the Nation. To this new establishment was, therefore, intrusted the care and development of the national collections. At first the cost of maintaining this activity was paid from the Smithsonian income; then for a time the Government bore a share; but since 1877 Congress has provided for the expenses of the Museum.

The museum idea was fundamental in the organic act establishing the Smithsonian Institution, which was based upon a 12-year discussion in Congress and the advice of the most distinguished scientific men, educators, and intellectual leaders of the Nation during the years 1834 to 1846. It is interesting to note how broad and comprehensive were the views which actuated the Congress in determining the scope of the Museum, a fact especially remarkable when it is recalled that at that date no museum of considerable size existed in the United States, and the museums of England and of the continent of Europe, although containing many rich collections, were still to a large extent without a developed plan.

The Congress which passed the act of foundation enumerated as within the scope of the Museum "all objects of art and of foreign and curious research and all objects of natural history, plants, and geological and mineralogical specimens belonging to the United States," thus indicating the Museum at the very outset as the Museum of the United States and as one of the widest range in its activities. It was appreciated that additions would be necessary

to the collection then in existence, and provision was made for their increase by the exchange of duplicate specimens, by donations, and by other means.

The maintenance of the Museum was long ago assumed by Congress, the Smithsonian Institution taking upon itself only so much of the necessary responsibility for its administration as is required to coordinate it with its other activities. The Museum as a part of the Smithsonian Institution is an integral part of a broad organization for increase and diffusion of knowledge, for scientific research, for cooperation with departments of the Government, with universities and scientific societies in America, and with all scientific institutions and men abroad who seek interchange of views with men of science in the United States.

Since 1846 the only material changes in the scope of the National Museum have been (1) the addition of a department of American history, intended to illustrate, by an appropriate assemblage of objects, important events, the domestic life of the country from the colonial period to the present time, and the lives of distinguished personages, and (2) provision, in 1920, for the separate administration of the National Gallery of Art as a coordinate unit under the Smithsonian Institution. From 1906 to 1920 the gallery was administered as the department of fine arts of the Museum.

The development of the Museum has been greatest in those subjects which the conditions of the past three-quarters of a century have made most fruitful—the natural history, geology, ethnology, and archeology of the United States, which have been supplemented extensively by collections from other countries of the world. Opportunities for acquisition in these various directions in the first years of the institution were mainly brought about through the activities of the scientific and economic surveys of the Government, many of which have been the direct outgrowths of earlier explorations stimulated or directed by the Smithsonian Institution. Additions from these sources still continue in large volume. As supplemental to them an increasing number of persons interested in science make annual additions to our collections either directly or through financial support of expeditions by members of the staff. The increment of material from these contributions increases annually and is greatly appreciated. Such outside aid brings material that is of the greatest importance and that often could be obtained in no other way.

The Centennial Exhibition of 1876 afforded opportunity for establishing a department of industrial arts, which has received great impetus recently through the cooperation of industrial firms and associations, particularly in the assembling of material illustrative of historical development in various lines.

The historical series has been greatly augmented since 1918 by large collections illustrative of the World War, and also by extensive additions to exhibits in aircraft and kindred subjects that have been received during this period.

Public interest in the growth and development of the National Museum is reflected by the steady increase in recorded attendance, in correspondents, and in requests for information.

OPERATIONS FOR THE YEAR

APPROPRIATIONS

Provision for the maintenance of the United States National Museum for the fiscal year ended June 30, 1931, was made by appropriations carried in the executive and independent offices act approved April 19, 1930, the second deficiency act, fiscal year 1930, approved July 3, 1930, and the second deficiency act, fiscal year 1931, approved March 4, 1931, as follows:

Preservation of collections.....	\$593,048	
Deficiency act, fiscal year 1931.....	3,596	
		\$596,644
Furniture and fixtures.....		33,740
Heating and lighting.....		93,120
Building repairs.....	53,440	
Deficiency act, fiscal year 1930.....	3,500	
		56,940
Books.....		3,000
Postage.....		450
Printing and binding.....		46,500
Total.....		830,394

The appropriations for 1931 exceeded those for 1930 by \$67,880, of which \$12,909 was to provide salaries for additional personnel, namely, for a special executive officer, a clerk in the library, and two guards. The new positions provided mark a further step in the building up of the staff, far too few in number at present for the needs of the Museum.

The sum of \$2,420 was added to the salary rolls through reallocations by the Personnel Classification Board. In the second deficiency act for the fiscal year 1931 there was included an appropriation of \$3,596 to cover increases in salaries occasioned by the Brookhart bill, effective July 3, 1930, amending the classification act of 1923. This provided for adjustment in annual pay in certain minor grades, and was of considerable assistance in bringing to a proper pay level these elements in our rolls. An increase of \$11,875 provided by Congress for salary step-ups in connection with efficiency ratings was of very material benefit, as it concerned a considerable number of workers and brought the average salaries for the Museum force that much nearer to the average for their respective grades. The increases pro-

vided have been of appreciable assistance and should be followed by further appropriations for this purpose until the averages established by law for the various grades have been reached.

The sum of \$1,000 was added to the appropriations for the purchase of books for the Museum library, making \$3,000 available annually for that purpose. The addition has given aid in a direction where this has been sorely needed, but there should be further increase here. The scope of the scientific investigations of the Museum is wide, and the library needs of the staff are considerable. Modern works in science appear in ever-increasing numbers and now cost about double what they did some years ago. Many works are obtained through exchange for our own publications, but most of those that are printed by commercial houses may be secured only through purchase. At least \$5,000 annually should be available for this purpose.

There was allotted also an increase of \$1,000 for printing and binding for the National Museum, which gives that much assistance in arrearages in printing. There is steady increase in output of work by the scientific staff of the National Museum under improving conditions for work, and attention must be given soon to further allotments for printing the results of many valuable investigations that should be made available to the public with as little delay as possible.

In the second deficiency act for the fiscal year 1930 there was provided \$3,500 toward the remodeling of the women's comfort room in the Arts and Industries Building, which comes within the expenditures for the present fiscal year. Other additions under the heading of building repairs included \$25,000 for the construction of overhead galleries for the study collection of mammals in two ranges and certain adjacent rooms on the ground floor of the Natural History Building, and \$7,000 for fire-protection measures in the Aircraft Building. These two important items mark the accomplishment of much needed improvement in the physical appointments of our establishment. Further discussion of the progress of this work will be found elsewhere in this report. In the appropriation for heating and lighting there was provided an additional \$2,000 for the purchase of an electrically driven fire pump for fire protection in the Natural History Building.

The second deficiency bill for 1931 carried provision for \$1,620 for an additional clerk-stenographer in the division of insects and \$10,000 for the preparation of preliminary plans for additions to the Natural History Building. These will be considered at the proper time in connection with the annual report for 1932, as the expenditures concerned figure properly in the allotment of funds for that year.

Requirements for additional funds for the Museum follow lines indicated in previous annual reports.

There was mentioned last year the Smoot-Elliott bill authorizing the extension of the Natural History Building, through wings at the east and west ends at a cost of \$6,500,000, an authorization that was approved by the President on June 19, 1930. As mentioned above, the second deficiency bill for 1931 carried \$10,000 for the preparation of preliminary plans for these additions. Under this the Allied Architects (Inc.), of Washington, D. C., have been selected by the executive committee of the Smithsonian Institution to prepare preliminary plans, which will be ready for consideration as this report is published. It is planned to add to the present building so that it will extend from Ninth Street to Twelfth Street, and in general it is contemplated that the additional construction will duplicate in arrangement the present structure, with the ground floor and third floor devoted to offices and laboratories and the two intermediate floors given over to exhibitions. There will be incorporated in the plans modern advances in museum design so far as these are found applicable to our needs, and various facilities not at present available will be included. It is desired so to arrange the appropriations covering this important matter that funds will be provided in the bill for the coming fiscal year for the necessary excavations and foundations so that the work may be begun without delay. The resultant increase in space is seriously needed, as our entire area is now crowded, and it will be noted beyond that accessions to the exhibition collections and study specimens contained in the Natural History Building in the fiscal year covered by this report included the vast number of nearly 1,000,000 specimens. In recent years there has been resort to various expedients to provide additional space for our steadily growing materials in this direction, until now we have reached the limit of our resources without further building space.

Final completion of our plans for the Natural History Building will provide properly for our needs in one direction, but other collections require more adequate housing than we are able to give them with our existing structures. The great collections in engineering, aviation, textiles, history, and associated fields are found at present in the old Museum building, constructed in 1881 at a cost of \$225,000, and in a temporary building south of the Smithsonian Building that houses most of the aircraft. The old Museum building, while excellent in its day, is not modern and through its design does not lend itself to many types of exhibition, nor is it convenient in arrangement for the visiting public. According to present plans it must be removed eventually to permit the passage of Ninth Street through the Mall. The long, shedlike structure housing most of the aircraft collection is entirely temporary, in addition to being un-

sightly. Both buildings are crowded to capacity to an extent that many desirable objects offered for our national collections in these fields can not be accepted because we have no room in which to place them. In fact, we are now at a point where the addition of objects of any size in these collections can not be considered. Plans should be drawn as soon as possible for a large structure to house the collections concerned with arts and industries, including aircraft, that will provide proper facilities for these important collections. There should be, further, a separate building that will house our great historical collections in which there are found such objects as relics of Washington, Lincoln, and many other illustrious Americans, the original Star Spangled Banner, our great series of costumes, particularly those of the wives of the Presidents, and many other objects of pride to our Nation, which should be displayed in proper form for the thousands of visitors who come annually to Washington.

The question of further personnel continues to be one of paramount importance, as pressure for additional workers in the scientific, clerical, and custodial forces is constant and continued. Additions that have been made to the staff have filled in at a few vital points, but many further positions remain to be provided before our organization can function with proper maximum efficiency. Several large collections have to be assigned for care to offices occupied in other directions, as the Museum has no curators for them, so that while the material is preserved for future use there is little or no work being done upon it, and the Museum is not in position to answer public inquiries, to arrange exhibits, or properly to systematize and develop these materials. There are still divisions where assistants in professional grades should be supplied to serve as understudies for older men who should be in position to train successors in their particular fields. Clerical assistance is at a minimum everywhere, and there are several divisions where no service of this kind is at present available. Temporary assistance is provided as funds permit, but this is unsatisfactory, as there is much loss of time, effort, and money in giving necessary training to assistants who at most can remain only six months. Further subprofessional workers also are needed, and the work of the custodial services in our wood-working shops is behind. The gradual increase in staff that has come in recent years has been of great assistance, but additional employees in numerous places are still urgently needed.

Existing appropriations are taken up so largely with necessary routine expenditures that there is little money available for use in exploration and field work. Many friends and correspondents make great additions to our collections annually, but the Museum should be provided with adequate funds that would enable it to develop various field researches along logical and continuing lines. There

come to the Museum frequent reports of valuable specimens that may be had if some one competent can go to the spot to obtain them. These are usually of such nature that they can not be collected and sent in by the inexperienced, as unless properly handled they are not worth the cost of transportation, though when suitably prepared they are highly valuable. At the present time this material is usually lost, though for a comparatively small expenditure it might be preserved. Funds are urgently needed that may be used for such purposes and for field work in general.

In the United States of to-day there is an annually increasing part of the population that is definitely interested in science. This is shown by the present demand for authentic scientific news on the part of the press and for photographs of interesting scientific objects for publication, and by the general attitude of the public. As our country grows there come additions to the group of those financially independent who turn to scientific researches and investigations, either as recreation or with serious desire to assist in addition to human knowledge, and who find in scientific matters relaxation and inspiration, recreation and serious endeavor. This group now assists tremendously in the furtherance of scientific development and will be an increasing force in that direction in the future. These persons from their financial situation make large contributions toward the Federal income in the form of taxes, wherefore it would seem logical to make a part of the money derived from them available for support of their immediate interests in the form of increased appropriations for the National Museum.

COLLECTIONS

Growth of the collections of the National Museum during the present fiscal year has been phenomenal and has brought valuable materials in numbers entirely beyond previous precedent. The increments were covered in 1,632 separate accessions, less than the 1,683 recorded last year, but including a total of 1,022,850 specimens.

The specimens indicated were divided among the various departments as follows: Anthropology, 14,569; biology, 993,004; geology, 19,016; arts and industries, 5,248; history, 5,582. The total increase for last year for the entire Museum was 410,815 specimens.

From the wide field covered the largest additions have come in the department of biology, as in previous years. The most important accession, being also one of the most important from a scientific aspect, that has come to the Museum in recent years was the Barnes collection of Lepidoptera purchased by a special appropriation of \$50,000 for the United States Department of Agriculture and transferred by that department to the National Museum. This collection,

consisting principally of moths and butterflies from North America, was assembled by Dr. William Barnes, of Decatur, Ill., during a lifetime of endeavor and at an expense of several hundred thousand dollars. The entire collection was carefully arranged and identified and is an outstanding accession to the division of insects, where it is now housed. During a third cruise in the West Indies, including the southern Bahamas, certain islands along the coast of Cuba, and the Cayman group, Dr. Paul Bartsch, curator of mollusks, traveling under the Walter Rathbone Bacon scholarship, obtained extensive collections of land and marine shells to complete our assemblage from the West Indies. Additional important materials have come from the activities of Dr. David C. Graham in China and of Dr. Hugh M. Smith in Siam. A large and interesting series of specimens in several groups was obtained by Dr. H. C. Kellers, United States Navy, while accompanying the United States naval eclipse expedition to Niuafoou in the Pacific. The National Geographic Society presented a large collection of birds, mammals, reptiles, and plants obtained by E. G. Holt as leader of an expedition to the region along the boundary of Venezuela and Brazil. Much of this material represents species not hitherto found in the national collections.

In the department of anthropology especially noteworthy specimens have come from field work under the Smithsonian Institution in the Bering Sea area, most of them from the Kuskokwim River Valley, through the investigations of Dr. Aleš Hrdlička, and from St. Lawrence Island, through the investigations of Henry B. Collins, jr. Additional large collections have come from Haiti from investigations of H. W. Krieger, financed by Dr. W. L. Abbott, and large series of specimens have been transferred by the Bureau of American Ethnology as the result of work in the field by members of its staff. An outstanding accession was the bequest of the American Indian collection of the late Victor Justice Evans, of Washington, D. C., deposited by the executors of his estate. The collection numbers approximately 5,300 specimens, including costumes, weapons, pottery, baskets, and related things.

The department of geology reports that 32 mineral species new to its collections were obtained during the year, mainly through the Roebling fund, our collections of this kind being now exceptionally complete. A large mass of native silver and calcite, estimated to contain 220 pounds of pure silver, and a sample of a vein of similar materials from the Keeley mine in the Cobalt district of Ontario, were obtained for the exhibition series through the Roebling fund. A specimen of a highly unusual kind is the fossilized vertebra of an extinct swimming reptile of large size that has been changed to a fine quality of precious opal. A large cut black diamond was

obtained for the exhibition series. Valuable collections in vertebrate fossils have resulted from the field work of C. W. Gilmore in the Eocene deposits of Wyoming, and of Dr. J. W. Gidley in fossil deposits in Idaho.

In the department of arts and industries there was received for the section of land transportation a light family carriage made in Philadelphia about 1783 that there is ground for believing was at one time the property of General Washington. The Philadelphia Electric Co. presented a model of the Conowingo hydroelectric generating station that is of great interest, and the Pepperell Manufacturing Co. a model illustrating the growth and manufacture of cotton.

In the division of history there was received an aluminum transit used by Admiral Robert E. Peary during his north polar expedition of 1898. An interesting series of military uniforms and equipment was presented by the Rumanian Government through Dr. Andrei Popovici, secretary of the Rumanian Legation. A series of Turkish military arms and uniforms came as a gift from the Turkish Government, through the Turkish ambassador, Ahmet Muhtar. The Governments of Estonia, Italy, Poland, and Cameroons and the State Department made important additions to the collections of coins.

During the year there were received 1,297 lots of material for examination and report, the larger part being geological and botanical and including a large number of individual specimens. Part of this material was returned by request to the senders, and a part was retained as an addition to our collections.

Gifts of specimens to schools and other educational organizations included 7,384 specimens, among which were 8 sets of mollusks of 149 specimens each; 5 sets to illustrate rock weathering and soil formation of 12 specimens each; 19 sets of rocks, ores, and minerals of 83 specimens each; 4 sets of fishes of 55 to 63 specimens each; and 2 sets of miscellaneous marine invertebrates of 53 and 71 specimens each. Exchanges of duplicate material with other institutions and individuals amounted to 33,471 specimens. Loans to workers outside of Washington amounted to 31,516. The handling of all this material has involved a tremendous amount of labor.

Following is a summary of specimens now covered in the Museum catalogues:

Anthropology	695, 273
Biology.....	10, 329, 077
Geology.....	2, 071, 373
Arts and industries.....	108, 474
History.....	400, 493
Total.....	13, 604, 688

CHANGES IN EXHIBITIONS

In the paleontological series of the Museum exhibition the most important addition has been the installation of the large dinosaur *Diplodocus longus*. (Pl. 2.) This huge skeleton, a fossil obtained in the quarries at the Dinosaur National Monument, northeastern Utah, as mounted measures more than 70 feet in length and stands 12 feet 5 inches high, with the head and neck rising still higher. The base has been so arranged that at the shoulders and at the hips visitors may walk through beneath the skeleton. As noted elsewhere in this report, the preparation of this specimen, found embedded in a very hard rock difficult to work, has occupied the greater part of the time of the force in the laboratory of vertebrate paleontology for nearly seven years. The specimen is installed in the main hall for vertebrate paleontology.

An important change in the historical exhibition has been the transfer of the costumes collection to a larger hall where the cases containing the series of dresses of the wives of the Presidents are installed in a double row facing one another in much more commodious quarters. This collection is one of the most popular in our entire series and shows to excellent advantage in the enlarged space now available for it.

The numismatic collections have been transferred to the smaller room formerly occupied by the costumes, where the light is much better, allowing the coin and medal series to be viewed more readily, especially on days when artificial light is necessary.

The philatelic collection also has been moved to a location where it is much more easily available.

The changes indicated have greatly improved the exhibitions concerned and serve to utilize their space to the maximum advantage.

GUIDEBOOK

A guidebook to all the Museum activities under the Smithsonian Institution was placed on sale by the Institution during the year and has proved highly attractive. It is printed in conveniently small size for carrying and offers in concise form statements regarding the more important and interesting exhibits, presented in order of their location so as to be of assistance to visitors. In addition to the descriptive text the booklet is illustrated by numerous half tones that help to make it of permanent value.

EXPLORATIONS AND FIELD WORK

Field investigations have been carried on as usual throughout the year and have been concerned with a wide group of interests, mainly in the biological field, including in this category those researches con-

cerned with man, and with fossil animals of all kinds, as well as the various groups in botany and zoology. The work has been financed mainly through grants from the general income of the Smithsonian Institution, assisted by contributions from individuals. Certain projects were financed from special funds of the Institution. Limited assistance has been given from the annual governmental appropriations of the National Museum, but aid from this source has been relatively small and has concerned only a few of the various projects. Additional money that may be used for researches in the field is one of the principal needs of our organization.

A brief account of field work for the present year follows: During July, August, and September, the assistant curator of ethnology, Henry B. Collins, jr., assisted by J. A. Ford, was engaged in field work on the island of St. Lawrence in Bering Sea, in continuation of work begun earlier in the season. In 1928 and 1929 the excavations of Mr. Collins on Punuk and St. Lawrence Islands revealed the existence of a prehistoric phase of Eskimo culture ancestral to the modern type of that region and derived apparently from a still earlier phase, known to students as the Old Bering Sea culture. Stratigraphic excavations were made this year at Gambell, and a long succession of cultural changes were revealed in detail as one village midden after another was trenched. Through this an excellent chronology was established on the basis of stratigraphy, the evidence of the old beach lines, and the demonstrable succession of art styles on implements, principally harpoon heads of walrus ivory. Incidental to this work Mr. Collins obtained an excellent collection of birds from this island, the bird life of which has been comparatively little known. The active interest of the revenue cutter service in this work continued, and the assistance in transportation furnished on the cutter *Northland* to areas otherwise inaccessible was invaluable. Cooperation from this source has been highly appreciated.

The curator of ethnology, Herbert W. Krieger, engaged in a reconnaissance of an archeological nature in the Republic of Haiti, this work being carried on from January to May, 1931, when the approach of the rainy season brought it to a close. The present population of Haiti has no history or tradition regarding the early Indian occupants of the island and is therefore of no assistance in locating former Arawak or Ciboney village sites and kitchen middens, so that one has to rely on Spanish and French narrative for ethnological and historical introduction useful in this work. The reconnaissance was highly successful in determining the distribution of former Arawak and of Ciboney village sites, and it was found that scattered groups of each type occupied at different times much

of the habitable parts of the island. A check was made also on data from Spanish writers who gave differing accounts with regard to the former presence of troglodytic population in the isolated mountains of the southwestern peninsula.

As a further important result this season's investigations established the identity of the Samaná cave culture, investigated by a Smithsonian expedition in 1928, with the large shell middens on Ile a Vache, on the Caribbean coast of Haiti. The same primitive, non-agricultural, non-Arawak Ciboney apparently are also responsible for the large middens consisting primarily of conch shells (*Strombus gigas*) recently discovered by Dr. Alexander Wetmore on Beata Island, off the southern coast of Barahona Province, Santo Domingo. Cumulative evidence obtained during the current year, as well as during previous Smithsonian expeditions, links the culture of the West Indies with the Arawakan tribes of Venezuela and of the Guianas. There are also data to show that there was no direct tribal contact of these island Arawak with the tribes of southern Florida, although culturally in many ways they were closely associated. There seems to have been a vast overlapping of culture traits of the Southeastern United States from the south, these trait complexes centering about the cultivation of maize and the production of pottery. In so far as cassava (yucca) formed a staple food, the former aboriginal culture traits are associated with those of the South American forested tropical lowlands.

As in former years, the expedition headed by Mr. Collins was made possible by a Smithsonian grant, while that headed by Mr. Krieger was financed by Dr. W. L. Abbott.

From April 21 to June 6, 1931, the assistant curator in archeology, F. M. Setzler, was engaged in archeological investigations in Texas, arranged in cooperation with the Bureau of American Ethnology, of the Smithsonian Institution. After briefly examining several sites along the Gulf coast he excavated four caves and one rock shelter in Presidio County and visited several other caves in that vicinity. From one large cave examples of aboriginal basketry, matting, cradles, sandals, and other materials were recovered. Although this site is only 150 miles east of a marginal Basket-Maker culture, no local trace was found of these early southwestern people. The material exhumed by Mr. Setzler differs in some respects from any other in the Museum, and more research will be required before it can be identified definitely. Mr. Setzler has in hand a preliminary report on this field work.

Except for two weeks in October, 1930, J. Townsend Russell, jr., collaborator in Old World archeology, was in Europe, where he continued archeological studies and participated in the excavation

of the American School of Prehistoric Research at Castel Merle, in the Dordogne, France, and in Czechoslovakia. Toward the close of the fiscal year he was active in arranging a cooperative undertaking with the University of Toulouse for the excavation of prehistoric sites in France, which will add decidedly to the collections of the National Museum in a field from which our Institution previously has had very little. At the close of June, arrangements had been about completed, and it was expected that work, under Mr. Russell's direction, would begin in a short time. These investigations are financed by a special fund for work in Old World archeology.

Dr. Aleš Hrdlička, curator of physical anthropology, left in May on a fourth expedition to Alaska to obtain measurements and if possible casts of the remaining few full-blooded Aleutians. He expected to work in the general region where there has been supposed contact between the Eskimo, the Aleut, and the Indian, and to examine the various mountain passes between Bering Sea and Cook Inlet and the Gulf of Alaska through which migrations of early man from the Bering Sea area southward may have been possible.

Dr. Paul Bartsch, through the Walter Rathbone Bacon scholarship under the Smithsonian Institution, continued field study in the West Indian islands of the terrestrial molluscan fauna of this area and completed a program of travel initiated two years ago. This year efforts were focused on the southern Bahamas, the islands off the south coast of Cuba, and the Cayman group. Doctor Bartsch was accompanied by three assistants—Harold Cluttick, a student of George Washington University; Ray Greenfield, who had been with him two years ago in Cuba; and Alva G. Nye, jr., of Washington—and he also had with him Harold Peters, of the Bureau of Entomology, who accompanied the party to collect specimens of avian parasites. The party left Miami, Fla., on June 9, 1930, in the *Island Home*, a 33-ton shallow-draft vessel. Work was carried on through the islands and cays of the southern Bahamas until August 6, and then the party explored the wonderful molluscan fauna of Great Inagua Island, which proved by far the richest of all the Bahamas. On reaching Guantanamo, Cuba, the *Island Home* was pronounced unseaworthy, and another boat, the *José Enrique*, a 35-ton sloop with an auxiliary 22-horsepower gasoline engine, was chartered at Santiago. On August 28 the party continued through the cays along the south coast of Cuba and from September 10 to September 17 was occupied on Cayman Brac, Little Cayman, and Great Cayman Islands. Sails were then set for Cuba, and until September 24 the cays along the coast from Cayo Largo to the Isle of Pines were searched. On September 29 the port of Batabano, Cuba, was reached, and the collections were shipped by rail to Habana. The expedition

returned to Washington on October 3. This cruise yielded a larger quantity of molluscan material than any of the previous ones, no less than 250,000 specimens of mollusks being obtained, with many observations on their faunistic relations. In addition, large collections in other groups were obtained, among them 925 bird skins and 596 reptiles and amphibians, besides a number of live animals, principally reptiles for the National Zoological Park.

The Rev. David C. Graham, whose explorations in western Szechwan, China, and the neighboring regions of Tibet have been a standing feature of these reports for many years, continued collecting around Suifu and forwarded to the National Museum large and important collections, including 62,000 specimens, the greatest part consisting of insects. His main trip during 1930 was an excursion into the unknown and difficult country south of Tatsienlu.

Dr. J. M. Aldrich, in continuation of work that has extended over a period of many years, spent part of June and July, 1930, in making collections of Diptera in Idaho, Washington, California, and Colorado. With fair success he visited many type localities, and his collections for this season include a larger number of interesting forms than he has ever obtained before in the United States in a like period.

Dr. Waldo L. Schmitt continued his investigations of the marine fauna at the Carnegie Marine Biological Station, Tortugas, Fla., from July 9 to August 8, 1930, through the kindness of the Carnegie Institution of Washington, undertaking this year a preliminary investigation of the deeper water readily accessible to the laboratory. Among the prizes brought back were three specimens of the giant isopod *Bathynomus*, the largest specimen being 10½ inches long, and a new portunid crab of the genus *Benthocascon*, a group heretofore known only from a single specimen taken in the Andaman Sea, Indian Ocean.

Dr. H. C. Kellers, United States Navy, through the courtesy of the Naval Observatory and the friendly cooperation of the Navy Department, was again detailed to act as representative of the Smithsonian Institution for the purpose of making biological collections during the United States Naval Observatory eclipse expedition to Niuafouu, nicknamed "Tin-can" Island, a partly submerged volcanic crater situated between Samoa and Fiji. His collections include 100 bird skins and more than 7,000 alcoholic specimens of various kinds.

Ernest G. Holt, under the auspices of the National Geographic Society, continued explorations along the Venezuelan-Brazilian boundary and returned with valuable collections, which have been presented to the National Museum by the society. This material in preliminary examination has shown many forms not previously

represented in our collections and forms a valuable addition from a region from which the Museum previously has had little material.

Because of association in the work of the National Herbarium, it is proper to mention field investigations by Mrs. Agnes Chase, who collected grasses in the Eastern Shore region of Maryland to study the distribution of certain Coastal Plain species, and by Jason R. Swallen, who spent about three months in the region from Tennessee to Texas and northeastern Mexico studying the ranges of grasses.

Gerrit S. Miller, jr., visited Jamaica from February to April with the special object of determining whether bones of rodents or other mammals that are now extinct might be found in the village middens of the pre-Columbian Arawaks. Several kitchen middens were investigated, and much material bearing on the food habits of the aboriginal inhabitants was obtained. Miscellaneous collections of various kinds also were made, particularly of plants, reptiles, and Arawak artifacts.

Dr. A. Wetmore, accompanied by Frederick C. Lincoln, of the Bureau of Biological Survey, collected from the middle of March until the end of May in Haiti and the Dominican Republic, continuing the biological survey of Hispaniola that has been under way for several years. The first work was done in the region of Fort Liberte in the north, when they were accompanied by S. W. Parish and Matthew Stirling, of the Bureau of American Ethnology, traveling with Mr. Krieger to examine archeological sites that he had under investigation in that area. Returning to Port au Prince, Doctor Wetmore, through the courtesy of the United States Marine Corps, made a reconnaissance by airplane of the La Hotte Mountains of southwest Haiti, obtaining information that governed later travel by pack train in this area and the ascent of Pic de Macaya, the highest mountain in this complex. On arrival again at the coast they visited Ile a Vache to supplement collections made there last year by the Parish expedition.

Returning to Port au Prince, they traveled by auto through the mountains to Barahona, in the Dominican Republic, where they chartered a small sloop and continued to Beata Island, a little-known point. Here they obtained new forms of birds, reptiles, and land shells and examined an extensive series of Indian shell mounds. Work in the Dominican Republic was made possible through letters given by Gen. Rafael Trujillo, President of the Republic, to whom all thanks are due for this invaluable assistance.

Edward P. Henderson, assistant curator of mineralogy, under the auspices of the Roebling fund, spent a month in the well-known silver and nickel camps of Ontario, Canada. Starting from Toronto, he

first visited the Cobalt district, 300 miles to the north, where rich silver masses and their associations were acquired. Sudbury, the most important nickel district in the world, was next visited. Here a quantity of nickel ore and its minerals were obtained. The pegmatite dikes of the Province, at Bancroft, yielded recently described materials lacking in our collections. The hearty cooperation of the mining companies, quarry owners, and the staff of the Royal Ontario Museum of Mineralogy was largely responsible for the success of the trip. Later in the year Mr. Henderson made a brief trip to some of the noted mineral localities in North Carolina to obtain material needed for the study of particular problems.

Dr. C. E. Resser spent about four months in the field working first in the Grand Canyon, in Arizona, under the auspices of the Carnegie Institution. The second phase of his work led diagonally across the State of Arizona on a rapid reconnaissance, followed by a return to the Grand Canyon for further studies. In this he was accompanied by Dr. A. A. Stoyanow, of the University of Arizona, and members of the National Park Service, who aided in his investigations. Early in July, starting from Salt Lake City, where Dr. R. Endo became a member of the party, he began work on the local geology about Delta, Utah, where the party was accompanied by Frank Beckwith, and made a profitable visit to Zion Canyon. Thence the course lay north to the Tetons and other places in the vicinity of Yellowstone National Park. During investigations at those places, Dr. and Mrs. Curt Teichert joined the party. Rain interfered materially with travel and work, and, since matters of moment requiring attention arose at the Museum, work was closed for the season. Travel from Salt Lake City was by truck, the entire trip home being made by this means. The season, as a whole, was most profitable in the knowledge gained of the various geologic strata, although not many fossils were secured, as the strata studied are, for the most part, unfossiliferous.

Since the field exploration in charge of C. W. Gilmore extended into the present year, only brief mention was made of it in last year's report. This exploration in the Bridger (Eocene), in the Bridger Basin, southwestern Wyoming, met with unusual success in the acquisition of large and representative collections. Some of the outstanding specimens have been mentioned elsewhere in this report. The collection, as a whole, gives the division a good representation of the Bridger fauna and in all probability contains many undescribed forms, being particularly rich in mammals. Its value was further enhanced by the cooperation of Dr. W. H. Bradley, of the United States Geological Survey, who secured the necessary data for a large-scale map, which, with his geological sections, insures the accurate

placing of the specimens both geographically and geologically. George F. Sternberg, as in previous seasons, rendered efficient, skilled service, and George B. Pierce ably assisted as field assistant.

Although work at the fossil locality near Hagerman, Idaho, was very successful in the season of 1929, the results of the 1930 expedition under Dr. J. W. Gidley exceeded it in both quantity and quality, as some of the best material found in the deposit was obtained near the close of operations. Camp was established early in May, and work was begun where operations closed the previous season. Two months' additional work fully confirmed the opinion that this fossil bone deposit is one of the most important discoveries in the field of vertebrate paleontology in recent years. Associated with the abundant horse remains were found bones of beavers, otters, mastodons, peccaries, and others. The collecting for the season was brought to a close early in July, but the field was still so promising that a third expedition was undertaken in the spring of 1931, under N. H. Boss, chief preparator in the division of vertebrate paleontology. This party was still in the field at the close of the fiscal year, so that its results will come properly in the report for next year.

EDUCATIONAL WORK

All the work of the National Museum, broadly speaking, is educational in consonance with the primary objects of the Smithsonian Institution "for the increase and diffusion of knowledge among men." The methods of the Museum are not those of classroom instruction or of set lectures. The Museum rather supplements school-room instruction and advances higher education, through its well-labeled exhibition series that instruct the serious visitor. Its reserve or study series are available for the research worker, whether he consults the specimens in the Museum or has them sent to his own laboratory for investigation, and the results of research at the Museum are published and transmitted to libraries all over the world. In addition, the staff renders miscellaneous assistance of various kinds, as indicated in the following paragraphs.

In the department of anthropology the head curator was called upon in numerous instances to identify objects brought by inquirers to his office. The majority of these determinations were concerned with violins, ceramics, and jewelry. The Federal Trade Commission called him as witness in a case concerning the advertising of Indian blankets, and the United States Patent Office consulted Museum material in patent cases. The United States Bureau of Customs called upon the Museum for identification and date of objects being imported. Prince Takamatsu of Japan and his entourage were con-

ducted through the Museum. A class of young men traveling on a good-will tour were shown the ethnological collections.

An introduction to the ethnological exhibits in the National Museum was given in a series of talks to members of the Department of Agriculture 4-H clubs. Notes were taken on these talks and filed for future use in connection with similar groups of Museum visitors.

Henry B. Collins, jr., gave a lecture before the Anthropological Society of Washington on "Archeological Investigations Around Bering Strait." He also explained the anthropological exhibits to students from Richmond, Va.

Throughout the year from time to time talks on various subjects were given by members of the staff to college, normal-school, and grade-school pupils. Certain schools of the District and of cities near to Washington set aside definite days of the week during which a study is made of the Indian exhibits. Students from the Felix Mahony National School of Fine and Applied Art came regularly to study decorative art designs as typified in our cultural exhibits of peoples.

Many loans of ethnological objects of an educational nature were made to schools, these being chiefly designed to instruct children of grade-school age. Pageants, dances, plays, theater displays, fine-arts exhibits, and theatrical and vocal entertainments were aided by the loan of appropriate ethnological material that provided a bit of local color and the proper setting for various occasions. When these requests for loans are informal and the project is a local one, the loans are classified as educational, though no statistical entry is made beyond the preparation of lists of specimens for receipt signatures.

By invitation, N. M. Judd, curator of archeology, addressed the National Education Association at Columbus, Ohio, July 2, 1930, describing recent explorations in the Southwest and the use of tree rings in determining the age of prehistoric Pueblo ruins.

On March 17, 1931, Assistant Curator Setzler explained for the Anthropological Society of Washington "The Moundbuilder Cultures of the Upper Mississippi Valley."

The curator of physical anthropology, Doctor Hrdlička, gave a number of lectures during the past fiscal year, the principal ones being as follows: Animal-like Manifestations in the Human Child, Connecticut College, New London, Conn.; The Search for Man's Migrations in Alaska, American Philosophical Society, Philadelphia, Pa.; The Teeth of White Man Five Thousand Years Ago, District of Columbia Dental Society, Washington, D. C.; Man's Future in the Light of His Past and Present and Its Bearing on Medicine, Jefferson Medical College, Philadelphia, Pa.; Notes on the Humerus, American Association of Physical Anthropologists, Cleveland, Ohio;

Smithsonian Anthropological Explorations in Alaska, Section H of the American Association for the Advancement of Science and American Association of Physical Anthropologists, Cleveland, Ohio; Animal-like Manifestations in the Human Child, American Association for the Advancement of Science, Cleveland, Ohio; Disease, Medicine, and Surgery in Prehistoric America, Cleveland Medical Library Association, Cleveland, Ohio; The Problems of the Origin and Antiquity of the American Aborigines in the Light of Recent Explorations (a series of four lectures), Wagner Free Institute of Science, Philadelphia, Pa.; and Disease Among Primitive Peoples, Navy Medical College, Washington, D. C.

In addition to these, a demonstration on the collections was given on September 12, 1930, to the classes of the Lucy Webb Hayes National Training School, Washington, D. C.

A demonstration on the anthropological collections was given on March 28, 1931, in the National Museum Auditorium to the American College of Physicians in a series of three talks: (1) Arthritis, All Forms and Stages; (2) Tertiary Syphilis in Bones; (3) Pathological Conditions and Defects of the Ear.

Two classes from the local high schools were conducted through the Worch collection of pianos by Mr. McCoy, who explained to them the several types of keyboard stringed instruments and the characteristics of each.

Members of the staff of the department of biology on various occasions guided inquirers and students through the exhibition halls of the Museum. Dr. Remington Kellogg and Dr. Paul Bartsch conducted members of the 4-H Club on their annual visit to Washington, pointing out the interesting objects and explaining the various exhibits. Dr. Herbert Friedmann gave five 1-hour classes for ladies of the Audubon Society who were to teach bird-study classes for school children. He also supervised the work of a graduate student at the George Washington University studying North American birds, and lectured on African birds before the graduate seminar in zoology at George Washington University, and on the evolution of birds before the Biology Club of Hood College. In the division of reptiles, Miss Doris Cochran supplied students from universities with information on reptiles and amphibians and identified many living specimens for them.

Similar assistance was rendered by Barton Bean, of the division of fishes, to students from the public schools of the District and the State of Maryland, while classes from the University of Maryland were shown through the laboratories and collections.

Dr. Waldo L. Schmitt lectured before the psychology classes of George Washington University on the nervous systems of invertebrates, and Clarence R. Shoemaker assisted the Audubon Society

in connection with bird-study classes and field trips. Dr. Paul Bartsch, in November, 1930, took part in a symposium on Looking Forward 30 Years in Graduate Work at the University of Iowa, covering the biological aspect of the question. While at Iowa City he lectured before the graduate students in biology on the present status of taxonomy. He also gave a radio talk on scouting, over Station WRC, Washington, D. C., under the auspices of the Community Chest of Washington.

Austin H. Clark continued to serve as an intermediary for the American Association for the Advancement of Science, in contacts between this organization and representatives of the press. He also gave several talks, including Science and the Public, before the Lions Club; Experiences of a Naturalist, before the Washington Club; and The Radio and the Museum, before the American Association of Museums, at Pittsburgh, Pa.

The staff of the division of plants assisted inquirers and students by suggesting helpful literature and sources of material and information. E. P. Killip delivered an illustrated popular lecture entitled "Across the Andes and down the Amazon for Plants," summarizing his field work in Peru and Brazil, at the Carnegie Museum, Pittsburgh, Pa., the Rochester Academy of Sciences, the Garden Club, Pittsford, N. Y., and Johns Hopkins University.

All members of the department of geology staff utilized the educational value of our exhibits in conducting parties of students through the halls. Among these groups the National 4-H Club may be mentioned, Doctor Bassler and Doctor Gidley serving as guides on the occasion of their annual visit. Requests for similar service by those in charge of pupils from local and visiting schools have been frequent.

There have been many miscellaneous educational activities in the department of arts and industries. In the division of graphic arts, series of specimens illustrating the various steps in the making of prints were constantly circulated for loan exhibition all over the United States, the six traveling exhibits illustrating "How Prints Are Made" being shown in 54 places during the past year.

Members of the staff of the division of mechanical technology lectured to classes of students periodically throughout the year. Assistant Curator Garber gave a series of four lectures on aeronautics at Catholic University of America during the winter, which were repeated later by request at the United States Bureau of Standards. In the memorial meeting for Glenn H. Curtiss, pioneer in aviation, held during the winter in New York by the Manufacturers' Aircraft Association, the Museum assisted by a series of lantern slides illustrating Curtiss's aeronautical life. Instruction was furthered at the United States Naval Academy, Annapolis, Md., by a series of

27 photographs of the Babcock and Wilcox boiler exhibit in the Museum, for use in the academy's course on steam engineering.

Exhibits in the textile halls continued popular with the local schools, and many requests were made for explanations of the technical processes used in the manufacture and ornamentation of cloth. Fifteen lectures or talks to educational groups were so given by the employees of the division of textiles during the year. Talks on textile design were given by the curator to the Abbott School of Fine and Applied Art and to the class in costume design from Central High School. Talks on fibers and fabrics were likewise given to a large class from the Hyattsville (Md.) Public School under the care of practice teachers of the University of Maryland, to a class from the Minor Normal School, Washington, and to the senior class of the Lakeland (Md.) High School. A talk on the wood collections of the National Museum was given by the assistant curator before the Syracuse University alumni of Washington.

During the National 4-H Club Camp, composed of prize-winning farm boys and girls from 40 States, held on the grounds of the Department of Agriculture during the latter part of June, 1931, a delegation of about 150 visited the Arts and Industries Building of the Museum. Talks were given on exhibits of particular interest.

Dr. Jackson L. Davis, of the faculty of the College of Dentistry, Howard University, utilized dental patent models for demonstration purposes in a lecture pertaining to the history of dentistry. Students from the city's dental colleges found the patent models of particular interest.

Professors Davis and Green, of Howard University College of Pharmacy, visited the division of medicine on several occasions with their classes for the purpose of studying the physical characteristics of the crude materials used as ingredients of the official medicines of the United States. These and other classes visited the division to test their ability to identify the official medicinal materials.

The history of medicine and materia medica collections continued to attract the interest of medical students, many making use of them continuously throughout the year. Students of the various local high schools have been delegated by their instructors to visit the Museum and to prepare compositions describing one or more of the hygiene and sanitation exhibits. Student nurses from Washington and out-of-town hospitals have made constant use of the collections having bearing on their work.

Students of the art schools constantly consult the exhibits in the division of graphic arts, coming sometimes in groups with their instructors and at other times individually. The engraver's press

in the workroom of the division is used frequently to demonstrate the printing of a plate and has often been the means of specimens being contributed for the permanent collection of the Museum.

Of special interest and value was the demonstration of the making of an aquatint given in the largest graphic art exhibition hall on April 11, by Will Simmons. This was attended by about 80 persons—art teachers, art students, collectors, librarians, and others. Mr. Simmons covered the subject of etching very thoroughly.

In the division of history during the year much information of an educational character was given by the staff not only to individuals but also to groups of students, clubs, and other gatherings.

VISITORS

The Museum buildings were open during the year as usual on week days from 9 a. m. to 4.30 p. m. and on Sunday afternoons from 1.30 to 4.30, with the exception of the Aircraft Building, which was open only four months during the entire year, on week days from 9 a. m. to 4.30 p. m. All buildings remained closed on Christmas and New Year's Days.

The flags on the buildings were placed at half-mast on April 9, 1931, commencing at 1.15 p. m., and on April 10 and 11, out of respect for the late Speaker of the House of Representatives, the Hon. Nicholas Longworth. On Memorial Day the flags were flown at half-mast on the Smithsonian and Museum buildings from 8.30 a. m. until 12 o'clock noon. They were flown at full mast from 12 o'clock noon until 4.30 p. m.

Visitors for the year aggregated 1,669,140, against 1,894,987 for the preceding year, reflecting in part economic conditions of the country, the decrease being chargeable in part to the closing of the Aircraft Building for a period in excess of seven months. The average attendance for week days was 4,452 and for Sundays 5,472. The number of visitors to the Smithsonian Building on week days was 210,118, and on Sundays was 48,498, a daily week-day average of 675 and a Sunday average of 932; to the Arts and Industries Building 615,138 on week days and 116,048 on Sundays, a daily week-day average of 1,978 and a Sunday average of 2,231; to the Natural History Building 511,468 on week days and 120,030 on Sundays, a daily week-day average of 1,645, and a Sunday average of 2,309; and to the Aircraft Building during the year 47,840, a daily average of about 475.

The accompanying graph (fig. 1) shows monthly attendance in the Museum buildings through the year. There is a great increase in visitors that begins toward Easter time and culminates in the mid-summer vacation period, while with the opening of schools in Sep-

tember the number drops off rapidly and continues at a relatively low level until toward spring. The data used form the average for the period 1920 to 1931.

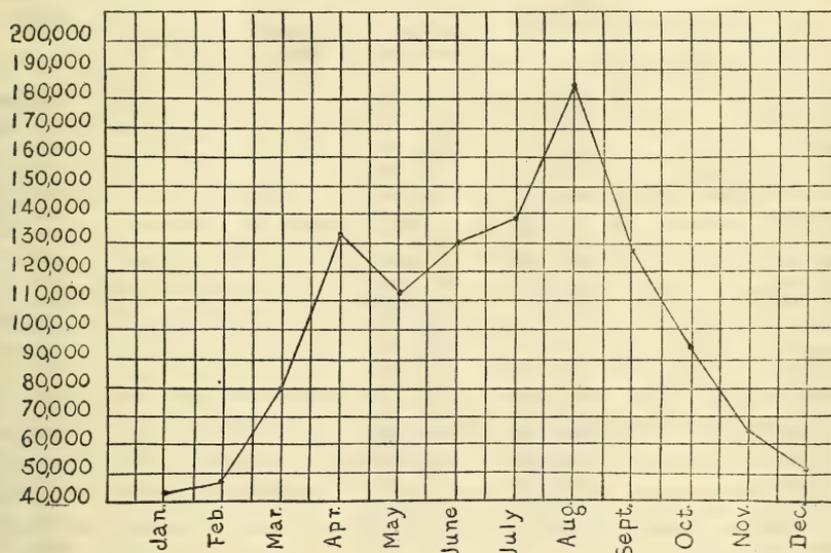


FIGURE 1.—Average monthly attendance of visitors in the United States National Museum (compiled for the period 1920 to 1931, inclusive)

Tables 1 and 2 show, respectively, the attendance of visitors during each month of the last year and for each year since 1881, when the building now devoted to arts and industries was first opened to the public:

TABLE 1.—Number of visitors during the year ended June 30, 1931

Year and month	Smithsonian Building	Museum buildings			Total
		Arts and Industries	Natural History	Aircraft	
1930					
July	30,622	91,516	67,174	13,608	202,920
August	40,798	112,283	85,874	16,131	255,086
September	23,776	69,599	51,372	9,560	154,307
October	18,497	52,194	44,941	1,117	116,749
November	12,240	31,249	33,791		77,280
December	8,721	21,601	23,832		54,154
1931					
January	8,712	21,357	25,115		55,184
February	9,885	27,023	30,989		67,897
March	13,262	36,389	38,514		88,165
April	42,341	117,517	97,941		257,799
May	20,180	66,540	54,425		141,145
June	29,582	83,918	77,530	7,424	198,454
Total	258,616	731,186	631,498	47,840	1,669,140

TABLE 2.—Number of visitors to the Smithsonian and Museum Buildings since 1881

Year	Smithsonian Building	Museum buildings			Total
		Arts and Industries	Natural History	Aircraft	
1881	100,000	150,000			250,000
1882	152,744	167,455			320,199
1883	104,823	202,188			307,011
1884 (half year)	45,565	97,661			143,226
1884-85 (fiscal year)	105,993	205,026			311,019
1885-86	88,960	174,225			263,185
1886-87	98,552	216,565			315,114
1887-88	102,863	249,665			352,528
1888-89	149,618	374,843			524,461
1889-90	120,894	274,324			395,218
1890-91	111,669	286,426			398,095
1891-92	114,817	269,825			384,642
1892-93	174,188	319,930			494,118
1893-94	103,910	195,748			299,658
1894-95	105,658	201,744			307,402
1895-96	103,650	180,505			284,155
1896-97	115,709	229,606			345,315
1897-98	99,273	177,254			276,527
1898-99	116,912	192,471			309,383
1899-1900	133,147	225,440			358,587
1900-1901	151,563	216,556			368,119
1901-2	144,107	173,888			317,995
1902-3	181,174	315,307			496,481
1903-4	143,988	220,778			364,766
1904-5	149,380	235,921			385,301
1905-6	149,661	210,886			360,547
1906-7	153,591	210,017			363,608
1907-8	237,182	299,659			536,841
1908-9	198,054	245,187			443,241
1909-10	179,163	228,804	50,403		458,370
1910-11	167,085	207,010	151,112		525,207
1911-12	143,134	172,182	281,887		597,203
1912-13	142,420	173,858	319,806		636,084
1913-14	102,645	146,533	329,381		578,559
1914-15	40,324	133,202	321,712		495,238
1915-16	48,517	146,956	381,228		576,701
1916-17	86,335	161,700	407,025		655,060
1917-18	67,224	161,298	401,100		629,622
1918-19	101,504	266,532	¹ 132,859		500,895
1919-20	86,013	250,982	422,984		759,979
1920-21	90,235	286,397	467,299	31,235	875,166
1921-22	83,384	262,151	441,604	46,380	833,519
1922-23	95,168	259,542	508,518	42,904	906,132
1923-24	104,601	290,012	540,776	43,534	978,923
1924-25	107,342	304,858	557,016	52,787	1,022,003
1925-26	110,975	355,762	581,563	58,005	1,106,305
1926-27	128,868	380,430	561,286	82,628	1,153,212
1927-28	175,190	517,238	618,773	102,185	1,413,386
1928-29	277,295	868,952	650,815	132,563	1,929,625
1929-30	282,482	863,479	625,326	123,700	1,894,987
1930-31	258,616	731,186	631,498	² 47,840	1,669,140
Grand total	6,636,165	13,688,161	9,383,971	763,761	30,472,058

¹ Building open for only 3 months of the year.² Building open for only 4 months of the year.

PUBLICATIONS

The publications issued during the year include seven volumes, namely, the Annual Report for 1930; Bulletin 82, volume 1, part 3, A Monograph of the Existing Crinoids—The Comatulids, by Austin Hobart Clark; Bulletin 100, volume 11, Contributions to the Biology of the Philippine Archipelago and Adjacent Regions—The Fishes of the Families Pseudochromidae, Lobotidae, Pempheridae, Priacanthidae, Lutjanidae, Pomadasyidae, and Teraponidae, Collected by the United States Bureau of Fisheries Steamer *Albatross*, Chiefly in Philippine Seas and Adjacent Waters, by Henry W. Fowler; Bulletin 154, A Study of the Teiid Lizards of the Genus *Cnemidophorus*, with Special Reference to Their Phylogenetic Relationships, by Charles E. Burt; Bulletin 155, The Birds of Haiti and the Dominican Republic, by Alexander Wetmore and Bradshaw H. Swales, and small editions, for office use, of the complete volume 76 of the Proceedings of the National Museum and of Contributions from the United States National Herbarium, volume 24, Plant Studies—Chiefly Tropical American. Forty-one separate papers published include one paper in the Contributions from the National Herbarium and 40 in the Proceedings.

The distribution of volumes and separates to libraries and individuals on the regular mailing lists aggregated 74,197 copies, while in addition 12,483 copies of publications issued during this and previous years were supplied in response to special requests. The mailing lists have been carefully revised to avoid so far as possible loss in distribution.

During the year there were printed 929,618 forms, labels, and other items, and 1,465 volumes were bound.

LIBRARY

The library of the National Museum consists of the collection of books on natural history in the Natural History Building, the technology collection in the Arts and Industries Building, and the 36 special collections located in various offices advantageously to the work of the curators and their assistants. It is a main division of the Smithsonian Institution library, ranking in size and importance next to the Smithsonian deposit in the Library of Congress. The year just closed was one of the most successful in its history, especially in the progress it made toward becoming an instrument for immediate reference worthy of the leading scientific museum of the Government.

Many gifts of publications of different kinds received, as usual, by the Smithsonian Institution will be mentioned in detail in the libra-

rian's report to the Secretary. A large number of these were assigned to the Museum library and others will be transferred there later. In addition to these, numerous gifts were made directly to the Museum. Among them was one of several thousand volumes and pamphlets, chiefly on geology and allied subjects, together with files of photographs and autograph letters, belonging to the estate of the late Dr. George P. Merrill, presented by Mrs. Merrill and the other heirs. This valuable collection was given shelf room in Doctor Merrill's former office in the department of geology, where it will be kept as a permanent memorial to him. Another important gift—that of 101 volumes and 285 pamphlets of a general scientific character from the library of the late Dr. O. P. Hay, of the Carnegie Institution—came from the heirs of Doctor Hay's estate. Still other gifts were received, particularly from members of the Smithsonian Institution staff and their associates, including Secretary Abbot, Assistant Secretary Wetmore, Dr. William H. Holmes, director of the National Gallery of Art, Dr. J. M. Aldrich, H. G. Barber, Dr. Marcus Benjamin, E. J. Brown, Dr. E. A. Chapin, A. H. Clark, Dr. Herbert Friedmann, Dr. O. P. Hay, Dr. Walter Hough, A. B. Howell, Dr. Aleš Hrdlička, Neil M. Judd, Dr. Remington Kellogg, Dr. W. R. Maxon, G. S. Miller, jr., Dr. A. J. Olmsted, J. C. Proctor, Dr. Mary J. Rathbun, W. deC. Ravenel, Dr. C. W. Richmond, J. H. Riley, J. Townsend Russell, jr., Dr. Waldo Schmitt, Miss Marian Seville, and E. H. Walker. Mrs. Charles D. Walcott also presented a large number of publications to the library.

The routine work showed, in almost every phase, a marked increase. At the close of the year the library numbered 79,407 volumes and 109,129 pamphlets, the accessions for the year being 2,528 volumes and 832 pamphlets, or a total of 375 more than the previous year. Most of these came by exchange and purchase. The number of volumes bound was 1,402, which was 131 in excess of 1930. Many incomplete volumes were completed by special exchange correspondence, the publications received in response to such letters totaling 1,090, or 402 more than the year before. The staff entered 8,799 periodicals, employing to great advantage a new system of entry more in keeping than the old system with the general practice of libraries using Library of Congress cards. They catalogued or recatalogued 1,639 volumes, 785 pamphlets, and 17 charts—an increase of 427 over 1930. They also catalogued 311 volumes and pamphlets and entered 533 periodicals for the National Gallery of Art—twice the number of the year before. They added 11,193 cards to the Museum catalogues and revised 672 catalogue headings. They added 8,056 cards to the shelf lists, of which 860 were for current items and 7,196 for older

publications already in the library, and prepared 6,023 duplicate cards for the union shelf list in the Smithsonian building. They assigned to the sectional libraries 6,522 volumes and parts and distributed 1,419 reprints to the curators for their personal files.

The loans of publications to the administrative staff, curators, and other employees of the Smithsonian Institution and its branches numbered 7,221, more than one-third of which were recorded at the charging desk in the Arts and Industries Building. Most of these publications were, of course, the property of the Smithsonian Institution and the Museum, but 2,049 were borrowed from the Library of Congress and 271 from other libraries, notably from the Department of Agriculture, the Geological Survey, and the Army Medical Museum. A good many, however, had to be obtained out of town, such loans coming from the American Museum of Natural History, Cleveland Public Library, Cornell University, Harvard College, Marine Biological Laboratory at Woods Hole, Mass., Museum of Comparative Zoölogy, New York Public Library, Peabody Museum of Archaeology and Ethnology, University of Illinois, and University of Michigan. Loans to other libraries totaled 142 and included the following outside of Washington: The Agricultural and Mechanical College of Texas, California Academy of Sciences, Dartmouth College, Detroit Institute of Arts, E. I. du Pont de Nemours & Co., Goucher College, and such universities as California, Johns Hopkins, Kansas, Michigan, Nebraska, Princeton, Tennessee, Texas, and Wisconsin. In connection with the inter-library loan service the staff wrote 205 letters, in addition, of course, to hundreds of form letters that they filled out in the daily routine of borrowing and lending publications in Washington. To the Library of Congress 2,519 volumes were returned and to other libraries 407—in each case many more than usual, owing to the increased effort of the library staff to call in loans regularly and the prompt cooperation of the curators.

The Wistar Institute cards were filed as they came in, and the work of filing the large accumulation of Concilium Bibliographicum cards in the author set, begun shortly before the close of the previous fiscal year, was continued and brought up to date, 17,000 cards being added to the file. Incoming cards of the systematic set were sent to the sectional libraries that have recently started files on their own subjects.

The demands made on the library for information and especially for bibliographical assistance were many and varied, and the attempt to meet them satisfactorily formed an important part of the work of the staff. Dozens of requests came every day, both from the scientists

in person and by telephone, and from visitors. A large number also came by letter from various departments of the Government and from inquirers outside of Washington. Some were easily answered by consulting works of general reference, such as standard encyclopedias, dictionaries, atlases, and indexes. For others special and less well-known works had to be examined, while still others required long and careful search, often on slight clues, in different Government libraries, notably the Library of Congress and in other possible sources. This work took a great deal of time, as did the verification of many obscure and difficult bibliographical references.

In accordance with the general policy of the Smithsonian Institution library, the staff continued during the year the work of transferring to other libraries, especially the Library of Congress and the library of the Geological Survey, the duplicate sets, single volumes, and parts not needed by the Institution or its branches, to make room for the rearrangement and growth of the collections that are indispensable to Smithsonian research. Chief among these transfers were 1,935 publications of the United States Geological Survey and 904 of the Canadian Geological Survey. These volumes were not removed, of course, until they had been carefully searched for possible numbers lacking in the Museum sets. Likewise the duplicates among the publications of the Carnegie Institution of Washington were brought together and checked and lists prepared to be distributed to the scientists of the Institution for selection of items of personal interest to them. The number selected was 92. The rest, about 450, were sent back to the Carnegie Institution. In return, the Carnegie gave the Smithsonian Institution and the Museum as many of the volumes needed in their sets as were still available. Similar treatment was accorded the duplicate publications of the University of California, with the result that 476 were returned, and many received for the Museum set. The large miscellaneous collection of maps and atlases that had been stored for years on the third floor of the Arts and Industries Building was also carefully examined by the staff, with the assistance of several of the scientists, and a few were selected for the Museum files. The others, about 883 in number, were transferred to the Smithsonian deposit in the Library of Congress, where, in the division of maps, with its superior equipment and methods for taking care of maps of all sizes and types, they will be permanently accessible. Moreover, in due time they will be catalogued, and printed cards will be sent to the Smithsonian Institution for its union catalogue. Ten other files of publications not needed by the Museum were removed from the library. Eight of these, number-

ing about 750 items, chiefly of a semipopular nature, were placed in the Smithsonian deposit; the others, 244 volumes and parts and 97 volumes and parts, respectively, were sent to the Geological Survey and the Surgeon General's library. Preliminary arrangements were made also for the transfer of still other files that have no bearing on the work of the Smithsonian Institution or its branches to the Patent Office library and elsewhere. In the course of checking the various collections of duplicates and hitherto unsorted material in the libraries of the Institution, many publications were found that were lacking in the Museum sets.

By the aid of temporary appointees the main shelf list was finished early in the year and the taking of the inventory was begun; but, unfortunately, this could not be carried very far, as the temporary appointments expired in October and no funds were available for their continuance. It is particularly regrettable that this basic work could not have gone on without interruption, for a clear accurate record of what the library has, and where it can be found, is the *sine qua non* for prompt and effective library service, and the staff is seriously handicapped, both in meeting the daily needs of the scientists and in filling the many gaps still in the sets, by the inaccuracies, omissions, and ambiguities of the old records. The task of completing the inventory and revising the records—especially the catalogue—will take a long time under the most favorable conditions. It will take twice as long, to say nothing of the economic waste involved, if it must be done by a constantly changing succession of temporary employees.

The sectional libraries, as has often been pointed out in the librarian's annual reports, constitute an important tool in the work of the curators and their assistants. They present many library tasks, either never undertaken or begun and not finished, and should receive more expert attention than the present limited library staff can give them. This can be provided in one of two ways—by adding an assistant with library training to the permanent force of each department of the Museum not now supplied with one, or by enlarging the central library staff sufficiently to meet this peculiar need and opportunity for more complete and up-to-date service to these smaller library units, such as putting and keeping their collections in order, preparing shelf lists, catalogues, and indexes for them, and performing other necessary duties. During the fiscal year just closed the staff rendered what special assistance it could to several of these libraries, particularly those in the divisions of plants, mammals, and geology.

The 36 sectional libraries are as follows:

Administration.	Marine invertebrates.
Administrative assistant's office.	Mechanical technology.
American archeology.	Medicine.
Anthropology.	Minerals.
Biology.	Mineral technology.
Birds.	Mollusks.
Botany.	Old World archeology.
Echinoderms.	Organic chemistry.
Editor's office.	Paleobotany.
Ethnology.	Photography.
Fishes.	Physical anthropology.
Foods.	Property clerk's office.
Geology.	Reptiles and batrachians.
Graphic arts.	Superintendent's office.
History.	Taxidermy.
Insects.	Textiles.
Invertebrate paleontology.	Vertebrate paleontology.
Mammals.	Wood technology.

The needs of the Museum library remain very much as they were in 1930. The increase of \$1,000 in the appropriation for books and periodicals fell considerably short of meeting the requirements of the scientific staff, as it was necessary to postpone the purchase of many important items requested until the next fiscal year. Nor was the binding allotment adequate, for more than 600 volumes that had been prepared for the bindery during the year could not be released until after June 30, this large number of volumes being withdrawn from the shelves for months and therefore practically unavailable to the curators. There is immediate need of a generous increase in the annual allotment for binding, to enable the library both to bind the current volumes promptly and to advance more rapidly the binding of volumes of former years, including especially those that it is successful, often after much correspondence and delay and occasionally at some expense, in completing. But urgent as these two needs are, there is one that is still more urgent—that of a permanent library staff large enough to meet the requirements of the National Museum. To the present staff should be added at the earliest possible time two cataloguers to complete the inventory, revise the records, and hasten the cataloguing and recataloguing of the collections; two general library assistants to work in the sectional libraries; a typist to assist the cataloguers and thus free them from much purely clerical work; and another messenger to spend his time for the most part in the natural history library, where the need for increased messenger service is acute.

The installation of 400 feet of new shelving in the natural history library, finished toward the close of the previous fiscal year, necessitated the shifting and rearrangement of practically the whole col-

lection. This change relieved the congestion to a slight extent and made it possible to put into their proper places some of the longer sets, which had been shelved in other parts of the library. The collection is still badly crowded, however, and has practically no room to grow; and this, too, despite the fact that the annual additions to it are constantly increasing. This fine library, with its many rare items, deserves better treatment than it can possibly have under existing conditions, and it is earnestly hoped that space in one of the proposed new wings for the Museum can be assigned to it and especially equipped for it. As a preliminary, a careful study of the present and future needs of the collection and of the ways and means adopted by other museum libraries to meet similar needs should be undertaken. If it is not possible to assign room to the library in one of the new wings, additional space must soon be found for it in the part of the museum where it now is.

PHOTOGRAPHIC LABORATORY

The photographic laboratory of the Museum during the year made 2,200 negatives, 21,147 prints, 973 lantern slides, 70 enlargements, and 5 transparencies; developed 262 rolls of film, 77 film packs, and 48 cut films; and dry mounted 140 prints. These were required for record or for illustration by the National Museum, and by the National Gallery of Art and the Bureau of American Ethnology, which are served through a cooperative arrangement for their necessary photographic work. The work of this laboratory has been increasing steadily, the output for this year being appreciably more than that recorded in the previous report. There should be added to the activities of this unit a photostatic service for which there is steady call, to initiate which would require the services of an additional employee.

BUILDINGS AND EQUIPMENT

Building repairs and alterations.—As an important matter in construction there must be mentioned first work on the erection of steel galleries in the west and northwest ranges, ground floor, of the Natural History Building for the housing of the mammal collections, which have been stored temporarily in two exhibition halls on the second floor since their removal to this site during the war in 1917, when the Museum was taken over for office use in connection with war activities. Arrangements were made in the spring of 1930 for the preparation of necessary plans and specifications by the Engineering Division of the Office of Public Buildings and Public Parks. The ranges were closed to visitors on April 21, 1931, and actual work on the erection of the mammal galleries was started on April 15,

1931. The galleries in the two ranges proper will cover all the space between the exterior wall of the building and the partition walls inclosing the rooms in the two ranges; and, in addition, in the offices of the division of mammals galleries will be erected in rooms 51 to 53 and in the eastern half of room 57. The western half of this latter room is already occupied by a steel gallery and steel shelves containing the alcoholic mammal collection.

The auditorium was painted, as were also the corridors around the east, south, and west sides. A considerable amount of much-needed painting was done in ranges and halls on the first and second floors, many of which had not been painted since the completion of the building about 20 years ago. Metal and wooden window frames, both on the courts and on the exterior of the building, were painted, as were the walls and floors of the engine room.

Full sound-proof partitions made of studding and masonite were erected to divide some of the larger rooms in the division of insects. Radiators were installed in the departments of anthropology, biology, and geology. A revolving door made of East Indian mahogany was installed in the middle door opening at the north entrance of the Natural History Building. A base was installed for the new electric fire pump.

In the Arts and Industries Building the woodwork, including floors and plaster walls in the large corner room and the small room on the ground floor, west pavilion, were repaired for the installation of the new print shop. The southeast range, northeast court, side walls in the west hall, and side walls and ceiling in the west north range were repaired and renovated. The west north range was reconditioned for the reception of the period costume exhibit, and all rooms in the southeast pavilion occupied by the section of photography were repainted. The women's comfort room was enlarged by remodeling and reconditioning the rooms.

The Aircraft Building was weatherproofed by sealing joints of the iron roof, by constructing a concrete base at the bottom of the sloping sides around the entire exterior, and by repairing the drainage pipe from the roof. The building was also fireproofed by the installation of a sprinkler system and other repairs. The exterior of the building was repainted and the interior was renovated and painted.

In the Smithsonian Building the walls and ceilings in 12 rooms at the east end of the herbarium hall were pointed up and repainted, and insulating material was installed between the wood rafters and the upper side of the metal ceiling in the herbarium hall. Rooms 356 and 357, now assigned to the editor, were renovated and repaired. During the earlier part of the year the repairs and alterations in the

central basement, which were started during the previous fiscal year, were completed.

Heat, light, and power plant.—The plant for furnishing heat, light, and power to the group of Museum buildings was in continuous operation during the greater part of the year. It was not operated from July 1 to September 28, 1930, and was again closed down on May 28, and continued to be closed down to the end of the fiscal year, June 30, 1931. Steam was turned on the line leading to the old buildings and the Freer Gallery of Art on September 30, 1930, and was kept on continuously until May 27, 1931.

The consumption of coal was somewhat less than the preceding year, primarily on account of the mild winter and secondarily because of the fact that some of the electric current was purchased from the Potomac Electric Power Co., thus relieving the load on the boilers at times when all the exhaust steam was not needed for heating the Natural History Building.

The method of operation during the winter was somewhat different from that in years past. For the last year or more the smoke inspection in the District of Columbia has been much more stringent, and it has been a problem to operate steam boilers without particular and special equipment designed to prevent the emission of unlawful smoke. As the boilers in the Arts and Industries Building are not so equipped, they were not used during the last season except in emergencies. By the operation of the four boilers in the Natural History Building it was possible to get along without running the boilers in the Arts and Industries Building except for a few days.

No unusual expense was incurred for the upkeep of any of the equipment in the power plant, and no serious trouble was involved except in case of the furnace plates in the boilers. This, no doubt, was due to the method of operation, as it has been the custom in years past to level the fires at certain periods in order to burn the coal more evenly, but this small operation of the fires was the cause of smoke production considered to be unlawful.

The operation of the heating units in several buildings has been more satisfactory than heretofore, primarily because of changes in the heating systems. The Aircraft Building is now equipped with automatic temperature control, so that there is no overheating, and at the same time the building is kept in a comfortable condition. The extension of the automatic temperature control in the Arts and Industries Building has proved to be a great help and has no doubt brought about more economical operation. Five low radiators were installed in the Natural History Building, and it is planned to continue the gradual change from high to low radiators. Owing to this change, the third floor of the Natural History Build-

ing is being much better and more comfortably heated from year to year. The insulation of the ceiling of the main hall on the second floor of the Smithsonian Building has added greatly to the comfort of this hall, making it possible to heat it more readily in winter and to keep it cooler in summer. There has been much trouble with the water pipes in the Natural History Building, repair of many of the hot-water pipes being necessary because of stoppage by scale and rust, while some of the larger cold-water pipes were found to be in poor condition.

The quantity of coal used during the year in the operation of the plant was 3,329 tons, the average cost of the coal being \$5.65 a ton.

The consumption of electric current increased to such an extent that it was necessary to enlarge the cable connection with the Potomac Electric Power Co., extending from the north side of the Natural History Building to the switchboard in the east hall. The maximum electric load at the time the cables were increased from 750,000 C. M. to 1,500,000 C. M. in 1924 was 1,500 amperes. This load has continued to increase until it has reached a maximum of approximately 2,100 amperes, so that it was necessary to enlarge the cables, as the load was reaching the danger point. Two 1,000,000 C. M. cables were installed, one on each side of the neutral.

Beginning September 30 and ending June 30, 1931, electric current to the extent of 73,250 kilowatt-hours was purchased for use in exhibition halls of the Arts and Industries Building. The current for this building was not metered separately from the beginning of the fiscal year until September 30, because of the fact that the current used was metered with electric current used in the other buildings. The cost of winter current for the Arts and Industries Building was higher per kilowatt-hour than the cost of current purchased during the summer and considerably more than the cost of the current generated in the Museum plant. This unfortunate condition can not be overcome, owing to the fact that the Museum plant is entirely too small to generate all the current required by the Museum group of buildings, and since this plant will probably be eliminated in a few years, it would not be economical to enlarge it.

Electric current produced during the year totaled 613,000 kilowatt-hours, manufactured at a cost of \$0.0178 for each kilowatt-hour. The total cost of supplies used in generating electric current was \$4,010, labor in generating current \$6,395, and the cost of repairs \$398.

Much work has been done by electricians in the Arts and Industries Building looking to more satisfactory wiring, and considerable additional miscellaneous electrical work was performed in all the other buildings. The greater part of such work was for general upkeep and

repairs, which continue to increase from year to year on account of the added electrical equipment and apparatus, as well as the increase in the number and size of lights and general illumination. Normal limit switches, which add somewhat to the safety of the cars, were installed on nine of the elevators. Woven-wire mesh as an added safety factor was installed on all elevators where necessary.

The labor turnover has been very small, and while a great deal of work has been done in the power plant, little of this had any direct bearing on the plant itself, as it was concerned with repairing and changing the water pipes in connection with the fire-fighting equipment in the Natural History Building.

Ice plant.—The ice plant, located in the Natural History Building, which furnishes ice for all the Museum buildings, including the Smithsonian Building and the Freer Gallery of Art, was operated a total of 3,903 hours during the year, and produced 406.8 tons of ice at a total cost of \$679.36, or at the rate of \$1.67 a ton.

Fire protection.—The fire-fighting apparatus in our group of buildings was inspected and tested at various times throughout the year. All the portable acid-soda type of extinguishers were discharged, cleaned, and recharged during June. There was not a single extinguisher that failed to discharge properly, a record that has not been equaled in recent years. Eight new extinguishers have been purchased during the year and assigned to the various buildings. All the fire plugs in the buildings were flushed in the usual manner and cleaned, and all the fire plugs located in the Smithsonian Institution grounds were flushed for the same purpose.

The fire alarms in all the buildings were tested every three months and, with one exception, were found to be in operating condition. The boxes that failed to give the proper alarm were repaired and have since given no trouble.

The fire pump that was purchased from a special appropriation has been installed in the engine room of the Natural History Building for use during the summer months when there is no steam to operate the old fire pump. Heretofore, there has been no special means for raising the water pressure of the fire plugs in the National Museum during the summer months when the heating plant was closed down. The new pump, which is electrically driven, is capable of handling 500 gallons of water a minute against a pressure of 110 pounds.

For the protection of the Aircraft Building, a dry-pipe-sprinkler system has been installed and is inspected at regular periods.

A conference was held in the Commerce Building on April 3, 1930, to consider the advisability of organizing a committee to deal with fire prevention and fire protection in Government buildings.

Out of this meeting there was created the present Federal Fire Council, the members of which include representatives from all the Government departments and independent establishments. Regular meetings are held quarterly, their purpose being to formulate a set of requirements and regulations for standardizing fire-fighting equipment and fire-alarm devices. Representatives of the Federal Fire Council have made a detailed survey of the buildings in the Smithsonian group.

Furniture and fixtures.—The furniture added during the year included 20 exhibition cases and bases; 439 pieces of storage, laboratory, office, and other furniture; and 1,677 drawers of various kinds. During the same period, five exhibition cases and bases and 37 pieces of storage, laboratory, office, and other furniture were condemned as unfit for further use.

An inventory of furniture on hand on June 30, 1931, shows 3,756 exhibition cases and bases; 16,399 pieces of storage, laboratory, office, and other furniture; 54,000 wooden unit drawers; 4,712 metal drawers; 17,430 insect drawers; 20,690 special drawers; 1,176 wooden boxes; and 533 wing frames.

MEETINGS AND RECEPTIONS

The United States National Museum, with its well-equipped auditorium and lecture room, offers its meeting facilities to scientific and educational organizations for regular and special meetings, assisting, so far as is possible, in carrying out their programs. The auditorium and the lecture room were utilized on 102 occasions during the year. The list of organizations, with the names of the speakers and titles of lectures delivered, follows:

1930

July 17, 8 p. m. (room 43): Vivarium Society.

September 18, 8 p. m. (room 43): Vivarium Society.

September 20, 1 p. m. (room 43): Boy Scouts.

October 2, 8 p. m. (room 43): Entomological Society of Washington.

October 4, 2 p. m. (room 43): National Association of Retired Federal Employees.

October 4, 3.30 p. m. (room 43): Boy Scouts.

October 11, 3.30 p. m. (room 43): Boy Scouts.

October 14, 4.45 p. m. (room 43): Society for Philosophical Inquiry.

October 16, 8 p. m. (room 43): Vivarium Society.

October 21, 4.45 p. m. (room 43): Anthropological Society of Washington.

October 25, 3.30 p. m. (room 43): Boy Scouts.

October 27, 11 a. m. (room 43): Smithsonian Relief Association.

November 1, 3.30 p. m. (room 43): Boy Scouts.

November 1, 2 p. m. (room 43): National Association of Retired Federal Employees.

- November 6, 8 p. m. (room 43): Entomological Society of Washington.
 November 8, 3.30 p. m. (room 43): Boy Scouts.
 November 11, 2 p. m. (auditorium): United States Public Health Service.
 Six reels of motion pictures shown.
 November 11, 4.45 p. m. (room 43): Society for Philosophical Inquiry.
 November 15, 3.30 p. m. (room 43): Boy Scouts.
 November 18, 4.45 p. m. (room 43): Anthropological Society of Washington.
 November 20, 4.45 p. m. (auditorium): Vivarium Society.
 November 22, 3.30 p. m. (room 43): Boy Scouts.
 December 4, 8 p. m. (room 43): Entomological Society of Washington.
 December 6, 2 p. m. (room 43): National Association of Retired Federal Employees.
 December 6, 3.30 p. m. (room 43): Boy Scouts.
 December 9, 4 p. m. (room 43): Society for Philosophical Inquiry.
 December 13, 3.30 p. m. (room 43): Boy Scouts.
 December 16, 4.45 p. m. (room 43): Anthropological Society of Washington.
 December 17, 2 p. m. (auditorium): Bureau of Agricultural Economics, United States Department of Agriculture. Meeting of the National League of Commission Merchants, for the purpose of having explained to the fruit and vegetable trade of Washington, D. C., the provisions of the recently enacted perishable agricultural commodities act.
 December 19, 4.45 p. m. (auditorium): Anthropological Society of Washington. Address by Prof. Frantisek Postisil on European Dancing, illustrated with motion pictures and lantern slides.
 December 20, 3.30 p. m. (room 43): Boy Scouts.
 December 27, 3.30 p. m. (room 43): Boy Scouts.

1931

- January 3, 2 p. m. (room 43): National Association of Retired Federal Employees.
 January 3, 3.30 p. m. (room 43): Boy Scouts.
 January 8, 8 p. m. (room 43): Entomological Society of Washington.
 January 10, 3.30 p. m. (room 43): Boy Scouts.
 January 13, 4.45 p. m. (room 43): Society for Philosophical Inquiry.
 January 17, 3.30 p. m. (room 43): Boy Scouts.
 January 17, 4.45 p. m. (room 43): Helminthological Society of Washington.
 January 20, 4.45 p. m. (room 43): Anthropological Society of Washington.
 January 24, 3.30 p. m. (room 43): Boy Scouts.
 January 29, 8 p. m. (room 43): Wild Flower Preservation Society (Inc.). Business meeting, after which P. L. Ricker gave an illustrated lecture on Wild Flowers.
 January 29, 30, 10 a. m. (auditorium): Plant Quarantine and Control Administration, United States Department of Agriculture (Lee A. Strong, chief of administration, presiding). Addresses by several United States Senators and Congressmen. Motion pictures were shown.
 January 31, 3.30 p. m. (room 43): Boy Scouts.
 February 5, 8 p. m. (room 43): Entomological Society of Washington.
 February 7, 2 p. m. (room 43): National Association of Retired Federal Employees.

February 7, 3.30 p. m. (room 43) : Boy Scouts.

February 10, 4.45 p. m. (room 43) : Society for Philosophical Inquiry.

February 12, 6.30 p. m. (auditorium) : Maryland-Virginia Farmers' Marketing Association, for the purpose of discussing plans for the opening of a farmers' market on the Patterson tract, Fifth Street and Florida Avenue NE.

February 14, 3.30 p. m. (room 43) : Boy Scouts.

February 17, 4.45 p. m. (room 43) : Anthropological Society of Washington.

February 19, 8 p. m. (room 43) : Wild Flower Preservation Society (Inc.). Dr. E. T. Wherry gave an illustrated lecture on Ferns and Wild Flowers.

February 21, 3.30 p. m. (room 43) : Boy Scouts.

February 21, 4.45 p. m. (room 43) : Helminthological Society of Washington.

February 23, 8 p. m. (room 43) : Audubon Society of the District of Columbia. Dr. Arthur A. Allen, of Cornell University, gave an illustrated lecture on Native Birds and their Advantage to Golf Courses.

February 28, 3.30 p. m. (room 43) : Boy Scouts.

February 28, 8 p. m. (auditorium) : Biological Society of Washington. Dr. Raymond L. Ditmars, of the New York Zoological Park, gave an illustrated lecture on Reptiles.

March 4, 8 p. m. (room 43) : Wild Flower Preservation Society (Inc.). Alvah Godding gave an illustrated lecture on Trees and Wild Flowers.

March 5, 8 p. m. (room 43) : Entomological Society of Washington.

March 7, 3.30 p. m. (room 43) : Boy Scouts.

March 10, 4.45 p. m. (room 43) : Society for Philosophical Inquiry.

March 12, 8 p. m. (room 43) : Potomac Garden Club. Business meeting.

March 14, 3.30 p. m. (room 43) : Boy Scouts.

March 17, 4.45 p. m. (room 43) : Anthropological Society of Washington. F. M. Setzler gave an illustrated lecture on The Mound Builders' Cultures of the Upper Mississippi.

March 19, 8 p. m. (room 43) : Wild Flower Preservation Society (Inc.). Business meeting. P. L. Ricker showed part of a reel of motion pictures.

March 21, 4.45 p. m. (room 43) : Helminthological Society of Washington.

March 28, 10 a. m. (auditorium) : The American College of Physicians. Fifteenth Annual Clinical Session. Address by Dr. Aleš Hrdlička on Diseases of the Human Race.

March 28, 3.30 p. m. (room 43) : Boy Scouts.

April 2, 8 p. m. (room 43) : Entomological Society of Washington.

April 2, 8 p. m. (auditorium) : Wild Flower Preservation Society (Inc.). Dr. E. T. Wherry gave an illustrated lecture on Wild Flowers of West Virginia.

April 4, 2 p. m. (room 43) : National Association of Retired Federal Employees.

April 4, 3.30 p. m. (room 43) : Boy Scouts.

April 13, 3 p. m. (auditorium) : Eighth National and Sixth International Oratorical Contest. The Evening Star area. Contestants from eight Washington private and parochial schools.

April 14, 4.45 p. m. (room 43) : Society for Philosophical Inquiry.

April 18, 2 p. m. (room 43) : Helminthological Society of Washington.

April 21, 4.45 p. m. (room 43) : Anthropological Society of Washington.

April 22, 11 a. m. (auditorium) : Forest Service, United States Department of Agriculture. Three reels of motion pictures on Forestry shown.

April 25, 8 p. m. (auditorium) : Girl Scouts of the District of Columbia. Oratorical contest.

April 28, 2 p. m. (auditorium) : Bureau of Dairy Industry, United States Department of Agriculture. For meeting of International Association of Milk Dealers. Lantern slides and motion pictures shown.

April 30, 10 a. m. (room 43) : Biological Society of Washington. For meeting of zoological nomenclature committees of the scientific societies in Washington.

May 2, 2 p. m. (room 43) : National Association of Retired Federal Employees.

May 7, 8 p. m. (room 43) : Entomological Society of Washington.

May 8, 9.30 a. m. (auditorium) : Eighth National and Sixth International Oratorical Contest. Second-zone finals. Following contestants were entered: Miss Lucky Frank, of Chevy Chase High School; Gordon Walker, of Washington Lee High School, Arlington County, Va.; and Miss Lillian C. Pepper, of Notre Dame Academy, Washington, D. C.

May 8, 10 a. m. (room 43) : Biological Society of Washington. For meeting of zoological nomenclature committees of the scientific societies in Washington.

May 12, 4.45 p. m. (room 43) : Society for Philosophical Inquiry.

May 18, 8 p. m. (auditorium) : Carnegie Institution. Address by Sir James H. Jeans, of the Royal Society of London, on Out in the Depths of Space. Illustrated with lantern slides.

May 19, 8 p. m. (auditorium) : Metallurgical advisory committee of the Bureau of Standards, United States Department of Commerce, and Washington-Baltimore chapter, American Society for Steel Treating. Address by Dr. M. A. Crossman, of the Republic Research Corporation, on Nitriding. Illustrated with motion pictures.

May 20, 11.30 a. m. (auditorium) : Forest Service, Department of Agriculture. For the purpose of showing three reels of motion pictures on Forestry.

May 26, 12 p. m. (auditorium) : Seventh Annual National Spelling Bee. First prize of \$1,000 won by Ward Randall, of White Hall, Ill.; second prize of \$500 won by Charles Michel, of Bellaire, Ohio.

June 4, 3 p. m. (auditorium) : Department of Agriculture (director of scientific work). Address by Dr. Samuel C. May, of the University of California, on The Workings of the Government.

June 6, 2 p. m. (room 43) : National Association of Retired Federal Employees.

June 9, 10, 3 p. m. (auditorium) : United States Department of Agriculture Graduate School. Address by Dr. R. A. Fisher, of the Rothamsted Experiment Station, Harpenden, Herts., England, on Statistics.

June 16 to 23, 9 a. m. (auditorium and room 43) : Fifth National Farm Boys' and Girls' 4-H Club Camp. Conferences in connection with the 4-H club camp. Addresses by Dr. C. B. Smith, chief, office of cooperative extension work; Hon. Renick W. Dunlap, Assistant Secretary of Agriculture, illustrated with lantern slides; Sam H. Thompson, of the Federal Farm Board; Mrs. Jane Dester Rippin, director of research, Westchester County Publishers (Inc.), illustrated with lantern slides; C. F. Jenkins, president, Jenkins Laboratories. Talking pictures shown by the Western Electric Co., entitled "Our Government." Two reels of motion pictures shown by Lieut. Commander C. E. Rosendahl— Explorations in Siberia. A play, entitled "Camp Fire and Pioneer Days," was given by the delegates from the Western States, with Mr. Turner directing.

CHANGES IN ORGANIZATION AND STAFF

The organization of the National Museum is indicated in the list of the staff, given as of June 30, 1931, on the opening pages of this report. During the year here under consideration there have been certain changes in our administrative scheme, though the general plan of arrangement has remained unaltered.

As the most important of these changes there was established the position of Associate Director of the Museum, under the Assistant Secretary, to which place John E. Graf was appointed on March 5, 1931. Mr. Graf had long been connected with the administration of the Bureau of Entomology of the Department of Agriculture, where he was assistant chief, and came to the Museum well equipped both with scientific background and with administrative experience. Mr. Graf relieves the Assistant Secretary of the Smithsonian Institution in charge of the National Museum of many administrative matters, and his appointment also gives W. deC. Ravenel, administrative assistant to the Secretary, more time to devote to his duties as director of the department of arts and industries.

In the department of anthropology, the former divisions of American archeology and of Old World archeology were consolidated on September 1, 1930, as a division of archeology under Neil M. Judd as curator. Mr. Judd had served as curator of American archeology since January 1, 1919.

On January 31, 1931, Dr. Marcus Benjamin, editor of the National Museum since April 1, 1896, retired from active Government service under the provisions of the civil service retirement act. During Doctor Benjamin's incumbency there were published under his editorship 34 annual reports, 59 volumes of proceedings, and 106 bulletins, many of the bulletins in several volumes. In addition to his editorial work, Doctor Benjamin has achieved distinction as a chemist and as a writer on scientific, historical, and biographical subjects.

On the same date, January 31, there came the death of Narcissa Owen Smith, editorial clerk in the Museum under Doctor Benjamin for many years. The Museum printer, John Clagett Proctor, the last of our older employees concerned with our editorial work, retired under the law at the end of February, all this necessitating a complete reorganization in this office. Effective March 1, 1931, the editorial work of the entire Institution, hitherto carried under three separate heads, was consolidated in one central office under W. P. True, editor for the Smithsonian Institution. On April 16, Paul H. Oehser was appointed Museum editor by transfer from the Biological Survey of the Department of Agriculture. Miss Gladys O. Visel was transferred from the National Gallery of Art to be clerk in the Museum editorial office on March 1, and Frank W. Bright, of the Government Printing Office, on March 2 succeeded Mr. Proctor as compositor in the branch printing office in the Museum.

The section of photography with its collections illustrating methods and results in that art, a branch of the division of graphic arts, is the outgrowth of voluntary efforts of the chief photographer of the Museum. This was recognized on February 1, 1931, when Dr. A. J.

Olmsted, chief photographer, was appointed assistant curator of these collections, in addition to his position as chief photographer.

The work of Lester E. Commerford, in the office of correspondence and documents, was recognized on January 1, 1931, by change in his title to that of assistant chief of that office.

Mrs. Margaret G. Shoup came to the Museum on March 16, 1931, by transfer from the Department of Agriculture, to serve as secretarial clerk for the Associate Director of the Museum, Mr. Graf.

Frank M. Setzler was appointed assistant curator in the division of archeology on August 16, 1930, and Gustav A. Cooper, assistant curator in the division of stratigraphic paleontology on October 20, 1930.

Frank A. Taylor, assistant curator in the divisions of mineral and mechanical technology, on request was granted a furlough for four months from February 1, 1931.

T. Dale Stewart, aid in the division of physical anthropology, was on furlough from October 1, 1930, to June 15, 1931, to enable him to complete his medical course at Johns Hopkins University. During his absence Marcus S. Goldstein, who had previously served the Museum, was given temporary appointment in the division as assistant scientific aid.

The honorary appointment of Dr. George Grant MacCurdy as collaborator in anthropology was made permanent on April 13, 1931, and the appointment of J. Townsend Russell, jr., as honorary collaborator in Old World archeology was extended for one year from May 13.

The appropriations for the fiscal year 1931 included provision for four additional workers—the associate director already mentioned, a stenographer for the library, and two additional guards. The guard force has long been inadequate for our needs. The extension of the Saturday half holiday during the whole year, beginning March 7, 1931, necessitated an immediate further enlargement of the guard force, in order that the watchmen might be given the shorter week. The appropriation acts for the Museum for 1932 carried provision for eight additional guards after July 1, 1931, and it was possible, through previous savings on the salary rolls, to make these appointments before the end of the present fiscal year in order to put into effect the provisions for the Saturday half holiday. Likewise the clerical force was strengthened by the appointment of three stenographers at the close of 1931, provision for whom was carried in the 1932 appropriation acts.

The morale of the Museum workers generally was improved by the promotions provided at the beginning of the fiscal year and the adjustments under the Brookhart Act, which were effective from

July 3, 1930. In very few cases has the average of the grade been reached in the salaries now prevailing in the Museum. The advances in this direction, however, are greatly appreciated and do much to stabilize the force.

The provision of the act of May 22, 1920, amended July 3, 1926, that after August, 1930, no employee shall be continued in the civil service of the United States beyond the age of retirement for more than four years, necessitated the retirement this year of a group of efficient workers long on the Museum roll. On August 31, 1930, the following were placed on the retired list: Dr. James E. Benedict, assistant curator in the department of biology, after more than 40 years of service; Miss Nellie H. Smith, clerk in the administration office since April, 1890; J. W. Scollick, osteologist since July, 1884; John S. Prescott, electrician since January, 1896, and William O. Murray, skilled laborer, after 11 years' service in the Museum. On January 31, 1931, Doctor Benjamin, the editor, retired, as heretofore noted, together with George Marshall, taxidermist, who had about 50 years' service with the Institution; and on March 31, 1931, John M. Mohl, electrician's helper, left the active roll of the Museum after more than 33 years' service. Notice was received during the year of the retirement also of Jerome Patterson, watchman, for disability, on June 17, 1930.

The Museum through death lost three workers from its active roll: Miss Narcissa Owen Smith, on January 31, 1931, after 28 years' service, and two watchmen, Paul Schilke on January 1, 1931, and Robert L. Belt, February 4, 1931.

From its honorary list of workers the Museum lost by death Miss Isobel H. Lenman on February 3, 1931. Miss Lenman had served as an honorary collaborator in ethnology since March, 1927, and had long been interested in increasing the Museum collections in this department.

Dr. Frank Wigglesworth Clarke, honorary curator of mineralogy since December, 1883, died at his home in Washington, D. C., May 23, 1931. In the early years of his connection with the Museum, Doctor Clarke laid the foundation for our now justly celebrated mineral and gem collections, and his active interest in them and in their steady growth never flagged. In addition to his official duties as chemist at the United States Geological Survey, Doctor Clarke, in the early days, took active charge of the mineral collections, as the early reports on the activities of the division will show. Since his retirement from his duties at the survey he has visited the department frequently, and lately was particularly interested in the revision of the exhibits made possible through the acquisition of the Roebing and Canfield collections, which is now in progress. On his last visit

he expressed great satisfaction with the results accomplished, and it is a matter of regret that he could not see his work completed. Doctor Clarke's interest extended to the meteorite collection, a catalogue of which, prepared by him, was published in the Smithsonian Report for 1886.

Although never officially attached to the staff, Dr. Oliver Perry Hay, internationally known for his work in paleontology, particularly of the Pleistocene, carried on his researches in vertebrate paleontology at the Museum for nearly a quarter of a century, an association so intimate that he was regarded as one of the official family. His death on November 2, 1930, is much regretted by those who had the privilege of his friendship.

DETAILED REPORTS ON THE COLLECTIONS

REPORT ON THE DEPARTMENT OF ANTHROPOLOGY

By WALTER HOUGH, *Head Curator*

INTRODUCTION

With a smaller number of accessions the department has received a larger number of specimens than in any former year. Especially noteworthy, also, is the fact that the specimens have the qualifications of scientifically collected material, as a result of explorations directed by members of the Smithsonian staff. Alaska, as last year, furnished the bulk of the material, procured by Dr. Aleš Hrdlička from the Kuskokwim River Valley, and by Henry B. Collins, jr., from St. Lawrence Island. Herbert W. Krieger, through the financial assistance of Dr. W. L. Abbott, pursued explorations in Haiti, obtaining much of value supplemental to his previous work in the Dominican Republic. Explorations by the Bureau of American Ethnology were productive of much valuable material for the Museum. Several parties were in the field for the department at the close of the fiscal year. James A. Ford and Moreau B. Chambers were at Point Barrow and on St. Lawrence Island. Doctor Hrdlička was exploring a little-known region in southern western Alaska. The work of Frank M. Setzler in caves in Presidio County, Tex., for the Bureau of American Ethnology also should be especially mentioned.

ACCESSIONS FOR THE YEAR

Accessions totaled 146, or 16 less than received in the previous year, while the specimens numbered 14,569, or 5,556 more.

The division of ethnology reports 68 accessions and 12,085 specimens, as contrasted with 85 accessions and 6,432 specimens of the former year. Among these materials especial interest attaches to the bequest of the American Indian collection of the late Victor Justice Evans, of Washington, D. C. Mr. Evans for many years devoted much effort to bringing together a representative collection illustrative of the life of the American Indian. His collection, deposited by the executors of the Evans estate, Mrs. Victor J. Evans and Arthur L. Evans, numbers approximately 5,300 specimens, comprising costumes, weapons of war and the chase, pottery,

basketry, domestic implements, oil paintings, and other valuable materials, comprising one of the largest and most important gatherings collected by one individual. Much of the material is still in process of arrangement.

Excavations by Mr. Collins on St. Lawrence Island, Alaska, yielded a large number of important specimens assigned to various strata from the most ancient to comparatively modern. Excellent material was received as a gift from C. C. Roberts appertaining to native tribes of Ashanti, Benin, and the Gold and Ivory Coasts, West Africa.

The curator of archeology, Neil M. Judd, reports that during the fiscal year ended June 30, 1931, the division of archeology received 57 accessions totaling 1,750 specimens. For the last preceding year its totals were 16 accessions and 516 specimens for Old World archeology; 44 accessions and 1,396 specimens for the division of American archeology. The past year thus brought a slight decrease in new material.

The following noteworthy accessions were received during 1930-31: A miniature plaster model of the stucco-covered pyramid E-VII *sub*, at Uaxactun, northern Guatemala—the oldest known example of Maya architecture—presented by the Carnegie Institution of Washington; 546 specimens collected in 1929 for the Bureau of American Ethnology by Dr. Frank H. H. Roberts, jr., from Pueblo I pit houses and a superimposed Pueblo III ruin on the old Long H Ranch, between St. Johns and Houck, Ariz., and transferred by the bureau to the national collections; 9 antiquities from three sites in Mesopotamia and from Rhages, Persia, received as gifts from the Bruce Hughes fund, administered by the Smithsonian Institution; 83 objects, including textiles, basketry, and foodstuffs, from caves in Arizona and Coahuila, Mexico, formerly inhabited by the prehistoric Basket Maker and Pueblo peoples, collected and presented by the Peabody Museum of Harvard University, in exchange; 64 earthenware vessels and other artifacts, most of which have been dated by the Douglass tree-ring chronology, collected from four pre-Spanish ruins in Arizona by the 1929 Beam expedition of the National Geographic Society, and presented by the society; 182 specimens of textiles, bone, wood, and stone implements, from caves in northeastern Arizona occupied by prehistoric Basket Maker and Pueblo peoples, collected and presented by Charles L. Bernheimer, of New York City; 165 flint and bone implements from caves near Sergeac, Dordogne, France, collected in 1930 by the American School of Prehistoric Research and loaned by the Archaeological Society of Washington; 7 fragments of basketry, matting, and other textiles collected in a cave 6 miles northeast of Bend, Oreg., and

presented by Walter J. Perry, of Bend, Oreg.; 127 stone artifacts recovered at Monasukapanough, a prehistoric Saponi village in Albemarle County, Va., and presented by D. I. Bushnell, jr., of University, Va.

Doctor Hrdlička reports for the division of physical anthropology 18 accessions of 603 specimens for 1929-30 and 20 accessions of 674 specimens for 1930-31. Materials of much scientific value were received once more from Alaska, particularly from the important region of the Kuskokwim River, which, so far, has not been represented in our collections. In a large majority of cases this material, obtained during field work by the curator, consisted of fairly well-dated complete skeletons. A valuable addition came from Mr. Collins's work on St. Lawrence Island, and also through specimens obtained through the Alaska Agricultural College. An exceedingly valuable lot of material was obtained by the curator from F. O. Waage, 3d, of the American School of Classical Studies at Athens, Greece, consisting of a series of skulls and jaws from a very early Greek burial. Still another important collection came from Florida as a transfer from the Bureau of American Ethnology. In addition, there were numerous small lots from various sources.

The section of musical instruments reports that there was one accession for the year. Several inquirers were given information, and some photographs of instruments were made for magazines. The printing of the remainder of the labels for the Worch collection of pianos was begun. They will be completed and placed on the instruments within a few months.

In the section of ceramics the accessions, numbering six, comprise a larger number than for 1930. These are equally divided between glass and pottery. There were 2 loans, 1 purchase, and 3 gifts. Installation and arrangement of the collection and any necessary renovations were performed by R. A. Allen. Glassware and chinaware from Clear Drinking Manor, Md., were lent by Mrs. Copeland Jones. Stockton W. Jones presented porcelain transparencies. Munger's Gift Shop, of Asheville, N. C., presented eight pieces of real distinction, made by W. B. Stephen, of the Pisgah Forest Pottery.

In the section of art textiles the five accessions were all gifts. Of especial importance is a gift from His Majesty, George V, of a chenille Axminster carpet made in 1851. This magnificent carpet was temporarily placed on exhibit in the Lace Hall. The moving of the lace collection and its temporary installation in the foyer were carried out in good order by Mr. Allen.

Mrs. Robert Barrett Browning gave a number of pieces of Italian inlaid furniture and bronzes of European origin, which were temporarily assigned to the division of ethnology.

INSTALLATION AND PRESERVATION OF COLLECTIONS

In the division of ethnology minor installations and adjustments of the exhibits now filling the halls were made. Chief of these was the placing of two group cases containing costumed figures from the Evans collection. A case of Navaho Indian jewelry and a case containing tribal relics of the Delaware Indians, also from the Evans collection, were placed on the exhibit floor. A group showing the ancient round boat, or kufa, used on the Tigris and Euphrates was installed. Aid in costuming the group was given by N. J. Cotta, of Baghdad.

Progress was made in placing the study collections in light-proof and dust-proof storages, and the collections in storage are now in better condition. Specimens on exhibit show deterioration from excess light, giving rise to the supposition that museums should use only artificial lighting. Work of the preparators and assistants was vigorously pursued on the incoming tide of materials.

The division of archeology has prepared a program for extensive revision of several State exhibits in the public halls. The large study series of stone artifacts from Virginia, chiefly quarry-site rejectage and surface finds, was materially reduced by the discarding of all insufficiently identified objects and other specimens of little use for research purposes. Thereafter the Virginia exhibit was completely rearranged to illustrate, so far as possible, local cultural variations and the relationship of each to those in neighboring States. The artifacts collected at the old Saponi village known as Monasukapanough and recently presented by D. I. Bushnell, jr., comprise an important feature in the present display. It is of interest to note that Monasukapanough was inhabited when Jamestown was settled, in 1607; that it is shown on Capt. John Smith's map of 1624; and that the burial mound associated with the settlement was excavated and described toward the close of the eighteenth century by Thomas Jefferson, who from his report may be identified as perhaps the first American archeologist. The material from this spot has thus great historic importance.

The Museum's collections from Texas, Kansas, Nebraska, and the Dakotas were also carefully studied and reinstalled. As a result the visitor should now gain a better understanding of the aboriginal cultures that have existed in these States, which have been somewhat meagerly represented in the National Museum. A series of plaster casts of rock inscriptions near Old Fort Harker, Kans., made from papier-mâché molds presented by C. H. Sternberg in 1880, are now exhibited for the first time. Three brilliantly painted, frescoed

stones from the Temple of the Chac Mool, underlying the Temple of the Warriors at Chichen Itza, an ancient Maya city in northern Yucatan, received as a loan from the Republic of Mexico through its secretary of public education, were installed in the hall of Mexican antiquities. Chichen Itza, one of the last of the great Maya cities, was first inhabited in 496 A. D. It was destroyed about 616 A. D., reoccupied in 964, and finally abandoned in 1448, 71 years before Cortez began his conquest of Mexico.

Under supervision of the curator, the staff devoted a considerable part of the winter and spring months to the preparation of the extensive collection exhumed in 1930 by Dr. Frank H. H. Roberts, jr., of the Bureau of American Ethnology. This material, from Pueblo III ruins on the Zuñi Indian Reservation, N. Mex., is finally in condition for recording. This was the largest of numerous routine tasks with which the division staff has been engaged.

Our American collections are to-day better arranged and more accessible for research than at any other time during the 20 years the curator has been associated with this division. Space available for study material, however, is practically exhausted, and it has become necessary temporarily to store new accessions in drawers and boxes in the attic. A few of these may find more suitable place as fragmentary and otherwise useless material is eliminated during furtherance of plans for revision of each State exhibit.

At the beginning of the fiscal year the work in New World and Old World archeology was merged into one division of archeology in the interest of better administration. The Old World material must be carefully examined before it can be rearranged and placed on a parity with the New World material. It is practicable at present to devote to the Old World collections only as much time as is necessary to their preservation until the division is prepared to begin their study properly. Special attention was given this section by the head curator.

Two additional exhibition cases of casts have been prepared by the division of physical anthropology and placed in the only available spot in the rotunda. It is desirable that these rare casts and also the excellent busts be made available to the public, and some way to effect this may be found during the coming year.

As to the study collections, the only arrears that remain are concerned with the great Huntington collection, which still remains in a large measure uncatalogued and unmarked. The delay here has been due to the necessity of first cleaning and degreasing the bones, work that with other duties required several years. Everything is now in final clean shape, but it will take months of work to number the bones.

INVESTIGATION AND RESEARCH

The head curator concluded investigations on the seating furniture in the Museum and submitted a manuscript now in press. Papers on Celebes decorative art and the pottery of the Elden Mesa pueblo also were prepared.

The curator of ethnology spent some time comparing data from other museums with our own practice and experience in the care and preservation of ethnological specimens. Two articles were published by him on the data. A study was made by the curator of aboriginal design areas in continental America and in Oceania, resulting in two manuscripts now in press. Work was continued in studying the archeology and historical narratives regarding the Arawak Indians of Haiti and of the Dominican Republic resulting in two published papers.

The assistant curator continued investigations on the prehistory of the Alaska Eskimo. This study resulted in one publication and in two manuscripts to be published, the one by the *Illustrated London News*, the other by the *Geographical Review*. He also continued investigations and prepared one manuscript on early Indian culture in Mississippi.

Research of outside investigators in the division was limited. The more important subjects selected for study by others are: Decorative designs, basketry, Navaho weavings, aboriginal uses of wire, Philippine brasses, Tibetan rosaries, prayer wheels and books, Japanese shoes, Winchester pottery (Baecher ware), masks, Catlin paintings, Shindler paintings, Ward collection of Congo ethnologica, Eskimo archeology, and Haitian aboriginal culture.

As for assistance given to other Government bureaus, the shoe division of the Patent Office was assisted in investigations on Japanese shoes. The Department of the Interior was advised concerning Indian bows and arrows. A loan for a brief time of Indian ceremonial objects was made to the Veterans of Indian Wars. The Government of Porto Rico was advised as to aboriginal Indian decorative art. The Bureau of American Ethnology referred many letters of inquiry on various subjects, and several Members of Congress were assisted with loans of assorted material.

Science Service was assisted in advice on manuscripts and articles covering a large number of topics. Various newspapers obtained photographs of diverse descriptions including Graham material from China, Isham material from Tibet, Roberts material from Nigeria, and collected material from the Eskimo of Alaska.

Five lots of material were received for identification.

As opportunity permitted the curator of archeology has continued with his report on the Pueblo Bonito explorations of the National

Geographic Society—explorations that he directed from 1921 to their conclusion in 1927. In collaboration with Dr. J. R. Swanton, D. I. Bushnell, jr., and Frank M. Setzler, considerable time was devoted to compilation of data for the miniature model of the Acolapissa temple group soon to be constructed.

Thirteen staff members from other museums called at the division during the past year. Miss H. Newell Wardle, of the University of Pennsylvania Museum, Philadelphia; Dr. S. K. Lothrop, of the Museum of the American Indian, Heye Foundation, New York City; and Henry B. Roberts, of the Carnegie Institution of Washington were engaged for brief periods with comparative studies on our collections.

Informally, and upon invitation, the curator has advised upon archeological questions with the National Park Service, the National Research Council, the National Geographic Society, the Archaeological Society of Washington, the Anthropological Laboratory at Santa Fe, N. Mex., and other organizations. The assistant curator, Mr. Setzler, has continued to advise the Indiana Historical Society and the Indiana Historical Bureau in their archeological survey of that State, work on which he was engaged when he accepted appointment with the National Museum.

Forty-three lots of archeological material were received for identification and subsequently returned to the senders.

Twice during the fiscal year the curator paid brief visits to the scene of investigations that D. I. Bushnell, jr., is conducting for the Bureau of American Ethnology near Charlottesville, Va. Assistant Curator Setzler motored to Havre de Grace, Md., late in October, 1930, to examine a collection that had been offered the National Museum.

The curator of physical anthropology has pursued his work of preparation of the catalogue of crania in the collection, and an additional section of this report was seen through the press. Researches were also carried on, and for the time being accomplished as well as published, on *The Skeletal Remains of Early Man* and on *Animal-like Manifestations in the Human Child*. In addition, an account of an Anthropological Survey in Alaska was finished and published.

The assistant curator in the division, Dr. T. D. Stewart, published a piece of valuable work on *Dental Caries in Peruvian Skulls*.

Rev. E. D. Beynon, of Detroit, Mich., spent one day in the division in connection with his studies on the Ostiaks. Dr. W. W. Graves, of St. Louis, Mo., was in the division February 17-21, 1931, studying the scapula collection. Rev. David C. Graham was in consultation with the curator on anthropometry. Dr. F. L. Stanton, of New York City, consulted the curator on dental research. Dr. C. J.

Connolly, of the Catholic University, Washington, D. C., continued his studies on the brain collection.

Seven lots of material were received for identification.

On August 20, 1930, the curator was invited by the Williamsburg Holding Corporation to make examination of a series of human skeletons unearthed during excavations at Williamsburg, Va. Sixty-one skeletons were examined and identified.

An office catalogue of the Worch collection of pianos, giving brief historical sketches of most of the manufacturers represented therein, was prepared by G. D. McCoy.

DISTRIBUTION AND EXCHANGE OF SPECIMENS

Loans of an official character were general in nature, appealing to a wide group of people. Such loans, made up in 14 lots, included 316 specimens. The loan collection designed for display in the Pavillon États-Unis of the Exposition Coloniale Internationale in Paris, traveled perhaps the greatest distance. It consists of two Indian village exhibit groups, some paintings, catlinite pipes and pipe pouches, and other objects exhibited under the care of the Hon. C. Bascom Slemph. Many loans of an educational order were made to teachers in the District of Columbia schools, such loans being usually returned within a few days.

Industry and business were aided through the loan of such material as a house model, totem pole model, and model of an Indian boat to the American Automobile Association to promote interest in Alaskan roads.

For the Girl Scouts exhibition at Memorial Continental Hall of a "festival of nations," a costume loan collection was assembled.

Another interesting loan was made up entirely of Javanese and Siamese marionettes and puppets for display at the Maryland Institute, Baltimore, Md. Puppet shows, like our own Punch and Judy displays, are sources of perpetual interest to children. Through this loan we contributed in arousing the interest of adults in this form of theatrical performance.

With the exception of those by Howard University and a few normal schools, no loans of a serious nature pertaining to ethnology as a science have been requested by schools or other organizations.

Exclusive of the loans and other temporary withdrawals from the division's collections, a total of 70 specimens were separated from the division—64 by exchange and 6 by withdrawal. To this list there should be added the gift to the Hon. Thomas B. Schall of one lot of unaccessioned eagle feathers.

During the past fiscal year 8 lots of archeological material, totaling 104 specimens, were sent out in exchange or as gifts to educa-

tional institutions, as follows: To E. H. Rogers, of Devon, Conn., 13 North American artifacts in exchange for 41 Peruvian and Mexican antiquities; in exchange for the courtesy of permitting the National Museum to make for its own collections casts of originals sent in for examination, duplicate casts were forwarded, respectively, to Ike Goldsmith, of Corsicana, Tex., and to J. G. Braecklein, of Kansas City, Kans. As gifts to other educational institutions 79 earthenware vessels and stone implements, chiefly from Elden pueblo, near Flagstaff, Ariz., were shipped to the Museum of Northern Arizona; 4 lots of potsherds from pueblo ruins described in recent Smithsonian Institution publications, to the Department of Anthropology, University of Chicago; 2 similar lots from the same ruins, respectively, to the Museum of the University of Michigan, Ann Arbor, and to the Laboratory of Anthropology, Santa Fe, N. Mex.; and 1 lot of pottery fragments from an ancient Indian village site in Mississippi to the Ceramic Repository, maintained at the University of Michigan under the auspices of the National Research Council. Maj. H. S. Bryan withdrew five specimens loaned by him in 1913, and the Hon. Hoffman Philip withdrew a bronze statuette of Bacchus, which he left as a loan in April, 1919. In addition, 23 geological specimens from various localities were transferred to the department of geology and 122 religious objects belonging to the E. Deinard collection, formerly preserved in Old World archeology, were transferred to the division of ethnology.

The division of physical anthropology made no distributions or exchanges of specimens during the year.

From the section of musical instruments a Clementi piano of 1810 was sent to the War Department as a permanent loan, to be used in the restoration of the Lee Mansion at Arlington. The Shudi harpsichord of 1747, also from the Worch collection, was included in the United States exhibit at the Paris Exposition, and is used in the replica of Mount Vernon.

In the section of ceramics one specimen was withdrawn by the owner, and in the section of art textiles 85 specimens were withdrawn from the collections by owners.

NUMBER OF SPECIMENS UNDER DEPARTMENT

During the fiscal year the department of anthropology received 146 accessions, comprising 14,569 specimens. Of these, 7 accessions with 326 specimens were loans, leaving a permanent addition of 14,243 specimens. The incoming material was distributed as follows: Ethnology, 68 accessions, totaling 12,085 specimens; archeology, 57 accessions and 1,750 specimens; physical anthropology, 20

accessions of 674 specimens; musical instruments, 1 accession of 1 specimen; ceramics, 6 accessions with 40 specimens; art textiles, 5 accessions and 10 specimens; 1 accession of 9 specimens, not otherwise assignable, was charged to anthropology in general.

On June 30, 1931, the total number of specimens in the department was 695,273, as follows:

Ethnology-----	188, 337
Archeology -----	465, 242
Physical anthropology-----	32, 461
Musical instruments -----	2, 070
Ceramics -----	5, 788
Art textiles-----	1, 366
Anthropology (not assigned)-----	9
	<hr/>
	695, 273

REPORT ON THE DEPARTMENT OF BIOLOGY

By LEONHARD STEJNEGER, *Head Curator*

While increment of specimens in itself is no criterion of progress, the large number of specimens incorporated in the collections under the department of biology, a number more than twice that of the previous year, certainly calls for explanation and comment. The increase during the past year reached the unprecedented figure of nearly 1,000,000 specimens, and while this enormous total is chiefly due to the accession of two collections, one in the division of insects, the other in the division of mollusks, the increase has been general in almost all divisions, with slight decrease in but two. The two collections alluded to are the Barnes collection of Lepidoptera, to be more particularly described under the additions to the division of insects, and the collections brought back by Dr. Paul Bartsch from the third cruise under the Walter Rathbone Bacon traveling scholarship.

During the cruise mentioned Doctor Bartsch, accompanied by several assistants, completed his field studies of the molluscan fauna of the West Indies. Chartering a motor-driven boat, the party traveled through the southern Bahamas, the islands off the south coast of Cuba, and the Cayman Islands. As they were independent of local means of transportation, it was possible to explore carefully many small islands inaccessible otherwise and therefore seldom visited by naturalists. The land shells obtained include about 250,000 specimens, besides 600 reptiles and amphibians, 925 bird skins, and some mammals, fishes, insects, and marine invertebrates. The material, which contains many novelties, is now being sorted and studied.

Field work by other members of the staff has been limited. Doctor Wetmore, accompanied by Frederick C. Lincoln, of the Biological Survey, traveled in Haiti and the Dominican Republic from the middle of March to the first of June, obtaining interesting collections in various branches, chiefly birds and reptiles. Gerrit S. Miller, jr., curator of mammals, during February, March, and April, 1931, carried on field work in Jamaica, and the curator of marine invertebrates, Dr. Waldo L. Schmitt, during part of July and August, 1930, pursued carcinological studies at the Carnegie Marine Biological Station, at Tortugas, Fla. Dr. J. M. Aldrich, curator of insects,

returned in July, 1930, from a collecting trip to the West described in last year's report. W. L. Brown, chief taxidermist, was detailed during two weeks in December, 1930, to collect mammals and other specimens on Hilton Head Island and Hunting Island, off the coast of South Carolina, for the particular purpose of securing good series of the deer and raccoons occurring there.

As a noteworthy event, which will contribute greatly to the development of this department, it is desirable here to call attention to the beginning of work on the galleries in the northwestern ranges of the ground floor to accommodate the mammal study collections, which, since 1917, have occupied exhibition halls on the second floor.

ACCESSIONS FOR THE YEAR

Allusion has already been made to the phenomenal increase in the number of specimens obtained for this department during the past year. The scientific value of these additions has been highly satisfactory, for not only has the systematic material in several large groups been supplemented in such a way that the Museum now offers students better opportunity than ever before for basic research, but the zoogeographical series from certain regions have become so complete as to permit exhaustive conclusions with regard to many important problems. It is particularly gratifying to point to the many gaps that are being filled in our series, as well as to the acquisition during the past year of a large quantity of type material, which makes the National Museum a mecca for students in all branches of descriptive biology.

The sources of the material that found its way into the collections of this department have been essentially the same as in previous years, viz, from explorations by members of the staff, by other Government agencies, and by friends and correspondents of the Museum. The various divisions have also augmented their series or filled gaps in their collections by exchanges with other institutions. The Barnes collection of Lepidoptera has come through transfer from the Bureau of Entomology, United States Department of Agriculture.

The explorations of Dr. D. C. Graham in Szechwan, China, and of Dr. Hugh M. Smith in Siam have been continued and have resulted in numerous valuable additions to the collections of the Museum. Through the courtesy of the Naval Observatory and the friendly cooperation of the Navy Department, Dr. Henry C. Kellers, United States Navy, was detailed to accompany the United States Naval Observatory eclipse expedition, which left San Francisco on July 31 and arrived at the island of Niuafoou on August 21, 1930. With his usual zeal and success, Doctor Kellers made most exhaustive collections of the natural history of that remote island, including

about 100 bird skins and more than 7,000 alcoholic specimens. Accounts of this expedition have been published in the Smithsonian explorations pamphlet for 1930. An addition of outstanding merit, including rich collections of mammals, birds, reptiles, and plants, has come from the Brazilian-Venezuelan border expedition of the National Geographic Society, under the leadership of Ernest G. Holt, which has been presented to the Museum by the National Geographic Society.

Mammals.—A collection of 56 mammals made by Dr. E. W. Nelson in Florida proved of unusual interest, as it consisted chiefly of a series of 48 raccoons from various coastal islands. From it three new races of raccoons have been described. Among the 44 mammals collected by W. L. Brown on islands off the coast of South Carolina was another new race of this same group. The 101 mammals brought back by Doctor Bartsch from the West Indies contained two new races of bats. The type of *Myotis quebecensis* Yourans, another bat, was received in exchange from the Academie Commerciale, Quebec. Dr. D. C. Graham sent 151 mammals from China, among them a perfect skin of the giant panda. Dr. Hugh M. Smith forwarded 69 specimens from Siam, notable among them a fine assortment of Siamese squirrels. In the gift of 39 mammals from the National Geographic Society, from the expedition under E. G. Holt to Brazil and Venezuela, there is 1 monkey new to our collections, and 1 previously represented by 3 individuals only. Other notable collections were received from Dr. R. K. Enders, Canal Zone, and Dr. Henry C. Kellers from Niuafoou. In the material collected by H. Harold Shamel from Missouri and Kansas were five mule skulls, valuable additions to the study series of account of the frequent requests received for the identification of bones of domestic animals.

Birds.—Bird skins received numbered 6,344, compared with 4,783 in the preceding year, while receipts in anatomical material consisted of 769 specimens, compared with 1,154 last year. Of eggs and nests there were received during the year 4,305 eggs and 21 nests, as against 210 eggs and 20 nests last year. A notable feature of the year's accessions was the acquisition of representatives of 16 genera new to the Museum, besides 330 species and subspecies hitherto unrepresented. Numerous types have also been added. The most important and noteworthy accessions were as follows: A collection of 3,800 eggs and 12 nests of North American birds from Gov. C. D. Buck, of Delaware; a collection of 256 skins and 25 skeletons of birds from Spain, collected by Dr. A. Wetmore (Smithsonian deposit); an exchange from the Staatliche Museum für Tierkunde in Dresden of 36 bird skins, including 4 cotypes and 21 forms new to the Museum;

from Marcus Daly, 4 lots comprising 59 skins of African birds of forms new to the Museum; from Dr. D. C. Graham, 2 lots containing 104 skins and 237 skeletons of Chinese birds; from the National Museum, Melbourne, Australia, by exchange, 2 lots containing 67 skins of Australian birds, including 4 genera and 17 forms new to the Museum; from Dr. Hugh M. Smith, a shipment of 753 skins, 9 skeletons, 2 eggs, and 2 nests of Siamese birds; from Dr. Paul Bartsch, traveling under the Walter Rathbone Bacon scholarship, 935 skins of birds collected in the West Indies; from the National Geographic Society, 3 lots comprising 1,905 skins, 49 alcoholics, and 11 eggs of birds collected by E. G. Holt on the Brazilian-Venezuelan border; from the Royal Natural History Museum, Stockholm, Sweden, by exchange, 3 lots containing 131 bird skins from various parts of the world, including topotypes of North American birds described from Sweden and about 70 forms new to the Museum; from the American Museum of Natural History, by exchange, 1 lot of 167 skins of birds from Ecuador, Mount Roraima, and Mount Duida, including 3 genera and 83 forms new to the Museum; from the Museum of Comparative Zoölogy, by exchange, 2 lots containing 42 skins of birds, including 1 genus and 39 forms new to the Museum; from the Biological Survey, by transfer, 1 lot of 845 skins, and a collection of eggs from Laysan, Wake, and other islands in the Territory of Hawaii; from the National Zoological Park, by transfer, 4 lots, including 105 bird skins, 77 birds in the flesh, and 2 eggs, including 1 egg of the California condor. Among other noteworthy accessions were 29 bird skins from South America purchased from W. F. H. Rosenberg; 19 skeletons and 2 skins of Patagonian birds from the Smithsonian Institution; 29 skins, 6 alcoholics, and skeletons of local birds presented by W. H. Ball; 4 bird skins, including 2 genera new to the Museum, obtained by exchange from the Raffles Museum in Singapore; 1 genus of Tyrannidae new to the Museum, from the Museu Paulista in Sao Paulo, Brazil; the type of *Corvus brachyrhynchus* received by exchange from Dr. Otto Kleinschmidt; 15 skins of birds new to the collections, purchased from the Songdo Higher Common School, Songdo, Korea; from the British Museum (Natural History) by exchange, a skin of the peculiar African quail-plover, *Ortyxelos meiffreni*, a genus hitherto unrepresented here; from the Carnegie Museum, Pittsburgh, Pa., by exchange, a genus of weaver birds, *Nesocharis shelleyi*, from Mount Cameroon.

Reptiles and batrachians.—Although the number of accessions in this division were practically the same as the year before, there were fewer specimens included. Nevertheless, there were a great many interesting additions and several novelties. Two new forms of snakes and one lizard were found among the material collected by Doctor Wetmore and Mr. Lincoln in Hispaniola, and Doctor

Bartsch's collections from various West Indian islands yielded four new lizards. Descriptions of all these have been published. The collections of Dr. D. C. Graham from China, of Dr. Hugh M. Smith from Siam, and of Dr. H. C. Kellers from Niuafoou, contained much important material. A small collection of frogs from Brazil was received from Dr. Adolpho Lutz, of Rio Janeiro. Specimens presented by the National Geographic Society, collected by E. G. Holt, were very welcome as coming from a region, the Venezuelan-Brazilian border, hitherto unrepresented in our collection. A beautifully preserved collection of amphibians and reptiles from Texas was presented by Dr. C. E. Burt, the turtles being of particular importance.

Fishes.—A collection of 13,835 specimens, mostly from Chesapeake Bay and its tributaries, was transferred to the Museum by the Bureau of Fisheries, United States Department of Commerce. An outstanding contribution of 319 specimens from Siam was received from Dr. Hugh M. Smith, among them types of 33 remarkable new species and 8 new genera, deposited in the Museum by the permission of the Siamese Government. All have been described by Doctor Smith and published during the year in the Proceedings of the Museum (No. 2873). A most important collection of 1,736 freshwater fishes from the interior of China and the Chinese-Tibetan borderland was received from Dr. D. C. Graham. Dr. H. C. Kellers's collection of fishes from the naval eclipse expedition to Niuafoou numbered 238 specimens. The Museum of Comparative Zoölogy donated 37 specimens of deep-sea fishes collected in 1929 by Columbus O'D. Iselin; and the Bingham oceanographic collections, Yale University, presented two paratypes of *Myctophum fibulatum proximus* and *Lampanyctus tuaningi*. A large sailfish caught by the Hon. William R. Wood, near the island of Sonora, Pearl Island group, Panama, presented to the Museum, is particularly interesting as showing some variation from normal specimens of *Istiophorus greyi*, possibly due to injuries when young. The specimen has been mounted and is now on exhibition.

Insects.—Without question, the single item of greatest interest in the course of the year's work is the acquisition of the Barnes collection of Lepidoptera. This collection was purchased by the Department of Agriculture through the addition to the appropriation for taxonomic investigations of the Bureau of Entomology of the sum of \$50,000, this amount having been agreed upon by the Barnes estate as an acceptable selling price, provided the collection went to the United States Government. The collection was packed for shipment and was transmitted to Washington in August, 1930, through the efforts of two of the bureau's specialists on Lepidoptera, August Busck and Carl Heinrich. Formal transfer of the specimens

belonging to this collection, and of the cases and boxes housing the same, from the Department of Agriculture to the Smithsonian Institution for the United States National Museum, was made by the Acting Secretary of Agriculture on February 11, 1931. During the consideration of the best means for arranging for the transport and housing of the collection in Washington, a detailed list of it, prepared some years ago by Foster H. Benjamin while he was actively engaged as its curator, was submitted to the Museum. The figures given in this statement of the contents of the collection, to the best of our knowledge, represent the most accurate information on the number of species and specimens in the collection now available. The summary of these figures is as follows:

Described species -----	9, 413
Described varieties -----	1, 411
Species represented by types -----	1, 752
Species represented by cotypes -----	1, 041
Species represented by specimens compared with types ----	3, 692
Estimated total number of specimens in the collection ----	473, 500

The acquisition of the Barnes collection, containing as it does representatives of practically all the North American species of Lepidoptera, is a very important step in the development of the collections in Washington as a center for investigation and research. Dr. William Barnes, of Decatur, Ill., gathered this collection during a lifetime of active interest in the subject. It is especially rich in good series of the Lepidoptera of North America, containing much valuable material from the western and southwestern portions of the United States. Doctor Barnes not only purchased liberally and employed collectors at his own expense, but he also employed a trained entomologist to arrange and identify the collection and sent this specialist on several trips to Europe for the purpose of studying type material in order to perfect the identifications. The acquisition of this collection by the National Museum is one of the important events in the history of the division of insects, comparable to the receipt of the Baker Philippine collection.

Among other accessions the following are of special interest: 20,472 miscellaneous insects, material retained from specimens sent here for identification, were received by transfer from the Bureau of Entomology. Dr. David C. Graham has continued active collecting and has sent us within the fiscal year more than 50,000 miscellaneous insects, many of them collected in little-known regions of western China along the Tibetan border. About 5,000 specimens of flies were purchased from Heinrich Schmidt, Costa Rica, who has sent an equal number as a gift to the Museum; this material was received unmounted and is not yet all prepared for installation. Dr. J. M. Aldrich's collecting trip in the Northwest during the summer of 1930

resulted in about 2,000 specimens of flies. The Naturhistorische Museum of Vienna sent in exchange 410 chalcid flies of Europe, a valuable named collection. Dr. H. M. Smith presented 736 insects from Siam, in continuation of his friendly cooperation with the Museum. Other important donations were as follows: D. S. Bullock, of Angol, Chile, about 1,320 insects from that country, labeled, including a large number of species all very well mounted; Judson Coxe, of Philadelphia, more than 500 specimens of butterflies and moths from Ecuador; E. L. Bell, of Flushing, N. Y., 476 insects from Jamaica; Frank Johnson, 428 especially fine specimens of Lepidoptera, adding materially to our series in this group; Dr. Joseph Bequaert, of the Harvard Medical School, 1,800 Hymenoptera from North and South America; Prof. C. P. Alexander, of Amherst College, 532 flies from various parts of the world, mostly identified crane flies; and the Philippine Bureau of Science, through R. C. McGregor, more than 1,200 miscellaneous insects from the Philippines.

Marine invertebrates.—The number of specimens of marine invertebrates received during the past year exceeds that of the previous year by 33,823. Among the more important collections the following may be mentioned: United States Department of Commerce, Bureau of Fisheries, 17,464 specimens of marine invertebrates; United States Navy Department, 1,292 specimens of marine invertebrates taken by Lieut. H. C. Kellers on the naval eclipse expedition of 1930 to Niuafoou Island; 6,200 specimens collected at Tortugas, Fla., by Dr. Waldo L. Schmitt, under the auspices of the Marine Biological Laboratory of the Carnegie Institution; Dr. D. C. Graham, of Suifu, Szechwan, China, 21,291 specimens from China and Tibet; Capt. Robert A. Bartlett, of New York City, 683 specimens from the northeast coast of Greenland; the Biological Board of Canada, through Prof. A. G. Huntsman, of Toronto, 235 crustaceans from Hudson Bay; G. H. Wailes, Biological Board of Canada, Nanaimo, British Columbia, 1,068 specimens from the west coast of Canada; Hopkins Marine Station, Pacific Grove, Calif., 233 specimens of crustaceans from California; Pacific Biological Laboratories, Pacific Grove, Calif., 1,508 specimens from California; Dr. A. S. Pearse, of Duke University, Durham, N. C., 266 specimens of crustaceans from Tanganyika Territory; Muséum National d'Histoire naturelle, Paris, 96 specimens from Oregon and Washington; H. G. Richards, University of Pennsylvania, 53 specimens of crustaceans from the northeast coast of the United States; A. Loveridge, Museum of Comparative Zoölogy, Cambridge, Mass., a collection of 166 crustaceans from Tanganyika Territory; Muséum National d'Histoire Naturelle, through Dr. Th. Monod, specimens of three species of isopods new to the collections; Dr. J. Paul Visscher, Biological

Laboratory, Western Reserve University, specimens of a terrestrial amphipod found for the first time in America; Melbourne Ward, Australian Museum, Sydney, New South Wales, 50 specimens of crustaceans from Australia and New Zealand; C. J. Shen, Fan Memorial Institute of Biology, Peiping, China, 27 crabs from China; Ivan R. Tomkins, United States dredge *Morgan*, Savannah, Ga., 50 marine invertebrates from Georgia; and Manuel Valerio, Lyceum of Costa Rica, San José, Costa Rica, 180 specimens of marine invertebrates from Costa Rica, among them the type of *Pinnixa valerii* Rathbun. Several smaller accessions worthy of special mention, because they contain type specimens deposited in the national collections, are as follows: Museu Paulista, through Dr. H. Luederwaldt, Sao Paulo, Brazil, types of 4 annelids described by Dr. A. L. Treadwell, *Spirographis braziliensis*, *Audouinea oculata*, *Nereis disparsetosa*, and *N. decora*; United States Bureau of Fisheries, types of two new species of sponges described by Dr. H. V. Wilson, *Suberites paradoxus* and *Tetilla laminaris symmetrica*; also types and paratypes of 7 annelids described by Dr. A. L. Treadwell, *Pionosyllis manca*, *Prionospio plumosa*, *Myriana cirrata*, *Macellicephala maculosa*, *Iphionella elongata*, *Onuphis branchiata*, and *Maldane philippinensis*; William W. Anderson, Grand Isle, La., types of 2 annelids described by Dr. A. L. Treadwell, *Eupomatus decorus* and *Lumbrinereis elongata*; Dr. W. K. Fisher, Hopkins Marine Station, types of 6 species of sponges to be described by Dr. M. W. de Laubenfels in a paper on the sponges of California; also types of 4 sipunculid worms, *Dendrostoma perimeces* Fisher, *Urechis caupo* Fisher and McGinitie, *Dendrostoma petraeum* Fisher, and *Poebius meseres* Heath; E. P. Creaser, Museum of Zoology, University of Michigan, 121 specimens of crustaceans mostly from Michigan, among them paratype of a new isopod and paratypes of 3 crayfishes described by the donor, *Caecidotes antricola*, *Cambarus peruncus*, *Cambarus* (*Cambarus*) *contreras* Form II, and *Cambarus hubbsi* Form II; also part of a type lot of amphipods, *Hyalolella ornata* Pearse; Caribbean Biological Laboratories (Inc.), through Stewart Springer, of Biloxi, Miss., 72 specimens of crustaceans, mostly from Mississippi and Louisiana, among them the holotype and paratype of a new crab, *Persephona crinita* Rathbun, and the type of a second new crab, *Calappa springeri* Rathbun; Frank J. Myers, of Ventnor, N. J., types and paratypes of 15 species of rotifers described by Myers, and Haring and Myers; Dr. Chancey Juday, of the University of Wisconsin, types of two new species of parasitic copepods, *Argulus biramosus* Bere and *Ergasilus confusus* Bere; Florida State Museum, through Dr. T. Van Hyning, director,

cotypes of a barnacle, *Pyrgoma floridanus* Pilsbry; M. C. Burkenroad, department of conservation, New Orleans, La., type and paratypes of a new medusa described by the donor, *Pseudoclytis longleyi*; and K. W. Verhoeff, of Pasing, Germany, types of 37 new species of isopods.

Mollusks.—The number of specimens accessioned during the past year, 282,546, is nearly double that of the previous year, chiefly because of the collections made by the curator under the auspices of the Walter Rathbone Bacon traveling scholarship, which yielded more than a quarter of a million land shells, embracing many new discoveries. Next in importance, as far as novelties are concerned, is the collection made by Doctor Wetmore and F. C. Lincoln on the island of Beata, off the south coast of Hispaniola, which contained no less than 16 types of new forms. With part of the income derived from the Frances Lea Chamberlain fund, 162 specimens of land shells from Natal, South Africa, were purchased. The Bureau of Fisheries, Department of Commerce, transferred to the Museum 509 specimens of mollusks. The following deserve special mention: A collection of 1,941 specimens from China sent by Dr. D. C. Graham; 1,000 specimens from Siam, from Dr. H. M. Smith; 681 specimens from F. E. Dutcher, of Springfield, Mass.; 10,400 specimens from Dr. C. Wythe Cooke, of the United States Geological Survey, collected chiefly in British Honduras; 886 specimens from Dr. C. Dwight Pierce, of Washington, D. C.; 1,200 specimens of land and fresh-water mollusks from Owen Bryant, Alberta, Canada; 159 specimens of South American land, fresh-water, and marine mollusks from Museo Nacional de Historia Natural, Buenos Aires, Argentina; 56 specimens of marine shells from Hudson Bay and vicinity from the Biological Board of Canada; 2 specimens of mollusks (paratypes) from Utah, from R. V. Chamberlin, of the University of Utah; 10 specimens of shipworms, including the type of *Teredo* (*Neoteredo*) *healdi*, from Dr. K. C. Heald, of Pittsburgh, Pa.; 1,200 specimens of mollusks collected by Dr. H. C. Kellers, from the naval eclipse expedition to Niuafoou of the United States Navy Department; 65 photographs, mostly of types and paratypes of South American fresh-water mussels, from the Senckenbergische Naturforschende Gesellschaft, Frankfurt on the Main, Germany; 1,037 specimens of mollusks from South Africa, from the University of Stellenbosch, South Africa; and 275 specimens of marine mollusks from Australia, from Mrs. W. Stewart, of Port Pirie, South Australia.

Helminths.—The largest and most important collection of helminths of the year is that received from Dr. Edwin Linton, of the University of Pennsylvania, which represents no less than 114 types.

Next to this may be mentioned the collections received from Dr. W. G. MacCallum, of Johns Hopkins University Hospital, containing 11 types; Dr. H. W. Manter, of the University of Nebraska, 11 types; Dr. A. S. Pearse, of Hongkong, 1 type; C. A. Swinyard, of the University of Minnesota, 1 type; and L. G. Ingles, of Bakersfield, Calif., 1 type.

Echinoderms.—The most important accession was received from the naval eclipse expedition to Niuafoou, 1930, and consisted of a collection made by Dr. Henry C. Kellers, while attached to this expedition. Included in this collection were 716 sea urchins and starfishes, as well as many ophiurans and holothurians. Among the sea urchins was a wholly unexpected new genus of the family Echinometridae, which was represented by two species. For the most part the collection consisted of a long series of the young of *Echinometra mathaei*, *E. oblonga*, and *Heterocentrotus trigonarius*. As these species were previously represented in the Museum collections almost exclusively by fully grown individuals, the material from Niuafoou was particularly welcome. Another important accession was a small collection of Japanese echinoderms received from Prof. A. S. Pearse, of Duke University, Durham, N. C.

Plants.—The accessions of plants for the fiscal year came in 310 lots, comprising 57,184 specimens, as against 312 accessions and 62,450 specimens for the preceding year. In general the material is of unusually high quality and has added greatly to the value of the National Herbarium, especially in relation to the floras of South America and eastern Asia. The more important accessions are as follows: 16,378 specimens transferred by the United States Department of Agriculture, including 14,836 received from the Bureau of Plant Industry, about 6,000 grasses from many sources, 3,500 specimens from Japan, and about 1,200 from Madagascar; 2,330 specimens of Colombian plants collected and presented by W. A. Archer, of Medellin, Colombia; 2,691 specimens, chiefly from Peru, received from the Field Museum of Natural History in continuation of exchanges; 6,709 specimens, chiefly from Texas and Oklahoma, received from the Missouri Botanical Garden, St. Louis, in continuation of exchanges; 1,116 specimens of Peruvian plants, purchased from the collector, Dr. A. Weberbauer, of Lima, Peru; 956 specimens collected in Chile, purchased from Dr. E. Werdemann, of Berlin, Germany; 1,054 specimens collected by E. G. Holt from the Venezuelan-Brazilian border region, received from the National Geographic Society as a gift; 984 specimens, mostly tropical American, received from the New York Botanical Garden in continuation of exchanges; 812 specimens from Texas received from the Texas Agricultural Experiment Station, Temple, Tex., as a gift; 1,495 specimens from various sources, from the Gray Herbarium of Harvard University,

in continuation of exchanges; 766 specimens, chiefly from tropical America from Naturhistoriska Riksmuseet, Stockholm, Sweden, in continuation of exchanges; 570 specimens from Brazil from the Jardim Botânico, Rio de Janeiro, in exchange; 549 specimens from Venezuela, from H. Pittier, Caracas, mostly as a purchase; 638 specimens, chiefly tropical American ferns, from the British Museum (Natural History) in exchange; 4,020 specimens of cultivated plants from the Brooklyn Botanic Garden in exchange; 524 specimens, mainly from Mexico, from the University of Michigan in exchange; 324 specimens, mainly woody plants from Jamaica collected for the Museum by Gerrit S. Miller, jr., of the Museum staff; 414 specimens of Minnesota plants from the University of Minnesota in exchange; 558 specimens from Catholic University of America, Washington, D. C., in exchange; and 2,800 specimens of plants from the eastern United States, from E. S. Steele, of Washington, D. C., as a gift.

INSTALLATION AND PRESERVATION OF COLLECTIONS

In the exhibition hall of North American mammals there has been installed a newly mounted group of five white-tailed deer, which have taken the space formerly occupied by a group of Newfoundland caribou. This group is the work of W. L. Brown, chief taxidermist, who in August, 1929, was sent to South Carolina to collect the specimens and arrange for the accessories. The group is practically complete and requires only some readjustments and additions to the groundwork and other details. A sailfish (*Istiophorus greyi*), 11 feet long, caught and presented by the Hon. William R. Wood, as related elsewhere, was mounted by J. S. Warmbath and forms an excellent addition to our collection of fishes, being the largest of its kind in our series. A large half cast, 19 feet long, of a young sperm whale, presented by the American Museum of Natural History, was reconditioned by Mr. Warmbath, a difficult and time-consuming task. Four mounted mammals were added to the exhibition series, two old specimens were entirely remounted, and a large number of others were repaired. A large number of African antelope heads also were repaired. A temporary exhibit, prepared by Austin H. Clark, showing the photographlike effect of butterfly wings exposed on photographic plates in the dark, was installed in the whale hall and attracts considerable attention. The District of Columbia faunal exhibit was continued under the care of Dr. Paul Bartsch, who has kept it current and made additions whenever possible. Twelve birds were mounted and placed on exhibition in this unit.

Several large additions to the mammal exhibits are in a more or less advanced stage of preparation, among others a large male mountain gorilla, a gibbon, a harnessed antelope, and a caracal.

The installation of a synoptic exhibit of invertebrates in the west hall of the basement, begun in 1929, was discontinued, and the cases and specimens were stored in anticipation of work on the galleries now being erected in the west basement halls for the accommodation of the study series of mammals. This has involved considerable labor on the part of the taxidermist force.

Dr. J. E. Benedict, assistant curator, who for 21 years had charge of the zoological exhibits, was retired on August 1, 1930. At the same time W. E. Scollick, osteologist, was retired, his place being filled by the transfer of J. A. Mirguet from the division of mollusks. George Marshall, who for many years handled the mounting of the smaller mammals and birds, also was retired during the year and his place taken by C. R. Aschemeier.

Work on the galleries in the division of mammals necessitated clearing certain office rooms and the removal of storage cases to corridors and other places in the basement, which have naturally caused some inconvenience. Considerable progress has been made in labeling, however, and in rearranging certain groups, especially in the material in the attic. A large number of antlers and a considerable number of large heads with antlers attached, both mounted material on shields and unmounted, have been removed from the mammal range (second floor) to the attic, where they have been placed on top of the storage cases and on the floor at the ends of the aisles until a more suitable place can be found for them. With the gallery now under construction in a section of the former office rooms, which will be utilized for the storage of small skulls and a representative collection of skeletons, the latter to be brought down from the attic, a certain amount of space will be made available in the attic for the further spreading of the larger material now stored there. Six quarter-unit cases have been added to the facilities for storing the skin collection. The small skulls and skeletons of cetaceans have all been placed in cases and are now in good arrangement. Most of the larger whale skulls and skeletons are properly arranged. During the year some work has been done in the alcoholic collection, in transferring specimens to proper containers, identification of material, and general arrangement. One hundred and thirty large and medium-sized skins were tanned on outside contract during the year. Several large skins and a number of smaller ones, including some of those used for exhibition purposes, were tanned by the taxidermists. During the year the taxidermists prepared as study specimens 91 skins, 33 small and medium skins that were scraped and tanned, some of which were used for mounted specimens, 40 mammals were skinned, and a number of skins degreased. The Museum force cleaned 149 large and medium-sized skulls and 26 skeletons and roughed out 24 skeletons. Contract work on small and medium-

sized skulls and skeletons has resulted in the cleaning of 1,140 skulls and 120 skeletons. Although the number of uncleaned smaller skulls and skeletons has been materially reduced during the past year, many large and medium-sized skulls and skeletons received during the past two years still remain uncleaned.

About one-third of the bird skins received during the year have been distributed in the study series, the remaining material being held for study or other attention. Of collections previously held awaiting identification and study, approximately 3,000 specimens of the Frick, Roosevelt, and Aschemeier African collections have been identified and the birds distributed in the general study collection. The Collins collection of 109 skins from St. Lawrence Island has also been worked up and distributed. Six half-unit cases with 55 trays and 10 quarter-unit cases with 180 trays were received during the year and were added to the third tier of cases in the general bird collection. The Bent collection of North American birds' eggs has been completely catalogued. J. H. Riley spent considerable time in expanding crowded parts of the study series, in the course of this work rearranging the Dicruridae, Nectariniidae, Pycnonotidae, Zosteropidae, Ploceidae, Dicaeidae, Coerebidae, Meliphagidae, Prionopidae, Bombycillidae, Muscicapidae, Turdidae, Timaliidae, Laridae, Anatidae, and some of the steganopodes, including a total of 58 cases. In addition, Mr. Riley identified a large number of skeletal and alcoholic birds received from various sources. In summary, the work of the preparators for this division included skinning 116 birds, degreasing and remaking 173 skins, mounting 12 birds for the District collection, cleaning 87 skeletons, skeletonizing 71 birds, and blowing 16 eggs.

In the division of reptiles during the past year, Miss Doris Cochran has given permanent place in the storage stacks to 3,881 newly identified specimens. The cataloguing is up to date and the card cataloguing nearly so. The overhauling of the alcoholic material container by container and the checking up of their allotted places in the stacks, begun last year, is progressing satisfactorily, whereby certain missing specimens have been located and old labels replaced. Miss Cochran calls particular attention to the conscientious care shown in this work by the laborers assigned to the division. A considerable number of skulls and dry skins and shells of turtles have been prepared by C. S. East.

In the division of fishes the regular routine work of refilling containers, cleaning of shelves and bottles, and restoring of labels has been attended to, and the general condition of the collections is reported as being good.

The work of organizing and arranging collections and of identifying accumulated unworked material in the division of insects has

continued in all groups, with especial activity in Coleoptera, Hemiptera, and Lepidoptera. Further progress has been made in assimilating miscellaneous collections, some of which have remained untouched for many years, and the end of this work is now in sight. The assistants of the Bureau of Entomology have mounted, labeled, and distributed the greater part of the large quantity of insect material received by the Museum from Dr. D. C. Graham, and most of the unprepared material received by the Museum from other sources.

Substantial progress has been made by Dr. J. M. Aldrich, curator of the division of insects, in identification and arrangement in a number of families of Diptera. He has also kept up a card index of great importance in the order.

L. L. Buchanan reports that the curatorial work on the Casey collection, work that has been in progress for the past five years, was brought to a close March 31, 1931. The entire collection has now been labeled, transferred from the original boxes to standard Museum insect drawers, and systematically arranged; the types, numbering a few more than 9,380, have been catalogued. The collection now occupies 340 insect drawers. Additional work on the Casey library included the binding of about 40 volumes of entomological periodicals and the preparation of a card catalogue of several hundred separate articles on beetles. The library and collection remain as a unit in room 428. In spite of half-time work on the Casey collection for much of the fiscal year Mr. Buchanan has made extensive progress in organizing the collections in the weevils and in the Adephega. In this work all the material of the Cicindelidae, which was scattered, has been brought together and arranged in trays on the basis of the present Museum system, making an extensive and excellent collection in this family. The collection of weevils received from Alan S. Nicolay has been labeled and transferred. Several families and subfamilies of Rhynchophora have been sorted and arranged so far as available equipment permitted, and much general sorting of the weevils has been carried on in an effort to assemble the available material in better systematic form. Dr. E. A. Chapin has continued to develop the collections in the Lucanidae and in the Scarabeidae, with the result that about half of the former and many of the latter are now in relatively excellent condition. W. S. Fisher has completed the arrangement of the North American Cerambycinae, on which he reported last year, and has transferred the Cerambycinae of the C. F. Baker collection, occupying 113 Schmitt boxes, into Museum trays and drawers. He has continued his studies on West Indian Cerambycidae and has arranged the material available to him in this connection. He has also worked over and arranged various miscellaneous genera

or groups where such procedure was needed. H. S. Barber has rearranged material in a considerable number of small groups of Coleoptera, chiefly in the family Chrysomelidae. Dr. M. W. Blackman has been engaged for most of the winter in work on the bark beetles and has rearranged two genera in connection with his studies on them. Mrs. Doris H. Blake, of the truck crop insect division of the Bureau of Entomology, has continued her studies on the Chrysomelidae for most of the year, and during this period has arranged material in a few genera. Though Dr. A. G. Böving's main energies have gone into other work during the fiscal year, he has continued to add valuable coleopterous larval material to the collection as it has come to him through gift or exchange. In the Lepidoptera, the acquisition of the Barnes collection represented another very large curatorial task—first in respect to its transfer to Washington; then from the need to go over it and examine it. The first part, as already stated, was handled by A. Busck and Carl Heinrich; the second phase of the work has been carried out chiefly by Mr. Heinrich with the aid of assistants. Quite a little progress has been made, especially in the Microlepidoptera, in assembling the Barnes collection and the material previously in the Museum in the same groups into single series of species. Mr. Busck has undertaken a considerable rearrangement of the Micros in order to incorporate four families from the Barnes collection. In addition he has cooperated with George P. Engelhardt in the rearrangement and organization of the Sesidae, a procedure that was accomplished by the incorporation of the material belonging to Mr. Engelhardt into the Museum collections. Various important exotic species of Microlepidoptera have been received during the fiscal year and have been added to the collections. Mr. Heinrich has incorporated the Phycitinae and Anerastinae of the Barnes collection and has rearranged the whole of the New World species of these subfamilies. Much of the alcoholic collection of immature stages of Lepidoptera has been worked over during the past fiscal year under Mr. Heinrich's direction. Dr. W. Schaus has transferred and rearranged the Euploeinae, has completed the rearrangement of the Old World Satyridae, has arranged the Palaearctic and Oriental Lycaenidae, and has made much progress in the rearrangement of the family Nymphalidae. The chief activities of C. T. Greene during the fiscal year in arranging the collection of Diptera have dealt with the various groups required to accommodate new material received during the year.

A. B. Gahan, in charge of Hymenoptera, has found it necessary again to expand the collection of Chalcidoidea to accommodate additional material received or made available through the examination

of previously unidentified specimens. He has also rearranged parts of the subfamilies Eulophinae and Entedoninae. The species of *Coccophagus* in the collection have been arranged in accordance with the classification of this genus by Harold Compere, published by the Museum during the year. R. A. Cushman has undertaken rearrangement of the tribe Campoplegini and has added quite a little material to the collection in the Ichneumonoidea. Miss Grace Sandhouse has arranged the Palaearctic Vespinae according to studies made by Dr. J. Bequaert in 1930. She has incorporated the C. F. Baker Vespinae into the general collections of this family and has sorted to species much undetermined material in the Vespidae. She has also transferred the identified North American species of *Bombus* and *Psithyrus* to trays and rearranged these. Species of North American *Spheax* on loan to Dr. H. T. Fernald were returned by him and were incorporated into the collections by Miss Sandhouse. Species of *Trielis* were identified and arranged in the collections. Oriental Xylocopidae, including the Baker collection material, are now being identified and arranged. Much miscellaneous material in the aculeate Hymenoptera received during the fiscal year from various sources has been distributed to the proper families and genera through the collection.

William Middleton, of the forest insect division of the Bureau of Entomology, has undertaken some identification work on sawflies during the past winter and in connection with this has incorporated in the collection miscellaneous specimens coming into his hands and has rearranged a few sections of the sawfly collections. A. N. Caudell has continued work on the rearrangement of the general collection of Orthoptera and has incorporated some of the Baker Philippine material. Dr. H. E. Ewing has made some rearrangements of the collections of Acarina and certain small orders of insects during the past fiscal year. Custodial work on the Hemiptera collections has been very greatly accelerated through the assistance of P. W. Oman, working on Homoptera, and of H. G. Barber, working on Heteroptera. These collections are now in better working condition. In this connection, Mr. Barber has sorted and distributed, and to some extent arranged, a large quantity of miscellaneous material. He has also arranged some specimens in certain parts of the family Lygaeidae. Mr. Oman has been engaged chiefly on a rearrangement of portions of the family Cicadellidae, particularly of the subfamily Jassinae. He has also undertaken a rearrangement of material in certain other genera or groups of leafhoppers.

Dr. Waldo L. Schmitt, curator of marine invertebrates, reports that the condition of the collections in that division in general continues good. The rearrangement of the study collections is about half completed. The extensive dry collections in the attic have

grown rapidly. Frank J. Myers, of Ventnor, N. J., has voluntarily rendered very valuable service in rearranging the collection of rotifers until it is now the equal of any in this country.

In the division of mollusks the work of identifying material for the collection and for correspondents involves a continual revision and improvement of the study collection by the addition of species heretofore lacking, the correction of errors in former identifications made possible by the discovery of new data, and by the possession of additional material. As far as possible new and better classifications proposed by various authors and revisions of nomenclature are applied to the collection. In the study collection, thanks to the temporary aid of a cataloguer, it has been possible to catalogue all the West Indian collections obtained during the past three summers. A large part of these has been segregated and is ready for report. The division has been somewhat handicapped by the transfer of J. A. Mirguet to other parts of Museum activity, his position being filled temporarily by Edgar O. Bowles. Miss Selma Felser, a student at George Washington University, was employed part time on the picking of minute mollusks from muck and rubbish collections made in the West Indies during the year, her services being paid for from the Charles Torrey Simpson fund. In this way almost all the material of this kind has been overhauled. Mr. Bowles, previous to his becoming attached in a temporary capacity to the division, and Miss Mary Sproul and Miss Sara Abeles, three students in zoology at George Washington University, gave six hours a week each in sorting, segregating, and bringing together some of the collections made by Doctor Bartsch in the West Indies.

No changes in the installation or preservation of the coral collection have been made.

The curator of echinoderms reports that considerable work was done in going over the collection, checking up errors, and when necessary placing the specimens in new containers. The condition of the collection as a whole is quite satisfactory.

In the division of plants the incorporation of mounted phanerogams into the main herbarium, mentioned in last year's report as having been largely deferred from lack of cases, has recently been about one-half completed, following the plan of regional responsibility adopted last year, E. P. Killip having charge of South American material, E. C. Leonard that from the Eastern United States and the West Indies (besides the family Compositae as a whole), C. V. Morton the Western United States, Mexico, Central America, and Panama, and Egbert W. Walker, the Old World. It has been necessary to reorganize most of the families handled, especially the Old World specimens, which are now being arranged in covers according to geographic subdivisions as a decided convenience in con-

sultation and especially as an aid in identification work upon the flora of eastern Asia. This curatorial work, including the preparation of thousands of new genus covers, has required a great deal of time and effort, but the result is highly satisfactory in so far as the work has been completed, the specimens being now much more readily accessible for study. A similar rearrangement of the remainder of the phanerogamic herbarium and the incorporation of a great accumulation of new material requiring expansion of the entire study series can not be brought to a satisfactory conclusion, however, without the provision of many new cases, a matter of first importance. A similar need exists with respect to the grasses, under the custody of Dr. A. S. Hitchcock. This latter highly important collection has grown enormously in recent years.

During the year 48,770 mounted specimens have been stamped and recorded, preparatory to incorporation in the herbarium. There remain about 8,000 mounted specimens ready for stamping and recording. The temporary employment of a clerk for three months aided in preparing an unusually large number of specimens for the herbarium during the year.

The segregation of type specimens of American phanerogams has been continued during the year, 16,657 types of new species and varieties having now been distinctively labeled, card catalogued, placed in individual covers, and arranged in the Engler and Prantl sequence. These together comprise the so-called type herbarium, which is kept apart in special cases under immediate supervision.

The C. G. Lloyd mycological collection, which was received in 1928, was, it will be recalled, at once transferred by the Museum to the custody of the Bureau of Plant Industry in order that it might be adequately maintained for the benefit of professional students of fungi. In accordance with the explicit terms of agreement then entered into, the bureau has continued to maintain this highly important collection as a separate unit and has given it complete curatorial attention (in addition to the points summarized in the report of June 30, 1929), under the direction of John A. Stevenson, honorary custodian, whose current report is as follows:

The entire collection of 58,930 named specimens has been relabeled and indexed. The index cards are now being arranged on an alphabetical basis and will serve as a most convenient source of information for the collection. Each card contains all available data on the individual specimen it represents. Approximately 9,000 of the negatives have been rejacketed, labeled, and indexed, only about 2,500 remaining unworked.

Some 30,000 of the fungus specimens constituting the collection were of such a nature that they could be placed in packets rather than in the more bulky boxes. This portion of the collection has been mounted and arranged so that it is immediately available for use. One-third of the boxed specimens also have been placed in usable order and only a few weeks more will be necessary to complete the task.

During the year additional space was assigned to this collection, and it has been possible to assemble in one room a considerable part of the herbarium proper as well as the herbarium index, the negative collection, a set of the publications of C. G. Lloyd, and the loose-leaf notebook series of his publications arranged by fungus groups, and all miscellaneous notebooks, letter files, and materials pertaining to the collection. The entire collection is now housed in 32 standard steel herbarium cases.

Mr. Leonard has incorporated new material received in the mosses as in previous years, but there is an accumulation of algae, hepaticae, and lichens that will necessitate a reorganization of these groups.

The sectional library has been kept in order during the year under Mr. Killip's immediate supervision, the files of many serials have been completed, and a large number of volumes have been sent out for binding. The newly decorated and equipped library room has provided also excellent study quarters for the staff and for visiting botanists.

During the year 28,992 specimens have been mounted by straps, all but 5,000 of these by contract. The number of specimens glued (chiefly by contract) was 7,895. Of these glued specimens, including many from last year, 19,000 have been "reinforced" with adhesive straps, the number of specimens thus made ready for stamping and recording (preparatory to incorporation in the main herbarium) being 47,992. Though this is an excellent record, more than 25,000 specimens remain on hand for mounting.

RESEARCH BY MEMBERS OF THE STAFF

Much time has been devoted by the curator of mammals to the identification of material sent in by outsiders, some of which has been retained by the Museum and some returned to the sender. The list of North American recent mammals has been revised up to date to September, 1930, with a view to the publication of a new edition. The assistant curator of mammals has completed an important paper entitled "Mexican Tailless Amphibians in the United States National Museum," begun when he was a member of the Biological Survey. He has also done preliminary work on specimens and literature of the porpoises of the genus *Prodelphinus* with a view to the preparation of a monographic revision of the genus. A. J. Poole, aid, has continued work on a new edition of the list of type specimens of mammals in the Museum collections. H. H. Shamel has finished a revision (now published) of the American bats of the genus *Tadarida* and has identified all the mammals of the Collins-Garner expedition to the French Congo collected by C. R. Aschmeier.

The curator of birds, Dr. Herbert Friedmann, continued work on the birds collected by the Frick expedition to Ethiopia and Kenya

Colony, as well as on those obtained by the Smithsonian-African expedition under the late Theodore Roosevelt. He also worked on the material collected in Gaboon by the Garner expedition and has continued his studies of the Loveridge Tanganyikan collection in the Museum of Comparative Zoölogy. From time to time, as new forms were found, short papers containing their descriptions were published. He also completed a paper on the birds of St. Lawrence Island, Bering Sea, and published a report on the birds collected in the Belgian Congo by the Harvard Medical School's expedition of 1926-27. He revised and completely reidentified the Museum's series of the genus *Cisticola* in accordance with Admiral Lynes's recent monograph. He also completed a number of short papers on general ecological aspects of bird life. The associate curator, Dr. C. W. Richmond, continued his researches into the files and records of the division, and prepared various volumes and lots of pamphlets for binding. He also worked on a new supplementary list of generic names applied to birds. He spent considerable time on the proofs of the second part of Mathews's *System Avium Australasianarum*, on the new edition of the A. O. U. Check-List of North American Birds, and on the first volume of Peters's *Hand-List of the Birds of the World*. Otherwise his time was devoted chiefly to technical routine and to attending to correspondence. The assistant curator, J. H. Riley, worked chiefly on Chinese and Siamese birds collected by Graham, Rock, and Smith, and published on Chinese birds collected by Wulsin and on Bornean birds collected by Raven. He began work on a list of the birds of Szechwan and published descriptions of new forms from there and from Siam. Dr. A. Wetmore published an account of the birds of Hispaniola, as well as a report of the avifauna of the Pleistocene of Florida. He also identified numbers of bird bones, both fossil and recent, and published descriptions of a number of new forms. A. C. Bent finished and sent in the manuscript of another volume on his *Life Histories of North American Birds*, this one being on the gallinaceous birds.

In the division of reptiles Doctor Stejneger has continued studies on the North American turtles and on the reptiles and amphibians of China. Several recent collections from the Galapagos and Polynesia are also being studied. The assistant curator, Miss Doris M. Cochran, published a diagnosis of four new Bahaman reptiles collected by Dr. Paul Bartsch under the auspices of the Walter Rathbone Bacon scholarship fund. She has likewise completed in manuscript a description of a new *Anolis* from Old Providence, collected by the Pinchot expedition, and of three new reptiles from Beata Island, collected by Doctor Wetmore and F. C. Lincoln. An account of the herpetology of Hispaniola is practically completed so far as

the writing is concerned, but about half of the figures are still to be made. A full report on the Bahaman collections of Doctor Bartsch has been prepared in manuscript, and the report on his earlier collections in the Lesser Antilles is partly completed.

Dr. Hugh M. Smith, associate curator in zoology, during several months spent in Washington, studied the fishes of Siam and published a paper describing a large number of new forms.

Dr. J. M. Aldrich associate curator of insects, has prepared for publication several short papers on various groups of Diptera and has others in progress. C. T. Greene reports the completion of a paper on certain Tachinidae having an evanescent fourth vein in the wing. In the other sections under the division of insects members of the staff of the Bureau of Entomology report gratifying activity in research. In the section of Coleoptera H. S. Barber has undertaken revisional studies of a few groups (chiefly in connection with the need for identifications), these including the genera *Graphops* and *Paria*. He has also continued studies on the Drilidae and is continuing work on local Lampyridae. Dr. M. W. Blackman has worked out and published a revision of two genera belonging to the Scolytidae. Mrs. Doris H. Blake has continued on certain genera of the Chrysomelidae. In connection with the completion of an extended paper in collaboration with Dr. F. C. Craighead, Dr. A. G. Böving had occasion to restudy many of the specimens of coleopterous larvae in the collection and has used these as a basis for preparation of illustrations for the forthcoming synopsis. L. L. Buchanan has completed a paper on the genus *Perigaster* of the family Curculionidae, and one on the identity of the parsley and carrot weevil. Dr. E. A. Chapin has under way investigations on the classification of a number of groups, including the West Indian *Phyllophaga* and North American Glaphyrinae, the North American Cremastocheilini, and species of the genus *Hypophloeus*. He has prepared or published several short papers dealing chiefly with problems on the classification of the Scarabeidae. The West Indian species belonging to the family Cerambycidae have been studied by W. S. Fisher, and the manuscript on this group has been completed and submitted for publication.

In the section of Lepidoptera Dr. W. Schaus has continued his studies on a number of groups of moths and has prepared descriptions of many new species that have been placed in the Museum collections. A. Busck has continued his work on the Tortricidae and on the general classification of the Microlepidoptera. Carl Heinrich has continued his study of the American Phycitinae and has made excellent progress in working out the species in the group and in developing a classification for it. He has also made critical studies

on the morphology, particularly of the genitalia, in several groups of moths where further information regarding species identities was required.

In Hymenoptera A. B. Gahan has prepared tentative working keys to the species of a number of genera of the Chalcidoidea and has prepared one paper dealing with the identities of some important bethylid parasites of stored-grain insects. R. A. Cushman has prepared working keys to a number of groups and genera of the Ichneumonidae, has continued his work on a revision of the genus *Ophion*, and has prepared for publication a paper describing certain new parasites of beetles. Miss Grace Sandhouse has continued studies on North American Halictinae, in the course of which she has identified most of the Museum material in *Halictus sens. str.* Pressure of curatorial and identification work has again interfered and prevented her completion of certain studies on which she is engaged. William Middleton, of the forest insect division of the Bureau of Entomology, completed a paper describing new species of sawflies. Dr. W. V. Balduf, of the University of Illinois, was employed by the bureau for the first two months of the fiscal year to study material of the chalcidoid genus *Eurytoma*. A. N. Caudell, in the section of Orthoptera, has completed a paper on the Orthoptera collected by the Pinchot expedition of 1929. Most of his time for the second half of the fiscal year has gone into work on an index of North American Orthoptera, supplementary to that published by S. H. Scudder about 1900, and it is hoped that this can be completed before long so that its publication by the Museum may be undertaken. Dr. H. E. Ewing has continued work on a revision of the North American feather mites and has spent much time working up the material collected in the course of his chigger-survey work during the past summer. He has also prepared for publication a paper on the classification of the American chiggers. H. G. Barber has carried on preliminary work in several groups, which is expected to lead ultimately to the publication of papers on the classification of species belonging to these groups. P. W. Oman has carried on work on *Deltocephalus* and *Euscelis* in the leafhoppers, and also has under way a critical study of the species of *Agallia* found in North America north of Mexico.

In the division of marine invertebrates, Dr. Mary J. Rathbun, associate in zoology, has studied and prepared a report upon a collection of crabs from Tanganyika Territory obtained by A. Love-ridge, of the Museum of Comparative Zoölogy. The report will be published by that museum. A collection of Brachyura from Porto Rico and the Virgin Islands is being studied and a report on it is being prepared for the New York Academy of Sciences. A con-

siderable portion of Miss Rathbun's time has been spent on the study and identification of various small collections, from which new species have been described. A brief note concerning studies on decapods, made at the Tortugas Laboratory of the Carnegie Institution by Dr. W. L. Schmitt, was published in the yearbook of that institution for 1930. Some progress has been made on the further study of various collections of Crustacea from Tortugas and the West Indian region, and active preparation has been begun on a report on the Macrura and Anomura of the Biological Survey of Porto Rico and the Virgin Islands for the series being issued by the New York Academy of Sciences. Along with routine identifications, a report is being assembled on the collections that Capt. Robert A. Bartlett has brought back from Arctic waters in the course of his many cruises in the north.

During the year Clarence R. Shoemaker, the assistant curator, has finished two reports—one of the amphipods of the Bay of Fundy, Minas Basin, and the Shubenacadie River, Nova Scotia, for the Biological Board of Canada; and the second on the amphipods of Newfoundland, Nova Scotia, and New Brunswick, comprising the families Stegocephalidae and Ampeliscidae. He has also made studies and identifications of the amphipod material collected by Capt. Robert A. Bartlett in Greenland and Arctic America, and of the amphipods collected by the New York Academy of Sciences in Porto Rico and the Virgin Islands. A great part of the time of J. O. Maloney, aid, is devoted to the study and identification of isopods for the Plant Quarantine and Control Administration and for the Bureau of Entomology. Dr. J. A. Cushman, honorary collaborator, has completed part 1 of the Albatross Tropical Pacific Foraminifera, and the paper will be published shortly. He has also studied the foraminifera collected in the Arctic region by Capt. Robert A. Bartlett with a view to making a comprehensive report in which he will bring up to date all knowledge of the foraminifera of that region. Dr. William H. Longley is continuing studies of evidence indicative of the probable trend of evolution as revealed by critical analyses of the data of taxonomy. Dr. R. S. Bassler, head curator of geology, has continued supervision of the recent bryozoan collections. This year he has spent considerable time in the preparation and preliminary arrangement of the Falkland Islands Bryozoa collected by Doctor Schmitt in 1927.

The curator of mollusks, Dr. Paul Bartsch, in continuation of his researches, prepared a number of papers referred to in the appended bibliography. In addition, he spent considerable time in preparing the report on the West Indian material, as well as on a collection of mollusks received from Prof. K. Derjugin, of the Zoological Insti-

tute of the University of Leningrad, Union of Socialistic Soviet Republics, which were obtained in the Japan and Okhotsk Seas. The illustrations for the report on the Hawaiian marine mollusks, which has been in preparation for some time, are approaching completion by Mrs. Aime M. Awl. William B. Marshall, assistant curator, has continued his study of the pearly fresh-water mussels. He has published two short papers relating to them and has two larger ones about to be published. Routine identifications for institutions and individual correspondents have consumed a large part of his time. During a brief visit to Washington, Dr. T. Wayland Vaughan consulted the coral collection.

The curator of echinoderms, Austin H. Clark, continued work on parts 4 and 5 of Bulletin 82, A Monograph of the Existing Crinoids. A report on the crinoidea collected by the Australasian Antarctic expedition, 1911-1914, under the leadership of Prof. Sir Douglas Mawson, was completed and was sent to the government printer at Sydney, Australia. The sea urchins and starfishes collected by Dr. Henry C. Kellers, while attached to the naval eclipse expedition to Niuafouu, 1930, were determined, and a report on them was completed and submitted.

Dr. Frederick V. Coville, curator of the division of plants, has continued his studies on the breeding and cultivation of blueberries (*Vaccinium*) and gooseberries (Grossulariaceae). The studies of the leguminous families Caesalpinaceae and Mimosaceae undertaken jointly by Dr. J. N. Rose and Dr. N. L. Britton several years before the former's death, in May, 1928, have been continued by Doctor Britton and were brought to completion during the year by the publication of the last two parts of the Caesalpinaceae, as indicated in the accompanying bibliography. Dr. William R. Maxon, associate curator, spent about three months in examining tropical American fern material at Kew and the British Museum in the early part of the year, and has carried on similar studies since his return, as opportunity permitted, chiefly in connection with routine identification. Ellsworth P. Killip, associate curator, has continued his studies of the Andean flora of South America, giving special attention to the Urticaceae and Passifloraceae, a monograph of the latter family being practically ready for publication. E. C. Leonard, assistant curator, has continued his studies of West Indian plants, especially material from Hispaniola, and has studied certain genera of Acanthaceae as represented in America. C. V. Morton, aid, has continued his investigation of the family Solanaceae and has published several short papers relating to other studies, these carried out chiefly in connection with the identification of specimens received from Mexico and the western United States. E. H. Walker,

aid, in collaboration with Dr. E. D. Merrill, of the New York Botanical Garden, has made good progress toward completing a bibliography of the botany of China and adjacent parts of eastern Asia.

RESEARCH OF OUTSIDE INVESTIGATORS AIDED BY MUSEUM MATERIAL

Among outside investigators who have made use of the collections of mammals were the following: Dr. Chester Stock, of the California Institute of Technology, Pasadena, Calif., who spent some time in making comparisons during study of a miscellaneous collection of fossil mammals; Dr. R. M. Anderson, of the National Museum of Canada, who spent several days examining certain North American groups; Dr. Lee R. Dice and William P. Harris, who examined certain groups of North American mammals; Gordon Y. Croft, who spent about 30 hours a week for a period of four months in making a study of the mammals of Utah in writing a thesis toward an M. A. degree at the George Washington University; and Miss Rachel L. Carson, of Johns Hopkins University, who spent several days in the division studying the wrist bones of flying squirrels. The collection has been frequently consulted during the year by members of the Johns Hopkins Medical School, and Dr. A. H. Schultz, Dr. G. B. Wislocki, Dr. Ernst Huber, and Dr. William L. Straus, jr., have borrowed specimens for study. The Biological Survey staff has had access at all times to the mammal collection throughout the year in connection with their work on North American mammals. Dr. James W. Gidley, of the division of vertebrate paleontology, has made constant use of the mammal collection in his work on fossil mammals.

The more important loans of specimens for study by outside investigators are as follows: To the Johns Hopkins University, for Doctor Huber, 1 orang skull for study in connection with the problem of age and sex change of facial musculature of the anthropoid apes; for Doctor Straus, 5 skeletons of *Nycticebus*, *Periodicticus*, *Lemur*, and *Galago*; 1 pangolin, *Manis javanica*, in alcohol to Doctor Wislocki and Doctor Straus in connection with their work on the blood system of mammals; 2 monkeys, *Pithecia* and *Cacajao*, 1 gibbon, and 20 gibbon skulls to Doctor Schultz; to the Field Museum of Natural History, 81 specimens of bats (*Eumops*) for study by C. C. Sanborn, and 143 mammals, mostly from Indo-China, for Dr. W. L. Osgood; to the Museum of Comparative Zoölogy, 15 specimens for Glover M. Allen; to the American Museum of Natural History, 1 *Sicista* for Robert T. Hatt, and 42 specimens of the genus *Thomasomys* for H. E. Anthony in connection with his monograph of the genus; to the British Museum (Natural History), London, 2 monkeys for study by R. I. Pocock.

Among outside investigators who made use of the collections of birds and the section library were the following: A. C. Bent, of Taunton, Mass., examined eggs and immature plumages of hawks and owls of North America, spending four days in the Museum in this connection; Dr. Witmer Stone, of the Academy of Natural Sciences of Philadelphia, examined birds from Mexico and Honduras; Prof. J. W. Scott, of the University of Wyoming, spent a good deal of time studying Wyoming birds, records, and literature; Dr. H. W. Culemann, of Howard University, examined literature and alcoholic specimens in connection with the study of the ear apparatus in owls; Dr. Ernst Mayr, of the American Museum of Natural History, examined Polynesian and Micronesian birds; J. L. Peters, of the Museum of Comparative Zoölogy, spent four days studying gyrfalcons and some types of woodpeckers and other birds; Dr. Joseph Grinnell, of the Museum of Vertebrate Zoology, worked for a week on types of California birds; Dr. D. C. Graham, of Suifu, China, spent a day looking over some Chinese birds of his collecting; Dr. H. M. Smith, of Bangkok, Siam, examined some of his Siamese collections; Samuel Dickey, of Waynesburg, Pa., spent several days studying Siberian birds and their literature; George B. Saunders, of Cornell University, worked on meadow larks; G. M. Wright and B. H. Thompson, of the National Park Service, Berkeley, Calif., examined trumpeter swans; G. M. Cook, of Youngstown, Ohio, accompanied by Mr. Hill, examined Leconte's, Nelson's, and sharp-tailed sparrows; Maj. Allan Brooks, of Okanagan, British Columbia, examined the type of Peale's falcon and also looked over sparrows of the genus *Passerculus*; Samuel E. Perkins, of Indianapolis, Ind., examined books and records referring to the Labrador duck; John Moore, of Washington, D. C., studied local birds; Miss Josephine Irey, of Washington, D. C., studied North American birds; Dr. R. A. Fischer, of Rothamsted, England, measured the egg of the great auk in connection with a variational study of this form. In addition to these, many visitors called to ask questions and were given much miscellaneous information. Members of the Biological Survey staff made use of the collections as usual, these including A. H. Howell, who studied Florida birds; Dr. H. C. Oberholser, who completed a report on the birds of the Natuna Islands off the Sumatran coast, and who examined a variety of birds in connection with the identification of birds sent him for determination; Clarence Cottam, who examined specimens from Utah; and Leon H. Kelso, who is studying the owls of the world.

Loans of ornithological material amounted to 545 specimens in 38 lots, the more important loans being as follows: To the Academy of Natural Sciences of Philadelphia, for the use of W. W. Bowen and Dr. Witmer Stone, 8 lots containing 104 birds; American Museum of

Natural History, for the use of Dr. R. C. Murphy and J. T. Zimmer, 3 lots containing 3 birds; Museum of Comparative Zoölogy, for the use of Ludlow Griscom and J. L. Peters, 4 lots containing 12 birds; Carnegie Museum, for the use of R. Boulton and W. E. Clyde Todd, 2 lots containing 32 birds; Field Museum of Natural History, for the use of P. Brodkorb and Dr. C. E. Hellmayr, 4 lots containing 82 birds; Museum of Vertebrate Zoology, for Dr. Joseph Grinnell, 3 lots containing 5 birds; California Institute of Technology, for the use of A. J. van Rossem, 3 lots containing 11 birds; Dr. J. M. Valentine, of University of North Carolina, 2 lots containing 16 birds; Harold H. Bailey, of Miami, Fla., 1 lot of 19 birds; Laboratory of Ornithology, Cornell University, for the use of G. B. Saunders and George M. Sutton, 2 lots containing 192 birds; Los Angeles Museum of History, Science, and Art, for the use of Dr. H. Howard, 1 lot of 3 bird skins and 1 lot of 7 skeletons; Raffles Museum and Library, Singapore, Straits Settlements, for the use of C. B. Kloss, 1 lot of 2 birds; Zoologisches Museum der Universität, Berlin, Germany, for Dr. Erwin Stresemann, 4 birds.

The division of reptiles has been visited by a number of herpetologists who have spent varying periods in the laboratory studying the collections, among whom may be mentioned Dr. Thomas Barbour, Dr. E. R. Dunn, Roger Conant, Charles F. Walker, George S. Myers, M. A. Brady, C. C. van Hyning, and Dr. Francis Harper. Loans of herpetological material for the year totaled 452 specimens and were distributed as follows: To George S. Myers, of Stanford University, 13 toads; J. R. Slevin, of the California Academy of Sciences, 1 salamander; Dr. Francis Harper, of Swarthmore College, 1 toad; Museum of Zoology, University of Michigan, 17 toads; Zoological Laboratory, Cornell University, 19 snakes; Dr. A. R. Cahn, of the University of Illinois, 23 turtles; W. H. Weller, of Cincinnati, Ohio, 2 salamanders; A. B. Klots, of the New York State College of Agriculture, Ithaca, 100 glass snakes; Field Museum of Natural History, 3 lizards; Charles F. Walker, of the Ohio State Museum, 1 frog; Museum of Comparative Zoölogy, 131 reptiles; Dr. E. R. Dunn, of Haverford, Pa., 37 reptiles and amphibians; L. M. Klauber, of San Diego, Calif., 95 snakes; Dr. G. K. Noble, American Museum of Natural History, 5 frogs; and Maj. Chapman Grant, of San Juan, Porto Rico, 4 lizards.

Dr. Henry W. Fowler, of the Academy of Natural Sciences of Philadelphia, made several extended visits to the division of fishes in connection with his work on the Philippine Islands fishes (Bulletin 100) and the collection brought back from the South Seas by the Pinchot expedition. Albert E. Parr, of the Peabody Museum, Yale University, has made use of the collections both in person and by correspondence, in his studies of the Bingham oceanographic collec-

tions; G. S. Myers, of Stanford University, examined certain cecilioid fishes in connection with his work on the group. Dr. E. W. Gudger, of the American Museum of Natural History, examined specimens of the genus *Amia* and other specimens in connection with his forthcoming report upon the oral incubation of the sexes of this group of fishes. Dr. Carl L. Hubbs, of the Museum of Zoology, University of Michigan, examined certain genera in the families Centrarchidae, Cichlidae, Percidae, and Poeciliidae. The following loans of fishes were made during the year: To the Museum of Zoology, University of Michigan, 8 specimens; University of Toronto, Canada, for Prof. A. G. Huntsman, 12 specimens of cottoid fishes; United States Bureau of Fisheries, 8 specimens of gobioid fishes and 1 conger eel; American Museum of Natural History, for E. W. Gudger, 22 specimens; the British Museum (Natural History), 12 specimens. Dr. Johannes Schmidt, of Copenhagen, Denmark, has been assisted in his further researches upon the life history of the eels, by being furnished with X-ray photographs of types and other information.

Material from the insect collections totaling 5,658 specimens has been loaned to 44 students and institutions for the benefit of their own studies, or the mutual benefit of the Museum investigators. Among those to whom large consignments were sent may be mentioned: W. V. Balduf, of Urbana, Ill., 1,100 slides and 151 chalcid flies; Dr. J. Bequaert, of Boston, Mass., 208 wasps; E. E. Blaisdell, of San Francisco, 114 beetles; Th. Borgmeier, of Sao Paulo, Brazil, 177 flies; British Museum (Natural History), 291 flies; Brooklyn Museum, 151 beetles; Dr. O. Duda, of Germany, 527 flies; J. H. Evans, Urbana, Ill., 61 insects; Dr. S. W. Frost, of Arendtsville, Pa., 76 flies; Morgan Hebard, of Philadelphia, 71 grasshoppers; Dr. W. A. Hoffman, of San Juan, Porto Rico, 43 flies; R. Hopping, of Vernon, Canada, 42 beetles; Dr. Walther Horn, of Berlin, Germany, 287 beetles; University of Kansas, Lawrence, 64 insects; P. B. Lawson, of Lawrence, Kans., 10 insects; A. L. Melander, of New York City, 18 flies; Z. P. Metcalf, of Raleigh, N. C., 364 insects; Dr. C. F. W. Meusebeck, of Melrose Highlands, Mass., 302 Hymenoptera; J. G. Needham, of Ithaca, N. Y., 100 dragonflies; Ferd. Nevermann, of San José, Costa Rica, 23 beetles; E. O. Pearson, of Cambridge, Mass., 187 Hemiptera; Dr. Frank Psota, of Chicago, Ill., 226 beetles; H. J. Reinhard, of College Station, Tex., 713 flies; O. W. Richards, of Slough, England, 242 Hymenoptera; and Dr. J. Villeneuve, of France, 579 flies.

Investigators who visited the division of insects during the year for the purpose of studying the collection or obtaining assistance from the various specialists in the Museum included the following:

Dr. J. Bequaert, of the Harvard Medical School, interested chiefly in Tabanidae; G. C. Crampton, of Amherst College; L. A. Carruth, of Brookings, S. Dak.; Everard N. Blanchard, of Buenos Aires; W. J. Hall, of Southern Rhodesia; Dr. S. W. Frost, of Arendtsville, Pa.; H. J. Reinhard, of College Station, Tex.; A. M. Boyce, of Riverside, Calif.; D. S. Bullock, of Angol, Chile; R. W. Williams, of Covington, Ky.; David G. Hall, who recently spent about two weeks in the Museum studying Sarcophagidae, a group on which he is preparing an extensive paper; and Dr. A. L. Melander, of the College of the City of New York, who spent a week in consultation and study on Diptera.

The division of marine invertebrates has had the assistance of outside specialists in the identification of about 3,860 specimens; these include the following: Dr. Henry B. Bigelow (medusae, Ctenophora); Dr. H. Boschma (rhizocephalids); Dr. A. Brender à Brandis (rhizocephalids); Prof. Oskar Carlgren (sea anemones); E. P. Creaser (Phyllopora, crayfishes); Dr. Wesley R. Coe (nemertean); Dr. Joseph A. Cushman (foraminifera); Dr. M. W. de Laubenfels (Porifera); Dr. Elizabeth Deichmann (Alcyonaria); Prof. G. S. Dodds (fresh-water Entomostraca); Prof. Max Ellis (discodrilids); Dr. Walter K. Fisher (sipunculids); Dr. C. McLean Fraser (hydroids); Prof. Gordon E. Gates (earthworms); Dr. W. P. Hay (Crustacea); Dr. A. C. Huntsman (ascidians); Dr. Libbie Hyman (Turbellaria); Dr. Chancey Juday (Cladocera); Dr. K. Kaburski (Turbellaria); Dr. C. Dwight Marsh (fresh-water copepods); Dr. Maynard M. Metcalf (*Salpa*, *Pyrosoma*, Protozoa); Dr. J. Percy Moore (leeches); Frank J. Myers (Rotatoria); Dr. H. F. Nierstrass (parasitic isopods); Dr. Yo Okada (Phyllopora); Dr. Raymond C. Osburn (Bryozoa); Dr. Arturo Palombi (polyclad worms); Dr. A. Pearse (Limnadia); Dr. Henry A. Pilsbry (barnacles); Capt. F. A. Potts (rhizocephalids); Prof. Frank Smith (earthworms and fresh-water sponges); Miss Caroline E. Stringer (Turbellaria); Dr. W. M. Tattersall (Mysidacea); Dr. A. L. Treadwell (annelids); Dr. Willis L. Tressler (ostracods); Dr. C. B. Wilson (parasitic free-swimming marine copepods); and Dr. H. V. Wilson (Porifera). The following nonresident investigators have been assisted by loans of specimens under the care of the division: Charles H. Blake, of the Massachusetts Institute of Technology, 289 specimens of ostracods; Dr. H. Boschma, of the Zoological Laboratory, Leiden, Holland, 68 specimens of crabs bearing rhizocephalid parasites; E. P. Creaser, of the University of Michigan, 312 crayfishes and 3 isopods; Otto Degener, of Honolulu, 1 hermit crab; Dr. Elizabeth Deichmann, of the Museum of Comparative Zoölogy, 802 specimens of alcyonarians; Dr. Walter K. Fisher, of the Hopkins

Marine Station, Pacific Grove, Calif., 13 hydrocorallines and 1 sipunculid worm; Prof. G. E. MacGinitie, of the Hopkins Marine Station, 2 crabs; Miss Mary Sears, of the Museum of Comparative Zoölogy, 5 shrimps; C. J. Shen, of the Fan Memorial Institute of Biology, Peiping, China, 3 specimens of crabs; Dr. Willard G. Van Name, of the American Museum of Natural History, 2 isopods; Dr. J. A. Cushman, of Sharon, Mass., 1 jar of bottom samples for studies on foraminifera; Dr. William L. Tressler, of the University of Buffalo, 10 specimens of ostracods; Dr. Oskar Carlgren, of the Zoological Institute, Lund, Sweden, 5 specimens of anemones; and Dr. Sven Segerstråle, of the Zoological Institute of the University of Helsingfors, Finland, 23 specimens of amphipods.

Visiting specialists who have availed themselves of the collections cared for by the division of marine invertebrates are as follows: Dr. R. E. Coker, of the University of North Carolina, fresh-water copepods; Prof. C. J. Connolly, of St. Francis Xavier University, copepods; Ivan Tomkins, of Savannah, Ga., marine invertebrates; Dr. B. Prashad, of the Zoological Survey of India, Calcutta, marine invertebrates; Albert C. Hunter, of the Food and Drug Administration, United States Department of Agriculture, crabs; A. L. Young, of Phoenix, Ariz., marine invertebrates; Miss Ellen Acree, of the Bureau of Entomology, isopods; G. W. Algiro, of the University of Maryland, marine invertebrates; John W. Loveland, of Washington, D. C., marine invertebrates; Paul B. Bunton, of Washington, D. C., radiolaria; Melbourne Ward, of the Australian Museum, Sydney, New South Wales, Crustacea; R. P. Butler, of Plainfield, N. J., Protozoa; Dr. F. W. Weymouth and Milton J. Lindner, of the United States Bureau of Fisheries, Crustacea; Miss Lanice N. Palmer and W. Wallace Coleman, of Baltimore, marine invertebrates; Phil Powers, of the University of Pennsylvania, marine annelids; Mrs. Annie O. Peet, of the Rochester Museum of Arts and Sciences, marine invertebrates; Dr. William R. Longley, of Goucher College, literature on marine invertebrates; Edwin P. Creaser, of the University of Michigan, Crustacea; H. A. Hanson, of the Bureau of Fisheries, Crustacea; K. Oshima, of Hokkaido Imperial University, Japan, Crustacea; Saburo Katsura, of the Department of Agriculture, Crustacea; W. W. Wallis, of Bradenton, Fla., marine invertebrates; Capt. R. A. Bartlett, of New York City, methods of collecting marine invertebrates; Dr. Paul S. Galtsoff, of the Bureau of Fisheries, corals and Crustacea; Dr. H. C. Kellers, of the United States Navy Department, marine invertebrates; Robert O. Smith, of the Bureau of Fisheries, Crustacea; Dr. Hugh M. Smith, of Bangkok, Siam, marine invertebrates; and Dr. David C. Graham, of Suifu, Szechwan, China, marine invertebrates.

The following students have used, in varying degrees, the collections of the division of mollusks for investigations in specific fields: P. G. Cooper, of Washington, D. C.; Dr. R. E. Coker, of the University of North Carolina; Clarence Cottam, of the Department of Agriculture; C. H. Crickmay, of the University of California; Tom P. and Frank N. Dale, of Martinsville, Ind.; P. W. Fattig, curator of museum, Emory University, Ga.; Mrs. Horace Green, of New York City; Albert Loring, of Cincinnati, Ohio; Dr. Alan Mozley, of Johns Hopkins University; Dr. B. Prashad, of the Indian Museum, Calcutta; William G. Rankin, of Mount Pleasant, Mich.; Frederick Morris Reed, of Riverside, Calif.; Mrs. Imogene C. Robertson, of the Buffalo Museum of Science; John E. Andrews, of Buffalo, N. Y.; Mrs. Ella Shoemaker, of Massillon, Ohio; Julian A. Steyermark, of the Missouri Botanical Garden; Mrs. Edna M. Unruh, of Cherrydale, Va.; and d'Alte A. Welch, of Johns Hopkins University. Miss Pearl Hicks has practically completed dissections of 100 *Cerion*s, representing a cross between *Cerion peracuta* and *Cerion tridentata*, a wild hybrid from Cuba. Mrs. Paul Bowman and Miss Karla Heurich have been engaged in the dissection of some of the *Cerion*s obtained in last summer's cruise in the West Indies. Miss Heurich has completed a study of the embryos of the fresh-water pond snails of the genus *Vivipara* from Lake Lanao, Mindanao, Philippine Islands. Miss India Bell Corea is engaged on studies of the family Turritidae, as represented in the Philippine collections. Dr. H. A. Pilsbry, of the Academy of Natural Sciences of Philadelphia, is still engaged upon African material belonging to the National Museum. For the benefit of other investigators, specimens have been lent to George Willett, of the Los Angeles Museum, and to Dr. Hubert G. Schenk, of Stanford University. For the benefit of the specialists and incidentally for the benefit of the National Museum, 1,188 specimens were sent to Dr. B. Prashad, of the Indian Museum, Calcutta; 16 to Dr. H. Barrington Baker, of the University of Pennsylvania; and 375 to Dr. Nils Odhner, of the Swedish Riksmuseum, Stockholm. Doctor Baker has also kindly assisted in the determination of six slugs sent to him. Dr. R. Spärck, of the Zoological Museum in Copenhagen, likewise identified one cephalopod, and Dr. F. M. McFarland, of Stanford University, two specimens of mollusks.

Dr. J. Edward Hoffmeister spent several months in Washington last summer studying the coral collection.

Specimens of helminths have been sent as loans for study to the following: Prof. Horace W. Stunkard, of New York University; Wesleyan University, Middletown, Conn.; Dr. Jean G. Baer, of Geneva, Switzerland; and Prof. George R. La Rue, of the University of Michigan.

Dr. Torsten Gislén, of the University of Uppsala, Sweden, spent two weeks in the division of echinoderms engaged in a study of the collection of recent crinoids. William C. Mansfield, of the United States Geological Survey, studied certain groups of recent echinoids from southern and Lower California in connection with work on certain fossils from Florida. P. B. Bunton consulted the collection of recent echinoids in connection with the identification of material from bottom samples. Dr. Th. Mortensen, of the Zoological Museum, Copenhagen, Denmark, continued work on the echinoids collected by the *Albatross* among the Philippine Islands and in adjacent waters; while Dr. Hubert Lyman Clark and Dr. Elizabeth Deichmann, of the Museum of Comparative Zoölogy, continued work upon the holothurians of the *Albatross* Philippine expedition. Ten specimens were sent out as a loan to the Zoological Museum in Copenhagen, and seven to the Museum of Comparative Zoölogy.

As in former years, a great deal of help has been extended to outside students by the loan of specimens from the National Herbarium. Locally, 39 lots of material, aggregating 1,513 specimens, have been lent informally to investigators in the Bureau of Plant Industry. This does not include a large number of Compositae that have been examined in the herbarium by Dr. S. F. Blake, of the Bureau of Plant Industry staff, in connection with his special study of that family. Y. L. Keng, of the National Central University, Nanking, China, has spent almost the entire year in study of the grasses of China, working under the direction of Dr. A. S. Hitchcock, custodian of the grass herbarium.

Out-of-town botanists who have conducted studies at the herbarium and the special subjects investigated, are as follows: Prof. L. H. Bailey, of Ithaca, N. Y., tropical American plants; Albert C. Smith, of the New York Botanical Garden, Andean flora of Peru and Colombia; J. B. Norton, of El Centro, Calif., flora of western United States; E. B. Bartram, of Bushkill, Pa., mosses of western United States and Hawaii; Dr. E. D. Merrill, of the New York Botanical Garden, flora of Mexico; Harold N. Moldenke, of the New York Botanical Garden, the genus *Argiphila*; H. W. Ricketts, of the University of Missouri, the genus *Crataegus* in Missouri.

The material loaned for study to institutions and to individuals outside of Washington during the past year consists of 126 lots aggregating 11,745 specimens, the most important loans being as follows: To Prof. Oakes Ames, of Cambridge, Mass., 247 Orchidaceae; Botanisches Museum, Berlin-Dahlem, Germany, 407 specimens; British Museum (Natural History), London, 524 plants; University of California, 475 ferns and willows; University of California at Los Angeles, 1,437 labiates; Universitetets Botaniske Museum, Copenhagen, 152 ferns and *Taraxacum*; Field Museum of Natural History, 460

specimens; Gray Herbarium, Cambridge, Mass., 958 plants; Royal Botanic Garden, Kew, England, 137 specimens, mostly Gentianaceae; University of Michigan, 454, algae and lichens; Missouri Botanical Garden, 2,302 plants; New York Botanical Garden, 1,277 specimens; Academy of Natural Sciences of Philadelphia, 319 specimens; Prof. Charles C. Plitt, of Baltimore, 299 lichens; Pomona College, Claremont, Calif., 491 specimens of *Oenothera* and *Thalassia*; and Stanford University, 998 specimens of *Ranunculus*.

ASSISTANCE BY MEMBERS OF STAFF TO OTHER GOVERNMENT BUREAUS AND
PRIVATE INDIVIDUALS

The usual assistance to other Government bureaus by the specialists of the Museum has been cheerfully rendered. Considerable time is still given by the various divisions to the identification of animals submitted by the Plant Quarantine and Control Administration of the Department of Agriculture as having been intercepted in shipments of plants. Thus, 16 lots were handled by the division of marine invertebrates and 20 by the division of mollusks. During the present year the demands for assistance in identification of living animals from the National Zoological Park have been unusually heavy on the division of reptiles incidental to the opening of the new reptile house. Specialists of the Bureaus of Biological Survey, Animal Industry, and Plant Industry and the Bureau of Fisheries, as well as the paleontologists of the Geological Survey, have availed themselves freely of the assistance of the curators and the material in their charge. Whenever required, assistance with literature and otherwise has been extended to Dr. C. W. Stiles and his assistants in the Hygienic Laboratory of the United States Public Health Service. Occasional assistance is also furnished the Civil Service Commission in the formulation of questions and consideration of answers in certain cases of examinations that require expert knowledge. Identifications of bones and plants found during excavations and investigations undertaken by the Bureau of American Ethnology also come under this head. Much of this assistance takes the form of consultations and demonstrations, when members of the various Government scientific bureaus visit the divisions in quest of information, as already referred to under the previous heading.

Detailed reports were made by the curator of mammals on a total of 45 lots comprising about 200 specimens received for identification or examination.

Doctor Friedmann, curator of birds, has continued his study and report on the Loveridge collection of Tanganyikan birds for the Museum of Comparative Zoölogy. The usual correspondence seeking information about birds came from many individuals, and 38

lots of specimens, including about 900 birds, 2 lots of eggs, and 3 lots of bones, were received for identification. In the division of reptiles report was made on 29 lots of material sent by correspondents for examination. The division of fishes assisted Dr. Johannes Schmidt, of Copenhagen, and Dr. A. E. Parr, of the Peabody Museum, New Haven, to obtain X-ray negatives of types in the collection. These negatives were furnished by the courtesy of the Navy Department and the kind cooperation of Dr. O. B. Spalding, United States Navy. In the division of insects the specialists in charge of the various sections rendered considerable assistance to the numerous visiting entomologists mentioned previously. Doctor Aldrich identified 52 lots of Diptera out of 203 lots received through the Bureau of Entomology or directly from individuals. These included some material received from the Public Health Service for identification in connection with the new proposal to clean out and sterilize certain types of sores and wounds in human tissues by the use of fly larvae, a surprising new development in modern surgery. In the division of marine invertebrates, 113 transactions were handled for identification and report, including 33 lots of 850 specimens for various Government bureaus; 41 lots of 3,636 specimens for various institutions, museums, and laboratories in this country and abroad; and 26 lots of 660 specimens for individual investigators. In addition to the assistance rendered the Plant Quarantine and Control Administration by the division of mollusks already referred to, 56 lots containing 2,175 specimens were determined for institutions and individuals. The section of helminths received 7 lots from outside sources for identification. The division of echinoderms received 81 lots of specimens for identification, and in addition the curator was of assistance to various Government bureaus and commissions and served as director of the press service of the American Association for the Advancement of Science, and also as a member of various committees of the National Research Council. As in former years members of the staff of the National Herbarium have given a great deal of assistance to various Government bureaus, such as the Geological Survey, the Bureau of American Ethnology, and several bureaus of the Department of Agriculture, and also to the State universities and experiment stations, scientific and educational institutions generally, and a large number of private individuals. The information sought has been varied, including such subjects as the preparation of herbarium specimens, herbarium management, plant distribution and relationship, the economic uses of plants, literature appropriate to certain regions or special lines of investigation, and the identification of specimens. During the year 238 separate lots of specimens have been received for identification, totaling many thousand specimens. A

very large proportion of this material came from the Andean region of South America and has been reported upon by Mr. Killip; similarly, large collections from Mexico and the Western States have been identified by Mr. Morton; and numerous fern collections have been reported upon by Doctor Maxon. A large share of the specimens thus received have since been added to the herbarium or are in process of distribution to other institutions.

VISITS TO OTHER INSTITUTIONS OR PLACES ON OFFICIAL WORK

The head curator attended the Eleventh International Congress of Zoology held at Padova, Italy, September 4-11, 1930, as a delegate of the United States Government, the Smithsonian Institution, the National Museum, and the Biological Society of Washington. Being a member of the Permanent Committee of the Congress and of the International Commission on Zoological Nomenclature, he was in attendance from August 28 to the end of the session. The Congress was of exceptional importance on account of momentous questions raised bearing on the stability of the International Rules on Zoological Nomenclature. Following this he visited several European museums, especially in Berlin, where he spent some time consulting publications in the great Staats Bibliothek, which are not represented in the libraries in Washington. The assistant curator of mammals, Dr. Remington Kellogg, while attending the annual meeting of the American Society of Mammalogists, during May, 1931, examined specimens of Cetacea in the Philadelphia Academy of Sciences. Doctors Wetmore, Friedmann, and Richmond and Mr. Riley attended the annual meeting of the American Ornithologists' Union, at Salem, Mass., in October, 1930, and on the way back stopped at the Museum of Comparative Zoölogy in Cambridge and examined various specimens. Doctor Wetmore also visited the American Museum of Natural History and the Academy of Natural Sciences at Philadelphia. Doctor Friedmann visited the American Museum of Natural History and the Academy of Natural Sciences of Philadelphia, and lectured at George Washington University and at Hood College. B. A. Bean, assistant curator of fishes, visited the museum at Portland, Me., during August, 1930.

Dr. Waldo L. Schmitt visited the American Museum of Natural History in New York for the purpose of examining the marine-invertebrate collections and also the Carnegie Museum of Pittsburgh to study type specimens of certain species of crayfishes not represented in the national collections. Dr. Paul Bartsch and William B. Marshall attended the meeting of the American Malacological Union at the Philadelphia Academy of Sciences in May, 1931. Austin H. Clark attended the meeting of the American Association

for the Advancement of Science at Cleveland, Ohio, from December 29, 1930, to January 3, 1931. He also visited the Museum of Comparative Zoölogy during the year. Visits to other institutions by members of the National Herbarium staff include a period of about three months spent at the British Museum (Natural History), the herbarium of the Linnaean Society and the Royal Botanic Gardens, Kew, England, by Doctor Maxon last summer in studying ferns; a period of about one month spent by Doctor Hitchcock at the same institutions, and a short visit also to the New York Botanical Garden, in connection with his study of grasses; short visits by Mr. Killip to the New York Botanical Garden and the Academy of Natural Sciences of Philadelphia, in continuation of studies of the Andean flora of South America; a short period spent by Mr. Morton at the New York Botanical Garden in studying Solanaceae; and visits by Mr. Walker to the New York Botanical Garden, the Gray Herbarium, the Arnold Arboretum, and the Academy of Natural Sciences of Philadelphia in connection with studies of the flora of China.

Doctor Maxon and Doctor Hitchcock also attended the Fifth International Botanical Congress held in Cambridge, England, during August, 1930. The former was the official delegate of the Smithsonian Institution, the Washington Academy of Sciences, the Botanical Society of Washington, and the New York State Museum. Doctor Hitchcock represented the Bureau of Plant Industry, the Biological Society of Washington, and the Botanical Society of America. Interest centered in the discussions on nomenclature, which came as the climax of four years of serious constructive effort to arrive at truly international agreement upon an acceptable code. The rules and recommendations finally adopted, after extended debate, are believed to meet this end.

DISTRIBUTION AND EXCHANGE OF SPECIMENS

Duplicates distributed to museums, high schools, colleges, and other similar institutions aggregated 3,094 specimens, of which 1,421 consisted of mollusks and fishes in 8 and 4 sets, respectively. A set of plants consisting of 1,950 specimens, collected by Dr. Joseph F. Rock in China, was forwarded as a gift to the provincial government of Yunnan, China.

A number of specimens were transferred to other Government bureaus, viz, 1,500 plants to the Bureau of Plant Industry, 2 mollusks to the Department of Agriculture Office of Cooperative Extension Work, 81 mosquitoes to the Bureau of Entomology and to the Public Health Service, and 9 reptiles to the National Zoological Park.

Exchanges to the number of 30,719 were sent out, of which 3,618 were zoological specimens. The 27,101 plants distributed went to 78 institutions and correspondents, of which 42 were located in the United States and 36 in 24 different countries abroad. Eight of these exchanges exceeded 1,000 specimens, namely, those to the Botanical Museum in Berlin-Dahlem, Germany, 2,323 specimens; British Museum (Natural History), 1,366; Field Museum of Natural History, 1,503; Gray Herbarium, Harvard University, 1,315; Metropolitan Museum of Natural History, Nanking, China; 1,023; University of Nanking, 1,068; New York Botanical Garden, 3,928; and the Muséum d'Histoire Naturelle, Paris, France, 1,716.

NUMBER OF SPECIMENS UNDER THE DEPARTMENT OF BIOLOGY

The number of specimens under the department, so far as has been ascertained by count and estimate, now exceeds 10,000,000. The total number is probably much greater, since several collections, as the corals, have not been included in the estimate, nor does the number of plants given below include unmounted material of the lower cryptogams.

Estimated number of specimens

Mammals	219,161
Birds:	
Skins	248,273
Alcoholics	8,818
Skeletons	12,392
Eggs	87,280
	356,763
Reptiles and amphibians	94,358
Fishes	736,812
Insects	4,027,976
Marine invertebrates	872,584
Mollusks	2,348,591
Helminths	39,209
Echinoderms	157,553
Plants	1,476,070
Total	10,329,077

REPORT ON THE DEPARTMENT OF GEOLOGY

By R. S. BASSLER, *Head Curator*

INTRODUCTION

In material acquired and in work accomplished, the year shows substantial progress in the department of geology. The plans set forth a year ago have advanced as far as could reasonably be expected in both work on the collections and along lines of research in the field and office.

Explorations, particularly in the field of vertebrate paleontology, resulted most auspiciously, adding scientific and exhibition material of almost inestimable value.

Death removed two prominent figures from the department within the year—Dr. Frank Wigglesworth Clarke, honorary curator of mineralogy since 1883, and Dr. Oliver P. Hay, who, although not officially connected with the department, has pursued his researches on vertebrate fossils in the division for more than a quarter of a century.

ACCESSIONS OF THE YEAR

An increase is shown in the total number of accessions, although the estimated number of specimens is less than last year, when the accessions numbered 209, with a total of 36,937 specimens. The recorded number for the present year is given in the tabulation below:

Division	Accessions	Specimens
Mineralogy and petrology	90	772
Geology, systematic and applied	33	955
Stratigraphic paleontology	87	16,641
Vertebrate paleontology	23	648
Total	233	19,016

Of the 90 accessions credited to the division of mineralogy and petrology, 35 represent material acquired through the Roebing fund. Perhaps the most unusual of these specimens is a fossilized vertebra of an extinct swimming reptile, now changed to a fine quality of precious opal. The matrix of the opal found at the Australian locality known as White Cliffs, New South Wales, is a Cretaceous

sandstone, which has been permeated by hot, volcanic waters. It is here that shells, bones, and other fossils of that period are found entirely altered to precious opal. The vertebra noted above was recovered some years ago, but it was only within the present year that we were given the opportunity to acquire it. A second unique specimen, and the first cut stone of its type in the collection, is a black diamond weighing 8.97 carats, from the Wesselton mine, Kimberly, South Africa. A large mass of native silver and calcite, estimated to contain 220 pounds of pure silver, and a vein of similar material with wall rock attached, and estimated to carry 190 pounds of silver, both from the Keeley mine, Cobalt district, Ontario, constitute the finest of the material secured by Assistant Curator E. P. Henderson during his field work in the district, although additional desirable specimens were purchased and collected.

Other notable specimens acquired through the Roebling fund are: A crystal of flawless scapolite from Brazil, said to be the largest crystal of this mineral yet found; a pale yellow diamond of 2 carats, one of the comparatively few stones found in the Cherokee district, California; two boulders of precious jade from Burma and China; a large, flawless crystal of citrine quartz from Madagascar; a bicolored (green and colorless) crystal of gem beryl from Brazil; a large group of clear cassiterite crystals from Araca, Bolivia; a handsome group of azurite crystals and another of clear, amber-colored anglesite, from South Africa; and a fine cut 40½-carat tourmaline of unusual brown color, from Brazil. Several groups of the showy zinc mineral known as "Ruby Jack," from the Blue Goose Mine, Cardin, Okla., were selected to add color to these rather somber exhibits.

Among other notable accessions to the mineral collections are a fine group of argentite crystals from the Keeley mine, Ontario, and a large mass of ellsworthite-bearing pegmatite, from Hybla, Ontario, presented by W. J. Dobbins and Peter MacDonald, respectively; and at the request of Frank L. Hess, an exceptional specimen of pyrargyrite was donated by H. C. Kumar, of Oruro, Bolivia. A large exhibition specimen of pectolite, from West Paterson, N. J., was presented by R. B. Gage, of Trenton. Mention should also be made of a lot of fine orbicular jasper from California, received in exchange from William B. Pitts, of Sunnyvale, Calif. From this an exceptionally attractive lot of exhibition slabs has been developed by cutting and polishing.

Thirty-two mineral species new to the collection were added during the year, chiefly those recently described, and obtained through the Roebling fund.

The Chamberlain fund contributed to the Isaac Lea collection three Mexican opals of unusual color; a South African green tour-

maline weighing 17.9 carats; carved pendants of rose quartz and aquamarine; five rubies from Siam; a cut gem of scapolite; a mandarin buckle of jade; and carved objects of jade, coral, fluorite, rose quartz, and carnelian.

Examples of nine meteorites were added to the collection through exchanges or purchases. These comprise a complete iron weighing 23 pounds, of an unusual club shape, found near Santa Fe, N. Mex.; a 222-gram slice from a pallasite found at Newport, Ark.; a 310-gram slice of a stone from Adams County, Colo.; 1,610 grams of a stone from Covert, Kans.; slices of a newly found iron and of a stone from North Carolina; a slice weighing 2,305 grams from the Nativitas, Tlaxcala (Mexico) iron; a small fragment from the Olmedilla de Alarcon (Spain) stone; and a small fragment of the Paragould (Ark.) stone.

Additions to the collections in economic geology are especially noteworthy. Most of the donations mentioned below were in response to requests made either officially or by members of the division. None of these requests has met with refusal, all having been acceded to in a most generous spirit of cooperation, with the result that more material of exhibition value has been added to the economic collections than for many years.

A trip into Ontario, Canada, by the assistant curator, under the auspices of the Roebling fund, resulted in the purchase of valuable exhibition material, personal collections, and several donations. Silver, nickel, and cobalt minerals and ores from various localities, obtained with a view to filling needs in our exhibition and study series, were collected; a mass of nickel ore, weighing about 200 pounds, from the Falconbridge nickel mine in the celebrated Sudbury district, presented by Harry Creig, and a large nickel-copper ore from the Creighton mine, gift of the International Nickel Co. of Canada, form interesting and instructive exhibits, while a large block of nepheline syenite, bearing both sodalite and cancrinite, presented by William Cooney, Bancroft, Ontario, was utilized with equal effect in mineral and rock collections. Finally, as a result of personal contact with the authorities at the mine, a large specimen of cobalt ore, showing a vein about 5 inches wide in the rock, was donated by the Keeley Silver Mines (Ltd.).

A set of platinum ores and associations, received through the cooperation of the Geological Survey of the Union of South Africa, illustrates the occurrence of platinum in the rock at the famous Merensky Reef.

Three large copper ores have been donated, the largest, by the Engels Copper Mining Co., of San Francisco, illustrating the relationship of the ore minerals to the country rock. Two others are

of low-grade porphyry ore from the mines of the Utah Copper Co., of Salt Lake City.

A complete set of the potash minerals of the Carlsbad (N. Mex.) deposits was secured by associate curator W. T. Schaller, through the courtesy of the United States Potash Co. The set contains many large examples of the saline minerals, showing striking color combinations, which will lighten and add interest to this exhibit. Subsequent to Doctor Schaller's visit, the company mined out and shipped as a donation a large block of mixed halite and sylvite 3 feet square and 1 foot thick. A 6-inch seam of bluish sylvite, surrounded by the pink mixed salts, makes this one of the outstanding and most attractive exhibition specimens received during the year.

Two large tungsten ores from Nevada, gift of the Nevada-Massachusetts Co., of Mill City, Nev., add new types to the tungsten series.

A set of samples illustrating the geology of the new and rapidly developing copper field in Rhodesia was presented by the Roan Antelope Copper Mines. A sample of gold ore from Cripple Creek, Colo., showing a rarely occurring vein of calaverite, was given by Robert J. Grant, director of the mint, Washington.

The petrographic series was increased by a large exhibition specimen of rhodolite from North Carolina, gift of Burnham S. Colburn, and an olivine donated by S. J. Mulvaney. Charles Denby presented slabs of sandstone showing diffusion rings.

The United States Geological Survey transferred a series of rocks and ores from the Gold Hill Quadrangle, Utah, and Harvard University transferred permanently to the custody of the Museum a collection of rocks from the Hawaiian Islands, obtained by Sidney Powers in 1915. These, in conjunction with other collections from the islands, give to the National Museum an excellent representation of this volcanic group.

One of the valuable accessions to the division of stratigraphic paleontology is a single specimen presented by Frank Beckwith, of Delta, Utah. This represents a new genus and species of merostome crustacean from Middle Cambrian rocks. Aside from its scientific interest and value, it is a worthy example of the fruits to be expected from the extension of encouragement and help to amateur collectors.

A feature of the newly appointed assistant curator's activities has been the arrangement of exchanges with European and American geologists to acquire material not now represented in our collections. Six exchanges were arranged by Doctor Cooper, as follows: With A. Öpik, of Tartu, Estonia, for species of the exquisite orthoid brachiopods common to that country; with Roman Kozłowski, of Uniwersytet Warszawski, for Polish brachiopods, an exchange that

brought to the Museum 7 genera not previously represented and 6 genera not known to this country; with A. H. Westergaard, of Sveriges Geologiska Undersokning, Stockholm, Sweden, brachiopods from the Silurian deposits on the island of Gotland; with R. Richter, of Senckenbergische Naturforschende Gesellschaft, Frankfurt, Germany, 18 specimens of *Hypothyridina cuboides*, a species of great importance in the study of Devonian stratigraphy; two exchanges with Colgate University for Paleozoic (Devonian) starfishes and echinoids. In these lots are several new species and one new genus, all of which Doctor Cooper expects to describe.

Further, Doctor Cooper himself made notable contributions in the presentation of privately collected material from the Tully limestone of New York and in the preparation of casts of type specimens contained in other museums.

The acquisition of the Canadian-Ordovician material collected in Manchuria and studied by Dr. R. Endo, which he presented to the Museum upon completion of his studies, adds very desirable type material; a third installment of Dr. A. F. Foerste's private collection added approximately 1,000 specimens from the Silurian of the Ohio Valley to the stratigraphic series.

Our series of types was increased to a considerable extent, the following students of foraminifera having deposited the material on which their researches were based: Dr. J. A. Cushman, of Sharon, Mass.; John W. Skinner, of Bartlesville, Okla.; Mrs. F. B. Plummer, of Austin, Tex.; and Dr. T. Wayland Vaughan, representing the Scripps Institution of Oceanography. Dr. J. Brookes Knight, of Yale University, also presented topotypes of gastropods and ostracods from the Coal Measures of Missouri.

The United States Geological Survey transferred types of fossils described by W. C. Mansfield, and the Maryland Geological Survey deposited a considerable collection of Cretaceous type material described in their reports dealing with that horizon in Maryland.

Further transfers by the United States Geological Survey comprise four small lots of Cambrian fossils collected by members of their staff in Alaska and the Western States, and large collections from the Mesozoic and Cenozoic horizons, largely from the Southern States.

Single specimens worthy of mention are a Cretaceous ammonite from South Dakota, presented by Miss Thebe Hanson; a Cambrian trilobite representing a new species of *Neolenus*, from near Lancaster, Pa., donated by Prof. H. Justin Roddy; a specimen of the rare trilobite *Goldius*, from Hardin County, Tenn., gift of C. A. De Ford, of Savannah; an entire specimen of the Devonian trilobite *Phacops rana*, from West Virginia, gift of H. H. Fetter, of Wash-

ington, D. C.; and a rare Ordovician cystid from Scott County, Va., as an exchange from Ward's Natural Science Establishment.

A collection of ammonites, echinoids, and other paleontological material was received as a continuation of an exchange with the Geologisch-Palaeontologischen Institutes der Universität, of Halle, Germany, and approximately 2,000 Cambrian and Ordovician fossils resulted from the curator's field trip.

Through the continued interest of Dr. Mary Rathbun, five accessions, covering 25 specimens of fossil crab material, were added to the crustacean collection.

Eight accessions are credited to the section of paleobotany, of which the most important is an excellent exhibition specimen of fossil tree stump from near Natchitoches, La., presented by George Williamson through the interest of Prof. E. W. Berry. Two fossil plants, types of a new species described by Professor Berry, were transferred by the United States Geological Survey.

The material resulting from the field operations of the year is of primary importance in the division of vertebrate paleontology, the mammal collections especially benefiting. Among specimens of outstanding interest obtained by the party under the direction of the curator, working in the Bridger (Eocene) beds of Wyoming, mention may be made of an almost perfect articulated skeleton of *Hyrachyus*, a rhinoceroslike animal about the size of a tapir; a less complete skeleton of *Orohippus*, a small, primitive horse; two partial skeletons of *Palaeosyops*; and two more or less complete crocodile skeletons. It is thought that at least four mountable skeletons will result from this material. In addition there are many skulls, jaws, and articulated limbs and feet of both large and small mammals. Scientifically, the many tooth-filled jaws and parts of skulls of the micro-fauna may prove to be the more interesting part of the collection. About 38 turtle specimens belonging to the genera *Baena*, *Anostira*, *Baptemys*, *Hadrianus*, *Echmatemys*, *Amyda*, *Aspideretes*, and *Plastomennus* were collected, skulls and much of the internal skeleton being, in two instances, found associated—a rare occurrence. Nine crocodile skulls and several fragmentary lizard specimens were also secured. The collection, as a whole, has much scientific significance, and places in the division an adequate representation of this interesting fauna.

Collections from the Pliocene deposits near Hagerman, Idaho, obtained by a field party under the direction of Dr. J. W. Gidley, and accessory material collected by Elmer Cook under Smithsonian auspices, exceed in both quality and quantity that obtained the previous year at the same locality. Again the collection consisted principally of fossil horse bones.

An incomplete skull of the rare *Troödon* from the Lance formation of Wyoming; three skulls of Permian reptiles from Texas; beautifully preserved skulls of the Niobrara fishes *Ichthyodectes* and *Protosphyraena* from Kansas; and a complete turtle shell from Wyoming, were purchased from George F. Sternberg.

The series of fossil tracks was augmented by the addition of a slab containing an unusually well-impressed dinosaur footprint from the Triassic of Virginia, generously donated by F. C. Littleton, of Aldie, Va. Fossil bird bones from the Wasatch of Wyoming were presented by Dr. E. L. Troxell, of Hartford, Conn., and a skull of *Eurhinodelphis*, a cetacean from the Calvert formation of Maryland, was given by Arlton Murray, of Washington, D. C.

INSTALLATION AND PRESERVATION OF COLLECTIONS

The rearrangement of the exhibits in mineralogy and economic geology, to modernize them and incorporate new material, has made good progress. By the utilization of the fine material in the Roebling and Canfield collections, three cases of the systematic series of the mineral collection have been reinstalled with a much improved quality of specimens and better balance both as to material displayed and its disposition. The results indicate that when completed this series will be one of the most attractive mineral displays in any museum. Experience is bearing out our conviction that fewer specimens, but those of high grade, well displayed, are much more effective than crowded cases. One upright case has been reinstalled with large zinc and lead minerals, effecting not only some manner of systematic arrangement, hitherto lacking, but a more attractive mounting of the material.

After much experimental work, the gypsum cave has been fitted with artificial lighting, which largely eliminates the reflections and thus adds greatly to the appearance of the case. As no longer needed to illustrate this mineral, a case containing large gypsum crystals, at the rotunda entrance to the hall, was removed, and in its place is exhibited on a pedestal a mass of silver from Canada, and on the wall above it is the mass of native copper that strikingly simulates the Continent of South America in shape. Thus are presented two very interesting native element specimens as introductory to the mineral collections.

The cobalt, nickel, manganese, silver, and lead exhibits of the economic collection have been reinstalled, with the incorporation of about 50 per cent more new material and the elimination of many duplicates; of the nonmetallic exhibits the talc, asbestos, and gypsum cases have been completed, while sufficient new material has been

assembled for a finer and larger exhibit of the salines. To this end, a large block of potash salt, 3 feet square by 1 foot thick, has already been placed as a special and very attractive exhibit.

The stereomotorgraph, which has been operating in the building stone hall for some time past, was renovated and a new series of lantern slides selected by the head curator. It is planned to illustrate various phases of geology, changing the slides at short intervals. The sets will also include features of the various physiographic provinces of the United States, in furtherance of which project enough choice views were photographed during a recent brief visit to New England to illustrate that province.

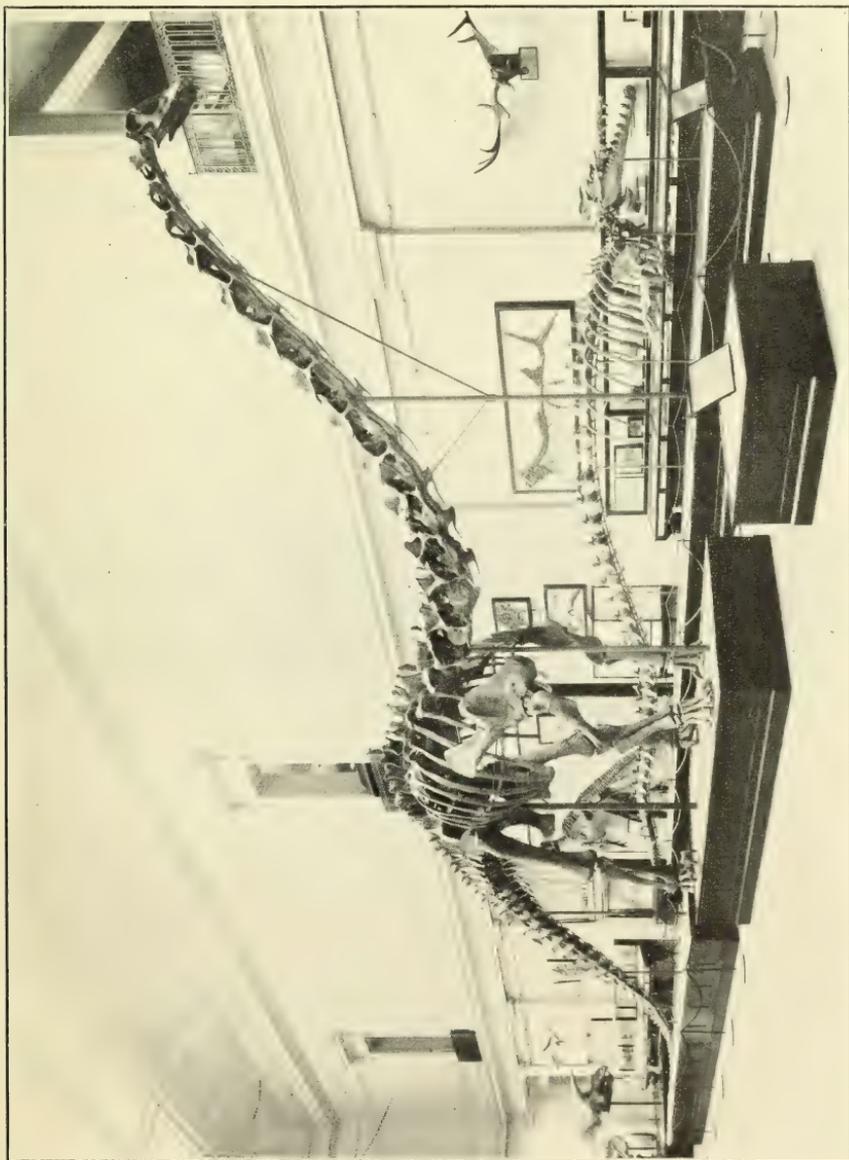
A case containing large, showy rock specimens has been placed at the beginning of the systematic petrographic series.

The duplicate collections of rocks and minerals were condensed and transferred to more convenient locations in the attic. Space is now available on the office floor for enlargement of the study collection of minerals by the incorporation of material removed from exhibition. No space being available for additions to the study collection of ores, new material and rejects from the exhibits must be stored in many different places about the building, wherever space is to be found. This is inconvenient, but with our present help, and the more pressing exhibition work, it is physically impossible at this time to shift the entire ore collection to provide for expansion.

Dr. Charles E. Resser reports considerable improvement in the condition of the collections in stratigraphic paleontology. All the exhibition cases of invertebrate fossils were cleaned and the echinoid exhibit completely revised by the assistant curator. The head curator, also, has given considerable time to exhibition work, especially in paleobotany and in revising the stratigraphic series of invertebrates.

The assistant curator has been actively engaged in a reorganization and enlargement of the biologic series of the Brachiopoda, preparatory to some revisionary work in this field. About one-fourth of the collection has been brought up to date as far as labeling and position in the series are concerned. The Devonian storage collections are under complete revision in an effort to consolidate the good material and eliminate the poor. This phase of activities moves along slowly, and it will be more than a year before this last project is carried to completion.

The head curator's special lines of research being in this division, he has continued to care for the Ordovician and Silurian stratigraphic series and for the biologic series of certain groups in which he is particularly interested. In connection with his studies he has also prepared and arranged for study the various faunas of Recent Bryozoa



Giant Dinosaur (*Diplodocus longus*) placed on exhibition during the year

The specimen is more than 70 feet long and required nearly 7 years in preparation.

collected by Dr. Waldo Schmitt in the Falkland Islands. With the purpose of building up the study series of a somewhat neglected group, he has had prepared several hundred sections of Paleozoic corals.

During the summer of 1930, Dana Wells was employed for three months under the Springer fund to prepare unstudied specimens of fossil crinoids in the Springer collection, a work that was carried on under the personal supervision of the head curator. The very extensive fauna of the Keokuk group was first taken up, and the valuable material uncovered by the preparatory work was added to the biologic series. Mr. Wells also spent the month of June, 1931, in a continuation of this work, which resulted in the preparation of much interesting material and the installation of two new exhibition cases of crinoids. Miss Moodey spent such time as was possible of her annual leave in continuing the bibliographic catalogue of the Crinoidea.

During the temporary detail of Dr. T. W. Stanton to the Interior Building on executive work for a part of the year, the Mesozoic collections have been ably looked after by Dr. John B. Reeside, jr. Dr. Paul Bartsch, in charge of the Cenozoic collections, reports considerable change by reason of a rearrangement of the collections, rendering them much more available to the workers.

Dr. R. W. Brown, Geological Survey paleobotanist, has completed the rearrangement of the Mesozoic and Tertiary plant collections—a voluntary piece of work mentioned in last year's report. The order adopted is a stratigraphic grouping within which the species are arranged in orthodox botanical sequence. These collections are now properly accessible for the first time in many years.

C. B. Read, appointed by the Geological Survey as paleobotanist to study the Paleozoic plants, has similarly undertaken the rearrangement of the types of that group. About one-half of the large Lacco collection has thus far been arranged.

The addition to the survey staff of 3 preparators, 1 clerk, and 2 research workers, for whom the division provided office and laboratory space, made necessary a change in room assignments, involving the shifting of materials. This, however, resulted advantageously by a better permanent placing of the collections.

The mounting in the exhibition hall of the *Diplodocus* skeleton is the outstanding achievement of the year in the division of vertebrate paleontology. (Pl. 2.) The skeleton, 70 feet 2 inches long between perpendiculars and 12 feet 5 inches high, has been given a characteristic pose, with the head elevated. This ensemble, it is thought, gives a more accurate portrayal of this giant reptile than any previous reconstruction. The task of preparing and mounting

this specimen has absorbed much of the time and energies of the laboratory force for the past seven years. From start to finish, 2,545 working days were spent on this one specimen—the equivalent of nearly nine years of steady employment for one man.

Incidental to this installation, certain rearrangement of the other exhibits was necessary, changes that have been made without undue congestion of floor space.

Preparatory work in the laboratory has been confined mainly to the recent acquisitions, particularly the material resulting from field explorations. Space for the exhibition of large objects is now completely filled, but smaller specimens, for which there is still room, are in course of preparation.

The condition of the study collections has been much improved owing to the more systematic arrangement made possible by the additional space provided by the balcony. The collections, especially the Reptilia, are in the best condition in the history of the department.

INVESTIGATION AND RESEARCH

By members of the staff.—Dr. R. S. Bassler has continued his paleontological and stratigraphical studies, particularly on Paleozoic corals, Bryozoa, and conodonts. Proofreading his volume on the Paleozoic rocks and faunas of Tennessee, the completion of which was noted last year, and which is now in course of publication by the Geological Survey of the State, has occupied a portion of his time. In association with Miss Betty Kellett, he has completed and offered for publication a manuscript entitled "A Bibliographic Index of Paleozoic Ostracoda." His cooperative studies with Dr. Ferdinand Canu have resulted in a monograph of the Vincentown marl Bryozoa of New Jersey, illustrated by 20 plates, and a publication on the Eocene Bryozoa of Belgium. Doctors Bassler and Canu are also engaged in a study of the Tertiary Bryozoa of Australia, a work that will occupy several years of effort.

Dr. W. F. Foshag has continued his study of the borate minerals and deposits. The year's work included several analyses of rocks and mixed salts, a study of the mineral probertite, and the crystallography of searlesite. Two new minerals, krausite and schairerite, were investigated and described; analyses and related studies were made of the rare minerals mazapilite, arsenoferrite, and credite.

E. P. Henderson has taken up four separate mineralogical problems and completed results are now awaiting publication. These include the description of a new vanadium mineral, fervanite; a chemical study of some vanadium and chromium compounds; mineralogical notes on the rhodolite quarry in North Carolina; and a

comparison of gedrite and anthophyllite. Preliminary work toward research on meteorites was instituted but none completed.

Doctor Resser prepared for publication Dr. Charles D. Walcott's unpublished notes and illustrations of Burgess shale fossils; revised Dr. R. Endo's extensive paper on the early Paleozoic strata of Manchuria, which is to be published under Museum auspices; and devoted much time to a joint work with Doctor Endo on the Cambrian of Manchuria. In collaboration with Dr. E. O. Ulrich, a second paper descriptive of the Upper Cambrian fossils of Wisconsin was completed for publication during the coming year. An agnostid monograph, a joint work with Prof. B. F. Howell, was advanced by evening work. A fine merostome crustacean added to the collection during the year was described and the manuscript of a Cambrian summary revised and partially rewritten.

Two major problems are being carried forward by Dr. G. A. Cooper, as follows: (a) A study of the genera and species of the Ozarkian and Canadian brachiopods, in collaboration with Dr. E. O. Ulrich; (b) a bibliography of Devonian invertebrates, in collaboration with Dr. E. M. Kindle, of the Canadian Geological Survey.

C. W. Gilmore completed a short paper descriptive of a new species of troödont dinosaur from the Lance formation of Wyoming and prepared a more extensive manuscript descriptive of the newly mounted *Diplodocus*. He made good progress on a paper describing turtle remains from Idaho.

Dr. J. W. Gidley's study of the Pleistocene mammals from the Cumberland cave has advanced satisfactorily, recent researches considerably increasing the scope of this monographic work. Systematic research is revealing that many species that a preliminary study failed to distinguish from living forms are proving to be well-defined extinct species, several of them new to science. A vast amount of study and comparison with Recent mammalian material has been necessary, but the positive identification of the extensive Cumberland cave fauna is proving of great assistance in the determination of Florida and other Pleistocene material and in the correlation of the various Pleistocene horizons represented.

Research of outside investigators aided by Museum material, including work in the Museum and material loaned.—Now that our mineral collections are so complete in rare varieties, requests for the loan of material become more frequent. These are always granted to reliable workers.

Dr. R. Endo concluded his two years of comparative study of the Cambrian collections in February, and Dr. Curt Teichert continued his researches on the cephalopods for several months of the year.

A part of his work was in collaboration with Dr. A. F. Foerste, who, as usual, spent the summer of 1930 in studying the Museum's cephalopod collection.

Members of the United States Geological Survey carried on researches as follows: Dr. E. O. Ulrich spent most of his time on the identification of various fossils in the collection and, as stated previously, completed the second report on the Wisconsin Cambrian in collaboration with Doctor Resser. Dr. Edwin Kirk practically completed the description of certain Devonian crinoids. Drs. John B. Reeside, W. C. Mansfield, C. W. Cooke, W. P. Woodring, and Julia Gardner, have worked on the Mesozoic and Cenozoic collections. Dr. R. W. Brown has nearly completed a description of the Green River flora, based partly on new material but also carrying new descriptions of many of the old types. C. B. Read has finished a paper descriptive of some of the fossil woods.

Dr. Mary J. Rathbun has continued her studies on crustaceans, particular attention being given to the decapod fauna of the coastal plain of the Atlantic and Gulf of Mexico coasts of the United States.

Dr. R. S. Lull used the collections in vertebrate paleontology to further his monographic revision of the ceratopsian dinosaurs; Dr. Chester Stock spent several days studying certain mammalian fossils; Dr. Herman Gunter made use of proboscidian material in connection with a restoration of a mastodon skeleton; Barnum Brown, of the American Museum of Natural History, studied our *Glyptotherium* and dinosaurian materials, and various members of other institutions examined the collections and borrowed specimens to aid in their studies.

Assistance to other Government bureaus and individuals.—Materials received for examination and report numbered 471 lots; and 470 letters, for which data were furnished for reply, passed through the head curator's office.

Visits to other institutions on official work.—Incidental to the meetings of the Geological Society of America and affiliated societies at Toronto, the collections of the Royal Ontario Museums of Mineralogy and Paleontology were examined by the head curator, curator of mineralogy, and assistant curator of physical and chemical geology. On his way to the Wyoming fossil fields Mr. Gilmore visited the State University Museum at Lincoln, Nebr. He also visited the Field Museum of Natural History at Chicago, especially to see some recently installed fossil specimens. A visit was made to the American Museum of Natural History for the purpose of examining certain specimens in that collection. Dr. C. E. Resser visited the University of California, where a number of type specimens were selected for use in connection with studies now in hand.

DISTRIBUTION AND EXCHANGE OF SPECIMENS

Five sets illustrating phases of rock weathering and soil formation, aggregating 60 specimens, and 19 sets of rocks, minerals, and ores (1,577 specimens), were distributed to schools. Of specially prepared material, 548 specimens have been sent out as gifts, 2,492 specimens as exchanges, 2,957 specimens as loans for study, and 10 specimens as transfers to other Government departments.

NUMBER OF SPECIMENS UNDER DEPARTMENT

The estimated totals, as given by heads of divisions are as follows :

Geology, systematic and applied.....	94,607
Mineralogy and petrology.....	139,558
Stratigraphic paleontology.....	1,811,813
Vertebrate paleontology.....	25,395
Total.....	2,071,373

REPORT ON THE DEPARTMENT OF ARTS AND INDUSTRIES, AND THE DIVISION OF HISTORY

By WILLIAM DEC. RAVENEL, *Director of Arts and Industries*

INTRODUCTION

The year ended June 30, 1931, was an active one for the department of arts and industries and the division of history. The appointment of an associate director of the Museum early in March relieved the writer of many administrative duties of a general character and gave him opportunity to devote a larger portion of his time and thought to supervising the scientific and technical collections under his charge.

The department of arts and industries and the division of history comprise a wide range of diversified subjects, the preservation and exhibition of which involve many varied problems, the objects ranging from full-sized locomotives and airplanes to coins, postage stamps, and engravings. With the small force of assistants and the limited space available it is often difficult to accomplish all that is hoped for or planned. The exhibition collections generally, however, are in infinitely better condition than at the beginning of the year, and the reserve or study collections are in as accessible condition as crowded space and a small staff permit.

The progress of the year has been very satisfactory under prevailing circumstances. Numerically the increment to the collections represented a 50 per cent increase over that of the preceding year. Though lack of normal cooperation from outside sources in some subjects, and delay in securing needed additional cases, modified changes in exhibition planned for the year, yet much was accomplished in the way of improvement both by new and by rearranged displays.

Certain units of the department, through the fact that they deal with objects of the commercial world, depend to a large extent upon the generosity of public-spirited citizens and organizations for material, and in such units any depression in the business of the country is soon reflected in the kind and quantity of materials added to our collections. Museum activities are of such a diversified nature, however, that the impeding of progress in one direction, for any cause whatever, simply means renewed activity in another. Rapid development often results in temporary installation and labeling.

Lulls in developmental activities, therefore, give necessary time to make required improvements; to ascertain whether progress is being made uniformly; to give thought to perfections of classification and installation; and to make plans for future guidance.

In the division of history a reassignment of space, by which the coin and the costumes collections exchanged locations, improved conditions for both subjects. The coins have more light and the costumes more space. The latter now form a particularly pleasing feature in the hall at the right on entering the Arts and Industries Building. In the correspondingly opposite hall, at the left of the main entrance, the collections illustrating Power, assembled by the division of mechanical technology, are proving an attraction for the male visitors, offsetting the "feminine" display on the right.

The southwest court, or coal hall, was closed to the public through the year, pending the rebuilding and rearrangement of the exhibits, which were delayed through causes beyond control. Installations for fire protection in the Aircraft Building this year necessitated dismantling the aircraft collection temporarily and the closing of that building for eight months of the year. The reinstallation of the renovated building was not entirely completed at the close of the year, but the public was again admitted beginning on June 15, 1931.

The number of visitors to the Arts and Industries Building reflected the changed economic conditions of the country, the figures for the year falling somewhat short of those for last year, which was the banner year.

The section of photography, by its series of pictorial photographs, won recognition abroad this year. The trustees of the Stephen H. Tyng Foundation for the encouragement of pictorial photography, established under the Royal Photographic Society of Great Britain, made the national collections of this country the depository for the duplicate series of outstanding pictorial prints purchased from time to time by the foundation.

ACCESSIONS FOR THE YEAR

The total number of additions acquired by the department of arts and industries and the division of history this year aggregated 16,113 specimens, an increase numerically of 50 per cent over that of the preceding year. The specimens were assigned as follows: To mechanical technology, 1,935; mineral technology, 2; textiles, 486; foods, 2; history of agriculture, 2; organic chemistry, 347; wood technology, 701; medicine, 364; graphic arts, 3,604; and history, 8,670.

Space permits of the mention here of only the more important acquisitions of the year, but all are acknowledged in the accession list following this report.

Mineral and mechanical technology.—The accessions this year to these two divisions comprised a total of 1,937 objects, assigned 2 to mineral technology and 1,935 to mechanical technology, including a temporary accession of 390 objects that have already been returned to their owners. In the increment was one accession that included more than 1,000 edged tools.

An outstanding accession in the aircraft section was a series of 49 objects illustrating the first use of aircraft for military purposes in the United States and relates to captive balloons used during the Civil War, being material assembled originally by Thaddeus S. C. Lowe. Professor Lowe, organizer of the first military balloon section of the Federal Army, was qualified for this undertaking through years of experimentation in lighter-than-air craft. The collection received by the Museum was presented by his heirs, Leon P. Lowe, Thaddeus Lowe, Augustine Lowe Brownback, Blanche Lowe Wright, Edna Lowe Wright, and Zoe Lowe Brown. The gift includes the valve from the balloon *Great Western*, built by Lowe in 1859 for a proposed trans-Atlantic flight; the valve of the *Enterprise*, a Civil War balloon used in the peninsular campaign; the field glasses and barometer used by Lowe in his balloon flights; an original card written by President Lincoln introducing Lowe to General Scott; and numerous photographs and illustrations of Civil War balloons in active service, together with equipment used by the balloon section. It is interesting to note in this connection that Lowe had the confidence and support of Joseph Henry, first secretary of the Smithsonian Institution, in his pioneer efforts to bring about the use of balloons for military purposes, and that the first official tests of Lowe's balloons were carried out on the grounds of the Smithsonian Institution.

The airplane *Bremen*, the first heavier-than-air craft to make a nonstop flight westward across the North Atlantic, was loaned to the Museum by the New York Museum of Science and Industry. The *Bremen* is a German Junkers low-winged, all-metal monoplane, with which the late Baron E. G. von Huenefeld, Capt. Herman Koehl, and Commandant James Fitzmaurice made a flight, April 12-13, 1928, from Dublin, Ireland, to Greeneley Island, Newfoundland. This plane was subsequently presented to New York City by Baron von Huenefeld. Another interesting full-size aircraft was the glider *Texaco Eaglet*, in which Capt. Frank M. Hawks made the first glider flight across the United States from San Diego, Calif., to New York, March 30 to April 6, 1930, the glider being towed by an airplane flown by J. D. Jernigin. This was presented to the Museum by the Texas Co., and forms an interesting contrast to the original pioneer glider of Lilienthal of 1894, an object of interest in the aircraft collection for a great many years.

The aircraft collections were enlarged technically through the addition of models of a number of important airplanes. Eleven were received during the year, several of which were donated by boys of Washington, D. C. The Fokker Aircraft Corporation of America presented a model of the airplane *Question Mark*, with which the Army Air Corps established a record of more than 150 hours of continuous refueled flight in January, 1929. The Texas Co. presented a model of the Lockheed Vega Air Express, in which Captain Hawks established records for transcontinental flights in 1930; and the Stanavo Specification Board (Inc.) presented a model of the Lockheed Vega *Stanavo Eagle*, which has made many notable flights in this country and Europe.

An international speed classic for seaplanes has been held periodically since 1913, the award being the Schneider trophy. A model of each successive winner of this competition has long been desired for the aircraft section. This was partially satisfied during the year by the acquisition of two such models, the *Deperdussin* of 1913 and the Curtiss Army Racer of 1925. The former was presented by John Pendleton, and the other was loaned by Gordon Drummond.

Two historically valuable aircraft engines were added to the Museum collection through the gift of Charles R. Wittemann. One is a Curtiss engine used in the first dirigible balloon of the United States Signal Corps made by Baldwin in 1908, and the other a Hall-Scott engine of the period of 1912.

The collection of aircraft propellers, numbering about 70 specimens, and showing the progress of propeller design since 1891, was enhanced by the acquisition of an Olmsted, presented by C. M. Olmsted; two propellers from the airship *Shenandoah* of 1924, transferred from the Navy Department; and a propeller made during the World War by the B. L. Marble Chair Co., by whom it was presented.

Other interesting and valuable objects pertaining to aircraft acquired during the year included three parachutes transferred from the War Department; the barograph that recorded Colonel Lindbergh's flight to Paris in the *Spirit of St. Louis*, loaned by the National Aeronautic Association; and many photographs and other technical data pertaining to historic, commercial, and postal aviation.

The section of land transportation was especially favored by the acquisition of several original horse-drawn vehicles of types not before represented in the collection. Of outstanding interest is an original "coachee," or light family carriage, which was made in Philadelphia about 1783, and is believed to be the oldest existing example of an American-made carriage. There is some reason for believing that it was at one time owned by General Washington at

Mount Vernon. This carriage, which is in a wonderful state of preservation, considering its age, and which forms a most valuable addition to the vehicle collection, was presented to the Museum in the name of the late Robert L. Brownfield through his son Robert L. Brownfield. From Will Rogers and Fred Stone the Museum received as a loan an original Concord stagecoach typical of the overland vehicle widely used in the settlement of the West before the advent of the transcontinental railroads. That it was made in Concord, N. H., is evidenced by the blacksmith's nameplate mounted on the running gear, but at this writing the exact year of its manufacture has not been determined. A third interesting horse-drawn vehicle received was a single-horse sleigh made about 1840 by Gilbert Vanderwerken, a carriage and wagon maker of Newark, N. J., who subsequently established an omnibus service in Washington, D. C. The sleigh was presented by his daughter, Mrs. George E. Truett.

To the collection of bicycles there was added an old velocipede of 1869, which has the unique feature of incorporating a coaster in the front wheel, as invented by William Van Anden, presented to the Museum by Mrs. William M. Van Anden. This velocipede was made and sold by Van Anden as the "Dexter." This section was further enhanced by the addition of a motor bicycle made in 1902 by George M. Hendee and Oscar Hedstrom. The machine was presented to the Museum by the Indian Motorcycle Co. and is typical of the first commercially successful American gasoline-engined bicycle, popularly called a motor cycle. It is an excellent example to show the transition from the pedaled to the powered vehicle and, as such, closes the bicycle series exhibited in the section of land transportation.

For a number of years there have been on exhibition two examples of the sedan chair, one of Turkish and the other of Japanese origin. During the year there was added to this series as a loan from the Garber Galleries (Inc.), an original Louis XV sedan chair, which is typical of the elaborate conveyance of the mid-eighteenth century. The chair is covered with leather, beautifully decorated with garlands, cherubs, and a heraldic design, the work being attributed to Watteau.

Another addition to the transportation series is a baby carriage of the period of 1860, presented by Miss Julia P. Kiess, which is, in reality, a miniature 2-wheeled chaise with collapsible leather top and wooden drawing tongue. It was purchased originally in Cincinnati, Ohio.

To the collection of railroad rails illustrating the development of the rail since 1831 there were added, as gifts of the Pennsylvania

Railroad, the Southern Railway System, the Baltimore & Ohio Railroad, and the Lehigh Valley Railroad, typical examples of the rails used by these roads in 1930 and 1931. Also from Frank Hepp there were received relics of the original rail structure of the Mad River & Lake Erie Railroad, constructed in 1836 in Ohio, including a length of mud sill and short ends of two ties, with wooden stringer carrying a flat iron rail spiked to the stringer.

The only addition made to the automotive section was a series of 79 photographs of automobile racing cars covering the period from 1900 to 1931. Fifty-four of these were presented by Theodore L. Chase, the rest having been received from R. H. Le Sesne, Val Haresnape, and C. C. Wakefield & Co. (Ltd.).

There was but one outstanding accession in the section of water transportation, a model made to a scale one one-hundred-and-fiftieth actual size of the trans-Atlantic liner *Bremen*, which was put in service in 1929, and with her sister ship, the *Europa*, holds the steamship speed record for the Atlantic crossing. This is a water-line model, and was presented to the Museum by the North German Lloyd.

There were many interesting accessions received during the year in the power section. One of these was a quarter-inch-to-the-foot scale model of a section of the Conowingo hydroelectric generating station, presented by the Philadelphia Electric Co., through its president, William H. Taylor. This station is a part of the Philadelphia Electric Co.'s system and is erected on the Susquehanna River at Conowingo, Md. The model shows in cross section all the features of the design, including the water intakes, scroll case, water wheel, draft tube, the generator, electrical equipment sections, control room, pipe room, transformers, oil circuit breakers, and the switching structure on the roof of the building. The model embodies one generating unit of 54,000 horsepower, which represents one-seventh of the present and one-eleventh of the ultimate development of the plant. On the four sloping surfaces forming the base of the model are a number of photographs of the project and a tabulation of interesting facts pertaining to it. Work on this power plant was started in March, 1926, and the first unit went into commercial operation in March, 1928. It is the second largest hydroelectric generating station in the United States, being surpassed only by the plant at Niagara Falls. The seven units at present installed have a capacity of 378,000 horsepower, while the ultimate development will yield 594,000 horsepower.

Another valuable accession was an original horizontal stationary steam engine built in 1864 in the shops of the United States military railroad department at Alexandria, Va., which was in continuous use for 58 years. The engine is a fine representative of the best con-

struction of simple horizontal steam engine for small power as built in that period and for many years thereafter. It was presented to the Museum by the Southern Railway System.

The General Electric Co. donated a modern 3-stage steam turbine of 50 to 100 horsepower capacity, cut away in various parts to show its construction and operation. This turbine is at present the most modern steam engine in the collection and serves to bring the series of historical engines up to date:

There was also acquired an original Westinghouse Junior automatic steam engine typical of one of the earliest models of the modern high-speed automatic steam engine for small power and auxiliary drive. This engine was used for many years to drive an electric generator on an Ohio River steamboat.

Martin T. Kimman presented a series of objects showing the development of the rotary air drill as perfected by his brother, Henry James Kimman. The series includes the original 3-cylinder compressed-air engine, which gave Kimman his basic idea; the drill, which he made as his first attempt to apply air to drilling; a 6-cylinder drill embodying his efforts to increase the drill power; and a cut-away specimen of the final 4-cylinder type evolved by him, which is in all respects the same in design as that used to-day.

The Franklin Machine Co. added to the historical specimens connected with the development of the steam engine, and particularly with the work of George H. Corliss, a series of drawings and blue prints and two models of early steam-engine valves.

The horse-drawn fire engine is almost a thing of the past, and the Museum was fortunate in receiving as a gift from the American-La France and Foamite Corporation a horse-drawn steam fire engine of 1906 and known as the "Metropolitan." This engine was purchased in 1906 for the Alexandria, Va., fire department and was in constant service there until 1929.

Lastly, the De Laval Separator Co. presented a sectioned, steam-turbine-driven, centrifugal oil purifier, and the Lee B. Mettler Co. presented a unit of a modern industrial gas burner of the Mettler type. Both of these accessions are appropriately exhibited in the Power Hall.

Quite a number of valuable objects were added to the sections of communication, metrology, and hand and machine tools during the year. Harry R. Cheetham presented a number of pieces of apparatus and documents used during the pioneer days of radio. Several of the specimens were constructed and used by him in the period 1900-1907 in a private radio station, and there are several pieces of the radio apparatus used on the steamship *Carpathia* to answer the call and broadcast the news of the sinking of the steamship *Titanic*

in 1912. The documents include a complete series of radio operators' licenses issued to Mr. Cheetham annually by the Department of Commerce from 1911 to 1931. Another interesting radio accession was received as a gift of Heintz & Kaufman (Ltd.), consisting of a radio set made by them and used on the airplane *Southern Cross* in its flight around the world, begun in 1928, from San Diego, Calif., across the Pacific to Australia. It was with this set that the world was informed of the progress of the flight across that ocean.

Albert H. Brigham donated an interesting group of tools used 100 years ago for making tacks and nails, also a series of tacks and nails so made. The collection includes primitive swages and hammers, two vises with cutters, and an improved tack tool embodying movable dies by means of which the tack maker could increase his production from 1,000 a day by the crude hand method to 8,000 a day. There was added, too, to this section a collection of 13 pump-making hand tools such as were used in former times to make wooden pumps for shallow wells. The tools consist of bits, reamers, valve cutters, and skivers, the latter being used to prepare the various leather valves used in the old-fashioned wooden pump. This collection of tools was presented by Charles G. Cline. To this section was added also a most unique collection of edged tools, gift from the estate of Charles F. Wiebusch, through Dunn, Daly & Bain. The collection totals more than 1,000 specimens and includes every type of pocket and clasp knife of the most primitive as well as the most modern design; knives for every conceivable use; razors of all sorts; and a large variety of scissors and shears.

Four important objects were added to the metrology section. Three of these were early original calculating machines: A Baldwin built before 1876; a Bouchet of about 1885; and an Odhmer arithmometer of 1890. These were presented by Mrs. Joseph S. McCoy, and were used by Mr. McCoy, late Government actuary, in his official work in the Treasury Department. He was one of the first individuals in this country to introduce calculating machines into modern business practice. The fourth object was a beautifully made scale model of the first platform weighing scale invented by Thaddeus Fairbanks in 1830, presented by E. and T. Fairbanks & Co.

Textiles, foods, organic chemistry, wood technology, and medicine.—The additions to the collections under the supervision of the curator of textiles during the year comprised 1,902 specimens, divided as follows: Textiles, 486 specimens; organic chemistry, 347; wood technology, 701; foods, 2; history of agriculture, 2; and medicine, 364.

The outstanding addition to the textile collections was an additional exhibit covering the story of cotton from the field to the

manufacture of cloth. This exhibit was presented by the Pepperell Manufacturing Co., and comprises a model, 25 feet 8 inches long, with a painted canvas background and modeled foreground, on a scale of 1 foot to the inch. The model proper shows four scenes: A portion of a cottonfield in the Mississippi region at picking time, including a ginnery and bale press; a railway transportation point where baled cotton is being shipped to northern mills; a modern cotton mill for the weaving of sheeting with all the regular machinery needed to convert the raw cotton into finished product, modeled to scale; and a bleachery where the bolts of gray sheeting are joined end to end, permitting the fabric to pass as a single band through all bleaching operations, to be finally ironed, cut apart, hemstitched, and packaged as finished sheets. The painted background shows the Mississippi River and distant cottonfields for the southern scenes, and New England mills and the Maine coast for the northern ones.

The Cotton-Textile Institute (Inc.) continued its cooperation by the donation of two series of outstanding cotton fabrics produced by American manufacturers—one for the fall and winter trade of 1930 and the other representative of the new textiles produced for spring and summer of 1931. These fabrics, showing the prevailing style trend in pattern design and coloring, include sheer cottons in pastel shades and intermediate and heavyweight textures in darker tones. They were selected as the best examples of the season's productions by a committee of experts in fashion representing five popular periodicals.

The American Bemberg Corporation added fresh material, including a number of new fabrics, to the series of specimens contributed last year to illustrate the manufacture of synthetic yarns from cotton linters by the cuprammonium process.

The Museum is indebted to L. & E. Stirn for a series of novelty velvets made by J. B. Martin Co. With the exception of one all-silk fabric, these velvets are of double-weave construction, having a rayon-pile surface and a silk back or foundation. Various forms of ornamentation are represented, including new rolled and pebbled effects produced by embossing; plain and printed panne velvets, which have mirrorlike surfaces due to the flattening of the pile; and velvet brocades, often called "soda prints" in the trade, in which part of the pile surface has been destroyed by chemicals, thus developing a velvet figure on a sheer background.

The cooperation of H. R. Mallinson & Co. (Inc.) was continued by the contribution of a series of novelty silk crêpe dress goods representing a new group of designs. These interesting patterns, combining architectural and floral motifs, were inspired by Moorish and Arabian ornamentation and natural objects from Morocco.

An exhibit showing successive stages in the manufacture of a fine all-wool blanket was added to the textile collection through the courtesy of the North Billerica Co. and the cooperation of the United States Department of Agriculture. The wool used in the blanket, 50 per cent fine and 50 per cent half blood, was supplied by the Bureau of Animal Industry, and tests of a number of these blankets, made under special specifications, are to be carried out by the Bureau of Home Economics.

In response to numerous requests, an exhibit of live silkworms during the stage of cocoon spinning was undertaken in the Textile Hall during June, 1931. This was made possible by the contribution of 300 live silkworms of various ages by T. A. Keleher, who has likewise very generously helped the Museum in previous years.

The Museum collection of obsolete textile machinery was increased by the gift from Edgar J. Rollins of an excellent example of the type of spinning wheel used a century ago to spin woolen yarn, and a pair of hand cards used to prepare the rolls of wool for the spinning wheel.

Mrs. George E. Truett contributed an old sewing machine made about 1861 by Ladd, Webster & Co. and based on a patent issued in 1854 to Christopher Hodgkins and Nehemiah Hunt. One of the earliest types of portable sewing machines made by the White Sewing Machine Co. was contributed by Will K. Martin.

Interesting examples of hand-woven textiles were presented by several persons, as follows: By Mrs. Jennie Bancroft Alband, a linen damask tablecloth, woven by the great-grandmother of the donor in Vermont about 1780, the design being an illustration of Independence Hall, Philadelphia; by Mrs. Mary Case Fairchild, part of an 80-yard strip of carpet spun and woven by her mother in Allegany County, N. Y., before 1854; by Miss Mary E. Crook, two full-sized blue-and-white Jacquard type double coverlets woven in 1841 and 1844 near Syracuse, N. Y.; and by Mrs. Etta Margaret Hill Morton (Mrs. Isaac Carrington Morton), a cotton print applique quilt made in 1847 by ladies of the Presbyterian Church of Malta-ville, N. Y., for the pastor's wife, Mary Benton Barnard Hill, grandmother of the donor.

The most valuable addition to the division of medicine was a transfer from the Children's Bureau, United States Department of Labor, of two models dealing with subject of child health. One of the models represents a standard maternity and child-health clinic, such as is advocated for communities by the bureau to insure adequate prenatal and infant care. The other model is a miniature cottage institution of the kind approved by the bureau to replace the old type of orphan asylum. The Children's Bureau also transferred a

strip of film, "The Preschool Days of Betty Jones," for use in supplementing the child-welfare exhibits.

The American Hospital Association, through Richard P. Borden, presented a colored transparency for addition to the set of similar pictures previously donated to illustrate the subject of hospitalization.

The history of medicine section was enhanced by the following material: A gift of a complete set of surgical instruments of the Civil War period, from Mrs. Elizabeth F. Wolfley, Mrs. Eleanor Wolfley Bisell, Mrs. Caroline Wolfley Shannon, Mrs. Elizabeth Wolfley Harman, through Thomas J. Shannon, of the Museum. These instruments were used by Lieut. Col. William Irvin Wolfley, Sixty-second Ohio Infantry, United States Volunteers, who was attached to DeRussey's Division of the Army of the Potomac and for a time had charge of the convalescent camps along the Potomac River.

Thirty-eight pearl-handled dental instruments made in England about 1780 and used by Dr. A. L. Wilkinson until his death in 1894 were donated by his children, through Miss Kate E. Wilkinson.

A Davis & Kidder magneto-electric machine, patented August 1, 1854, for the treatment of nervous diseases, was presented by Miss Sarah L. Crane.

Dr. Esther Bebout, through Dr. Riley D. Moore, contributed an interesting specimen known as an osteopathic swing. This swing, which came into use about 1890, was employed quite generally by osteopaths until about 1910 to support part of the weight of the patient during treatment. Specially designed mechanical tables have now replaced this contrivance.

Master Edward Pryor donated a spring lancet, a seventeenth century import from Wales. This lancet, a possession of the family of the donor's grandfather, W. S. Hamilton, is the type of surgical instrument used in the early history of America by both physicians and laymen for bloodletting, opening of boils, and similar operations. It was operated by placing the blade, previously drawn back against the spring, over a vein or part to be opened, and then releasing the blade by pressing on the trigger so that the lancet was impelled forward with sufficient force to make the required puncture.

Noteworthy donations to the pharmacy section consisted of the following: An old drug store show globe, from Walter Wetterstroem, through Dr. J. T. Lloyd, a relic of the American drug store of 70 to 100 years ago. Now that these globes are passing from modern apothecary shops, collectors are becoming very much interested in them. Their origin, as the distinctive emblem of the drug store, is obscure. Some claim that they date back to the Roman invasion of the British Isles by Caesar, while others give the time of their introduction as 1655, when the great plague was raging.

Dr. J. T. Lloyd presented a hand prescription balance of the single-beam, equal-arm type, used by pharmacists until requirements enforced a more rigid support for the beam of this kind of scale than the unsteady human arm; also a partial set of Troy weights made in the form of a graduated series of cups, each fitting within the one next larger, and each cup having the exact weight of all those nested in it.

William H. Heman, through Herbert Ell, presented a mold for compressing powdered medicaments into the form of lozenges and tablets, also a set of avoirdupois cup weights. The mold is of particular interest, as it is an example of the type of device used in this country about 40 or 50 years ago when lozenge and tablet medication first came into general use. The mold, which consists of frame, plunger, and replaceable dies, is believed to be an early modification of the first English and American patents for apparatus of this kind.

Gifts for the development of the section of materia medica included the following: Sixty-five specimens for a gelatin capsule exhibit, 48 specimens to illustrate the use of insulin in the treatment of diabetes, and 10 official pharmaceutical preparations from Eli Lilly & Co.; 12 medicinal oils from Dodge & Olcott Co.; 18 official galenical preparations from Sharp & Dohme (Inc.); 8 official pharmaceutical preparations from Parke, Davis & Co.; 7 official chemical drugs from Merck & Co. (Inc.); 6 pharmaceutical preparations from Schieffelin & Co.; and 1 specimen each of pancreatin and pepsin from Armour & Co.

For the section of wood technology three lots of wood samples were received, which were approximately equal in number and scientific value. Gerrit S. Miller, jr., of the Museum staff, collecting in Jamaica during February to April, 1931, obtained 164 woods from a region heretofore only scantily represented in the Museum collection. The Field Museum of Natural History sent the Museum a fine set of 147 wood samples from southern India, Brazil, Paraguay, British Honduras, and the United States, in exchange for a collection of miscellaneous foreign woods. The Philippine Bureau of Forestry presented a set of 132 native woods selected by A. F. Fischer, being as complete a set as possible from their stock. A great many of the species included are new to our collection, and in several instances even the regional representation is new.

Four valuable but smaller sets of woods than those mentioned were also added to the collection. Dr. Edward J. Barrett presented a set of 96 specimens of commercial woods of Luzon, which were specially prepared for him in 1900-1901 while he was in the Philippine Islands as assistant surgeon with the United States Army. E. J. Lee continued his valuable cooperation by sending in exchange

samples of 64 pieces of wood from Indo-China, especially valuable since all the species, as well as the region, were heretofore unrepresented in the Museum. The third set under this group came from the forest experiment station at Keijo, Chosen, Japan. Dr. Matajiro Tozawa, director of the station, visited the Museum in 1930 and paved the way for an exchange. The 50 woods from Chosen that he sent are the only representatives of that region in the wood collection, and the specimens are prepared in accordance with National Museum standards. The fourth set was made up of 23 woods collected in Haiti during 1925 and 1926 by E. C. Leonard, of the division of plants, the botanical material collected with these being in the National Herbarium.

The exhibit of rubber industries, fostered by the Rubber Manufacturers' Association (Inc.), was improved by the addition of specimens of elastic webbing, by rubber tapping knives typical of those used on plantations, and by many fresh specimens of molded or pressed rubber goods. From the Bureau of Fisheries, United States Department of Commerce, there were transferred numerous specimens of fish and shark skin leathers; and a pair of rattlesnake-skin slippers, made in 1867 and exhibited at the centennial exhibition in 1876, was presented by W. S. Zehrunge. A renewal of the exhibit prepared to show the manufacture of felt hats from furs was made by the John B. Stetson Co., and specimens of hats sold in special foreign markets were added to the collections. The Fuller Brush Co. presented fresh examples of the types of brushes that it makes for inclusion in the exhibit of animal-fiber brushes made several years ago by the American Brush Manufacturers' Association.

Graphic arts.—The accessions of the year in the division of graphic arts, with its section of photography, consisted of 3,604 specimens added to the permanent collections and 1,066 specimens received for temporary exhibition.

Charles W. Girsch continued his cooperation by the donation of two fine large engraved steel plates and one print, the work of his father, Frederick Girsch (1820-1893), one of the foremost bank-note engravers of his time. These are excellent plates of the period when large engravings were the style.

Modern machine methods have greatly increased the output and reduced the expense in decorating and embossing book covers, and manufacturers have also produced an almost unlimited variety of cloths and imitation leathers that take both color and metal leaf. Metal leaf is now made in almost every color of the rainbow, and most of it comes properly sized and in both leaf and roll form, so that whatever material is used on the cover the metal leaf will stick without sizing. Pigment colors are also prepared in the same way.

Contributions relating to the latest methods and materials used in decorating book covers were received from the following firms: The Holliston Mills (Inc.) contributed samples of "Glofoil," imitation gold leaf, and sample books of Marbled and Spanotone, book cloths; R. W. Grauert Co., samples of "Oeser" Antioxide Bronze, color charts, and three transfer color rolls; the Burkhardt Co., two demonstration books showing the steps in making a cover by the Burk art process; Hastings & Co., samples of imitation gold leaf and Diamond transfer colors; W. H. Coe Manufacturing Co., four rolls of gold leaf, three gilding wheels, and one gilding brush; Peerless Roll Leaf Co. (Inc.), samples of roll and flat genuine gold, roll and flat imitation gold, color rolls, and stamping with the above.

Five accessions in letterpress printing were received during the year. Two of these were unique specimens of miniature books and were added to the exhibition series. One, *The Addresses of Abraham Lincoln*, a very small book though not the smallest in the world, is the work of the students of the Kingsport Press, Kingsport, Tenn., and has a leather cover measuring twenty-seven thirty-seconds by eighteen thirty-seconds of an inch; the page is twenty-four thirty-seconds by sixteen thirty-seconds of an inch, the printed matter covering sixteen thirty-seconds by twelve thirty-seconds of an inch. In this space is a heading and 10 lines of type, which average 37 words to the page. The type corresponds to about 3 point, but it is printed from a photomechanical plate, made from a larger printed page.

The other miniature book is *The Gospel of St. Matthew*, printed from the smallest type that has ever been cast, $2\frac{1}{2}$ point, called *Microscopic*. The punches for this type, cut by Henri Didot in 1827, are owned by Jean Enchede et Fils, Haarlem, Holland, who published this book in 1900. The printed surface measures $1\frac{5}{8}$ by $1\frac{1}{8}$ inches, and is set 28 lines to the inch in double columns, with approximately 540 words to a page. The printed impression of each letter is sharp and distinct, and the book is a fine example of typography and printing.

Another fine example of bookmaking was the gift from William Edwin Rudge of a copy of *A Christmas Carol*, by Charles Dickens, in two volumes, which Mr. Rudge printed as his Christmas greeting. A copy of one of *The Fifty Books of 1930* was loaned to the Museum by John Davis, of Judd & Detweiler. This is *The Gospel According to St. Luke*, produced by that firm.

The Laboratory Press of the Carnegie Institute of Technology, a training school for young men who have shown exceptional ability in printing, contributes each year from the work of these students; 12 such specimens of fine printing were received this year, all on handmade paper.

The Heliotype Co. presented two of their reproductions in color. One is of a miniature and the other is of an oriental rug, the latter being remarkable for its truth of color and for its texture. Even under a microscope the print carries the texture of the rug. The process is a very expensive one, being a combination of collotype and 12 lithographic printings.

The exhibit of silk stencil work was increased through the gift by Leo H. Fuller (Inc.) of two examples of their work in silk stencil printing in water colors.

M. A. Dahl gave a pamphlet containing examples of commercial wood engravings made by Dahl & Sinnott, showing a high degree of skill and accuracy.

Walter Stenning, the inventor of an engraving machine, furnished two examples of engraving on bakelite, which he colors with metallic waxes in an unusual way. He also contributed 16 examples of "Needle Box Prints" by George Baxter and two by Le Blond and Co. These are made by the process invented by George Baxter in England and patented in 1835, in which he used a steel-engraved plate for the detail, usually in aquatint, and wood blocks for the color.

A very fine miniature by F. Boyd Waters was received as a gift from the artist through Earle W. Huckel, who was formerly in the division of graphic arts. It is a portrait of Gertrude A. Bugler in the rôle of Eustacia Vye, in *The Return of the Native*, by Thomas Hardy.

An unusual specimen of a pen drawing on linen in indelible ink was the gift of Mrs. Etta Margaret Hill Morton (Mrs. Isaac Carrington Morton), who also donated the outfit with which it was made.

The display of Brulegravure, or burnt pictures, invented by John W. Robbins, was increased by him by 20 specimens. For this work Mr. Robbins takes a heavy brass plate and etches it in planes, then heats the plate hot enough to burn paper, wood, or leather upon which it is pressed, and the part of the plate which presses the hardest will burn the darkest, and the lower planes of the plate are lighter as they are in less contact or, if deep enough, will not burn the paper at all. Of the 20 specimens furnished, two are Brulechromes; that is, Brulegravures colored by hand with oil paint.

Sixty years ago the chromolithograph was a popular form of home decoration, excellent work being done by Louis Prang. Of each print that he published he kept a set of the working proofs pasted in books. On the death of his widow, a few years ago, the estate sold all his prints and proof books. The division was fortunate this year in obtaining three of these books. They show the infinite patience and care that Mr. Prang took to produce his fine

chromolithographs. Indeed some of his chromos, embossed and pasted on cloth and mounted on stretcher frames, are not infrequently taken for oil paintings.

Forty large half-tone prints in color, after paintings by J. L. G. Ferris, were, at the suggestion of the widow of the artist, presented by the Foundation Press (Inc.), E. H. Ferris, president. These are 4-color reproductions and are published for educational purposes. The series, called "The Pageant of a Nation," illustrates historical events in the history of our country from the arrival of Columbus to the Civil War.

J. V. Cremonim furnished two samples of the new metal called "elektron," which is being used in the photomechanical processes. The metal, a combination of aluminum and magnesium, though much harder than zinc, is very much the color of zinc but is light like aluminum.

A few samples of its recent collotype work in black and white were sent in by the Meriden Gravure Co. Four bookplates were received—two from Hayden T. Giles and two from James B. McNair.

Eight samples of handmade paper were contributed by Dard Hunter, the product of his own mill. For a long time handmade paper was not manufactured commercially in the United States. Mr. Hunter has recently established a mill at Lime Rock, Conn., for making such paper.

Alton B. Carty evidenced his continued interest in the exhibits of graphic arts by the donation of a collection of 63 miscellaneous specimens covering various details of the printer's art, some containing valuable information.

A few fine prints have been received this year. One of the most beautiful for its delicacy and refined drawing is the dry point of *Idyle Moments* by the late Warren Davis. Two years ago the division held an exhibition of his dry points, when this was considered the finest technical example in the show. Dwight C. Sturges gave two of his strong etchings of figures, *The Station Agent*, and *Mother*, well-drawn, rugged subjects, typical of New England. Frederick T. Weber contributed a print of his plate *Old Mackie House*. This was illustrated in *Fine Prints of the Year, 1930*.

Robert H. Nisbet, who held an exhibition here this spring, donated two etchings. The print, *Fisherman, Lake Tohopekaliga*, is a fine example of etching in line without any manipulation of the ink in the printing. The other print is entitled *Moonlit Skies*. Mr. Nisbet also gave two etching points, one being made of glass, which permits the scratching through the ground to the copper without marking the copper.

A typical example of the remarkable style of George Elbert Burr is shown in his etching-dry-point-aquatint *Evening, Arizona*, which

was deposited in the Museum by the Smithsonian Institution. It is an associate member's print of the Brooklyn Society of Etchers.

Two etched books, the work of Bernhardt Wall, were contributed by the George Washington Foundation for Citizenship and Education (Inc.). One was the first issue, volume 1, number 1, of the *Etched Monthly*, January, 1921, and the other is entitled "Abraham Lincoln—American," by Dr. William E. Barton, 1931. These contain many illustrations printed from etched plates, and each page of reading matter is also from an etched plate. The Lincoln book is printed on handmade paper from the Dard Hunter mill.

Mrs. Oscar Hudson gave one of her wood-block prints, *Rockbound*, of excellent quality. Four etchings by Maurice Achener, one of the older French artists, were acquired, and one lithograph by Pierre Guastalla, which shows great freedom in the use of the lithographic crayon.

Considered from the historical standpoint, probably the most important gift received by the section of photography during the year was from W. H. Leman, and consisted of a screen for taking photographs by the McDonough color process and a screen for viewing transparencies made by that process. These two complete the Museum exhibition series for this color process.

Of lasting importance to the pictorial-photographic series was the action of the trustees of the Stephen H. Tyng Foundation in making the national collection in the Smithsonian Institution the depository for the duplicate pictorial prints procured by the foundation. Stephen Higginson Tyng, of New York City, gave the Royal Photographic Society of Great Britain, in 1927, the sum of £1,000 for the encouragement of pictorial photography through the establishment of a foundation connected with the society, to be known as the Stephen H. Tyng Foundation. The trustees of the foundation are empowered to use the income from the trust fund for the purchase of photographic works of outstanding pictorial merit produced by photographers of any nation and for the procurement of a series of duplicate prints. The first installment of 15 pictorial photographs under this arrangement reached the Museum during the year and are examples of the highest achievement of present-day pictorial photography.

The early motion-picture material invented and manufactured by Eberhard Schneider, which was received as a loan in 1925-26 and comprises 33 specimens, became the property of the Museum as a bequest from his widow, Mrs. Stanislawa Schneider. Mr. Schneider was an early inventor and manufacturer of motion-picture cameras, projectors, printers, and perforators.

Miss Ruth Sherwood, of the National Museum, gave a fine magazine stereoscope, which had been in her family many years.

Paul Brockett donated a Craig lens, which was patented February 18, 1862, and was used in a "Detective" camera. A favorite idea in the early days was to make a camera look like something else, so that photographs could be taken without the subject knowing it. This Craig lens was in a camera that could be carried under a vest with the lens protruding through a buttonhole.

Hiram E. Deats gave an early camera—a No. 4 Kodak purchased by him in 1893. An early 4 by 5 Blair camera, patented March 29, 1887, and May 20, 1890, was likewise contributed by J. H. Ratcliffe, who has been interested in the Museum collection for some time.

A most generous gift was received from Miss Marietta Comly, consisting of 217 lantern slides of foreign and domestic subjects, the few domestic subjects being made from Miss Comly's negatives; a Bausch & Lomb balopticon was also a part of this gift.

Miss M. W. Seville, of the Smithsonian library, donated a collection of 11 family portraits, daguerreotypes, ambrotypes, and tintypes. Among the ambrotypes is one that is one of the finest in our collections. Mrs. Jane Watson, of Washington, D. C., gave the section a very old daguerreotype of her father and mother.

Besides the donation from the Tyng Foundation heretofore mentioned, a number of other pictorial photographs were added to the collection. Two well-known workers, Dr. D. J. Ruzicka, of New York, and Julius Aschauer, F. R. P. S., of Vienna, presented typical examples of their art, the former 3 pictorial prints and the latter 2 prints in bromoil transfer. Elmore Cedric Brauer, F. R. P. S., Severo Antonelli, and Fred William Carter, pictorialists of note, each contributed 4 prints, and H. E. Eckler, of the Cleveland Photographic Society, gave 2 prints.

Felix Schanz, dean of American portraitists and a lecturer on the history of photography at the Winona School of Photography, donated seven of his prize-winning convention portraits.

Philip Medicus, a member of the Pictorial Photographers of America, forwarded as a gift 13 numbers of *Camera Work*, the plates of which are excellent reproductions of the work of various pictorialists.

History.—A total of 8,670 objects, including 7,855 philatelic specimens, were added to the collections in this division during the year, a larger number of accessions than received during the previous year.

A number of interesting additions were made to the antiquarian section of the historical collections. A watch and a sword carried during the French and Indian War by Capt. Jeremiah Marston, of the British Army, were presented by Charles F. Clark. A number of objects of antiquarian interest formerly on loan became the permanent property of the Museum by bequest from James C. McGuire,

who died during the past year. These objects include a gold breast-pin containing a lock of hair of President James Madison, a pair of gold cuff buttons owned during the colonial period by Rev. David Mosson, a chair owned by Benjamin Franklin, a chair owned by President James Madison, a mahogany screen owned by General Washington, and a cane made from a piece of one of the timbers of the U. S. S. *Constitution*. A mahogany worktable owned by Dolly Madison was presented by Miss Mary M. McGuire. A china fruit dish owned by Daniel Webster when Secretary of State was presented by Mrs. Margaret Farnham Mason. A mahogany cradle of the colonial period was contributed by Miss Helen May Bloedorn.

The aluminum transit with case and accessories, used by Admiral Robert E. Peary during his North Polar expedition of 1898, was received as a gift from the late William Porter Allen, through his widow, Mrs. William Porter Allen.

For the costumes collection, an exceptionally beautiful silk brocade dress, worn by Mary Livingston Duane, wife of Judge James Duane, at a ball given in New York City in 1789 in honor of the inauguration of President George Washington, was received as the bequest of Alfred Duane Pell.

Additions to the personal military collections included a gold-mounted sword presented to the distinguished soldier and jurist, George S. Batcheller (1837-1908), and a dress-uniform coat owned by him. These objects were donated by Miss Katherine Batcheller, together with two very handsome silk sashes with gold and silver plaques, which were worn by Judge Batcheller as one of the judges of the international courts of Egypt; also a silver pitcher and salver, and two Japanese vases, which were presented to Judge Batcheller in recognition of his services as president of the Universal Postal Congress held in Washington, D. C., in 1897.

Other additions to the military section during the past year included a uniform coat, two sabers, and a pair of spurs owned during the period of the Civil War by Brig. Gen. David McMurtrie Gregg, United States Volunteers. These objects were presented by David M. Gregg, who also contributed a headquarters flag of the Second Cavalry Division of the Army of the Potomac, which was flown during the Civil War by General Gregg. A uniform worn during the Spanish-American War by Maj. Gen. Leonard Wood was added to the collections by gift of Mrs. Leonard Wood.

The type series of military uniforms and equipment have been increased by an exceptionally interesting series of objects presented to the Museum by the Rumanian Government through Dr. Andrei Popovici, secretary of the Rumanian Legation. This donation included arms, uniforms, and an exceptionally fine and complete series

of Rumanian decorations. A series of Turkish military arms and uniforms was likewise received as a gift from the Turkish Government, through the Turkish ambassador, Ahmet Muhtar, together with maps and photographs of the period of the World War.

The collection of World War relics, chiefly of German origin, which was brought together and loaned to the Museum by the late Maj. Gen. H. L. Rogers, United States Army, this year became the property of the Museum, through the generosity of his brother, Frederick P. Rogers.

Notable additions were made to the numismatic collection. The Governments of Estonia, Italy, Poland, and the Cameroons presented examples of coins now current in those countries. A set of the coins issued by the Vatican state in commemoration of the reconciliation between the Government of Italy and the See of Rome was donated by Archbishop Peter Fumasoni-Biondi. A set of the coins of Palestine struck in 1927 was presented by P. Knabenshue, American consul general at Jerusalem.

From the Department of State there came as a transfer 55 current coins of Bolivia, Belgian Congo, Costa Rica, Czechoslovakia, Greece, Guadeloupe, Guatemala, Hedjas, Indo-China, Yugoslavia, Lebanon, Lithuania, Martinique, Nicaragua, Norway, Portugal, Sarawak, Spain, Syria, and Turkey. Examples of the current 5-franc and 10-franc pieces of Luxemburg were presented by Frederick L. Washbourne. The American Numismatic Association added a number of specimens to its already large loan collection of current foreign coins in the Museum.

The collection of medals was also increased by a number of interesting objects. These included a bronze medal commemorating the one hundred and fiftieth anniversary of the Battle of Lexington, which was presented by Edwin B. Worthen. The United States Treasury Department transferred to the national collections bronze copies of the gold medal awarded by the Congress to Col. Charles A. Lindbergh in recognition of his services to the science of aeronautics, and of the gold medal awarded by the Congress to Lincoln Ellsworth for his transpolar flight in the dirigible *Norge* in May, 1926. The gift from Mr. Ellsworth of another copy enables the Museum to display both sides of the medal.

The philatelic collection was increased during the year by 7,855 specimens. Of these 5,935 were transferred to the Museum from the Post Office Department and include current postage stamps from many foreign countries; and 1,920 were precanceled United States postage stamps donated by the Precancel Stamp Society, through Walter L. Gates.

INSTALLATION AND PRESERVATION OF COLLECTIONS

Mineral and mechanical technology.—The Aircraft Building was closed for repairs for a period of more than eight months, and all portable parts of the aircraft collection were widely scattered throughout this time. Although the building was opened to the public on June 15, work of installation of the collection was not yet completed.

A new full-sized, soft-coal-mining exhibit is being constructed in cooperation with the Bureau of Mines and manufacturers of mining equipment. The coal court was closed to the public throughout the year, but an attempt is being made to prepare properly a portion of the hall so that it may be opened soon.

Few changes in the arrangement of the collections were made during this year. The present extensive collections, including the many operating exhibits, required much time and attention on the part of the staff. During the year their work involved the installation of current accessions; dismantling and removing the host of aircraft objects to permit repairs to the building; constructing, as far as conditions permitted, the haulage way and room of the new coal exhibit. This called for the laying, modeling, and painting of 1,500 square feet of plaster to represent coal faces; laying track, air, and water lines; and modeling and painting the floor and roof of the mine to imitate accurately natural conditions and appearances. In addition, the preparators repaired and reinstalled a great many objects needing attention, besides maintaining in running order the many operating exhibits used constantly by visitors, including an automatic telephone exchange, three sectioned automobile engines, a model power plant, two large models of a watch and a clock, a model showing the mining and preparation of salt involving the maintenance of water pumps, electric motors, and miniature machinery, and a number of other exhibits of like intricacy.

The supervision of this work devolved on the members of the professional staff, who in addition made plans for new work and for the rearrangement of existing collections; directed the proper cataloguing, identification, and installation of current accessions and prepared more than 500 manuscript labels of recent and older accessions; developed new contacts looking toward the acquisition of objects or collections; attended to much official correspondence, and continued their researches and preparation of manuscript in several fields of engineering and industrial history.

One of the most interesting bits of installation made during the year was the addition of the original tender of the John Bull locomotive. Though this had been in the possession of the Museum

for 40 years, its condition did not permit its exhibition. With the very kind cooperation of the Pennsylvania Railroad, the donor of the John Bull engine, all the parts of the tender were shipped to Altoona, Pa., where the entire structure was rebuilt, all the original parts being used that were structurally safe. The tender is now exhibited with the locomotive.

Two loan exhibits in aeronautics were temporarily shown in the foyer of the Natural History Building. The first, an exhibit prepared and sponsored by the New York Times and known as the New York Times Antarctic and Aviation Exhibit, was shown from September 11 to November 3, 1930. The exhibit comprised oil paintings, chalk sketches, photographs, and models describing the activities and achievements of the Byrd Antarctic expedition and the progress of aviation. Of special interest was a Globe of Historical Flights, on which are traced the routes of more than 50 famous fliers. The second was an exhibition of scale models of airplanes and gliders held in connection with the contest along that line under the auspices of the District of Columbia Model Aircraft League, community center department of the public schools of the District of Columbia, from April 16 to 19, 1931.

Textiles, foods, organic chemistry, wood technology, and medicine.—

Nine new exhibits were installed and eight reinstallations of exhibit material were made in the textile halls during the year. The first six sections of the large wall case on the west side of the south hall were emptied to make room for the large model contributed by the Pepperell Manufacturing Co., showing the production, transportation, and manufacture of cotton; while the sections of the drawing and spinning frames preparing yarn for the weaving of blue chambray were moved down into space formerly used by piece-dyed goods. The collections of American cotton fabrics selected by the Cotton-Textile Institute (Inc.), to represent the best materials available for winter and summer wear were installed as received. The floor cases in the south hall were rearranged so as to bring the exhibits illustrating the viscose, acetate, and cuprammonium types of synthetic fibers over into the silk line.

The projection apparatus presented by the Knitbac Service Co., to show the film illustrating the repair of silk hosiery, was installed in a wall case containing the Levine Knitbac machines and some other original patent models of important knitting inventions. The exhibition case is equipped with an electric switch for starting and stopping the machine, which can be operated by visitors.

The large observation beehive continues to instruct the Museum visitor. Although it dwindled during the winter to small proportions, the colony of bees increased very rapidly during the spring,

so that the hive has now almost reached its capacity. About 50 pounds of honey has been stored in the glass dome first placed on the hive two years ago.

In the division of medicine six new and eight rearranged installations were made, the most important being the two models dealing with child health. One of these models had to be completely redesigned to fit the case.

Considerable material having been received for the history of medicine series, one new case was added and four others rearranged. The Morton collection was changed to a new case, and the main portion of the Gorgas collection was moved to a wall case, where it shows to better advantage. One exhibit of the history of pharmacy series was retired to make room for material of a similar kind recently received, and two other history of pharmacy cases were rearranged to economize space.

In the section of *materia medica* the new installations included gelatin capsule, insulin, and synthetic medicine exhibits, while rearrangements were confined to the cases containing mineral and chemical drugs. The recent innovation of exhibiting the official drugs of our pharmacopoeia separate from those official in other countries has proved helpful and popular, without interfering with the general scheme of classification; the official drugs of our National Formulary will be shown later in the same manner.

Work having for its purpose the preservation of the collections included the usual periodic additions of moth preventive, the changing of preserving solutions from time to time, the regular care of mechanical devices, and the replacing of drugs and pharmaceutical preparations with new specimens as needed. The animal, chemical, and synthetic drugs necessarily require constant changing. An additional room has been assigned for use of the medicine and pharmacy sectional library, and when the bookracks that have been requisitioned are furnished, the library congestion will be relieved.

The Rudolph Block collection of walking sticks, which had been on display in the wood court as a loan since October 15, 1928, was withdrawn the first of May, 1931. While here this exhibit utilized all available space in the hall, precluding any extensive new installations, so that during the year only one case was installed, comprising a collection of miscellaneous small objects made of wood, such as laminated tenpins, duckpins, and shoe lasts, maple-wood heels, red-gum tobacco pipes, and woodkets. The entire collection of mahoganies and other cabinet woods from the Astoria Veneer Mills was relabeled.

The purchase of a long-needed saw bench and hand planer operated by electric motors made it possible to put the wood collections into much better shape. To the study collection 698 wood samples were added, including many from heretofore unrepresented regions

and exotics grown in the United States, as well as scattered species from other lands. Several lots of the above were supplied in the Museum standard size; others, as already mentioned, are larger and await cutting into one study sample and one or more duplicates for distribution and exchange.

In connection with material on hand prior to this fiscal year, several forward steps have been taken. The best of these is the completion of the cutting of 346 woods from the so-called "Naval Academy set" into study and duplicate hand samples. These woods are a part of the authentic collection of woods of the United States made for the Tenth Census survey under the direction of the late Charles Sprague Sargent. They are especially valuable for comparison in the identification of our native species.

Earlier in the fiscal year the remainder of the Panama woods from Pittier's 1911 collection and Christopherson's collection were cut. Wherever a half-inch-thick sample was available it was placed in the study collection to replace the former quarter-inch one, which is not considered so good for examination. All others were placed in numerical order in storage bases in the wood court, as had been begun last year.

Three collections of woods, received long ago, and accompanied by scanty data, were put into such shape that later classification will be comparatively easy. They are: 31 Chinese woods from the Chinese Commission of the Centennial International Exhibition in Philadelphia in 1876; about 200 woods received from the Government of Venezuela, through the Boston Foreign Exhibition of 1883; and 98 woods from the Republic of Salvador, also through the Boston Exhibition of 1883.

The assistant preparator during the year prepared 2,859 wood samples, 369 for the study collection, 2,421 for distribution and exchange, and 69 small veneer sections for the division of plants to be placed with botanical material in the National Herbarium. A part of his time was given to making gummed-letter case labels for the exhibition halls, while a larger number of descriptive labels were prepared on the label-typing machine.

Graphic arts.—There was little opportunity during the year for new permanent installations either in photography or in graphic arts. In the graphic arts hall a case was installed to illustrate new methods and materials in book binding with specimens collected this year. Four new flat-top cases received at the close of last fiscal year made possible an exhibition of Japanese stencils, and of Chinese paintings in water colors, on so-called rice paper; also other Chinese paintings in water color, which are 150 to 175 years old.

The exhibit of Brulegravure was entirely rearranged and enlarged to include the additional specimens received during the year. Individual specimens were also added in other exhibition series.

Fourteen special temporary loan exhibitions of etching, dry point, aquatint, and pictorial photography, attractive and of educational value, were held during the year. Eight of these loan exhibitions relating to graphic arts were held in the Smithsonian Building, as follows:

October 6 to November 2, 1930: 51 dry points and etchings of flowers, in color, by Bertha E. Jaques.

November 3 to November 30: 50 etchings, by Frederick T. Weber.

December 1, 1930, to January 4, 1931: A selection of 327 bookplates from her collection, loaned by Mrs. William S. Corby.

January 5 to February 1: 25 etchings and drawings by Abbo Ostrowsky.

February 2 to March 1: 52 etchings and lithographs by Herman A. Webster, of Paris, France.

March 2 to March 29: 51 etchings and dry points by Robert H. Nisbet, N. A.

March 30 to April 26: 53 etchings and aquatints by Mr. and Mrs. Will Simmons.

April 27 to May 26: 49 etchings by C. Jac Young.

The other six exhibitions related to pictorial photography, and were held in the photographic gallery in the Arts and Industries Building, as follows:

October 1 to October 31, 1930: 45 pictorial photographs by Dr. D. J. Ruzicka.

November 1 to November 30: 50 portraits and illustrative photographs by Severo Antonelli.

December 1 to December 31: 35 bromoil transfers by Julius Aschauer, of Vienna, Austria.

January 1 to January 31, 1931: 60 photographs, chiefly of the Sierras, by Ausel Easton Adams.

February 1 to February 28: 55 pictorial photographs by members of the New York Camera Club.

March 1 to April 30: 62 portraits by Aage Remfeldt, of Oslo, Norway.

History.—A series of changes of exceptional importance were made in the arrangement of the exhibition halls of the division of history, affecting in a favorable manner every type of material in the care of the division.

The antiquarian material formerly shown in the northwest court was transferred to the north hall and the rotunda. This material includes antiquarian collections secured by the Museum from the National Society of the Colonial Dames of America, the National Society of the Daughters of the American Revolution, and from various individual contributors to the Museum collections. The largest single lot involved is the F. W. Dickens collection of Anglo-American pottery, which is now installed in small Kensington cases located on the floor of the rotunda. The entire antiquarian series,

formerly shown part in the north hall and part in the northwest court, is now displayed in contiguous floor space in the north hall and rotunda.

The costumes collection formerly installed in the northwest range in quarters that had become too small through growth in the series of exhibits, was transferred to the west north range, where there is more space. The north light here makes artificial lighting of the collection unnecessary, and better ventilation is possible. The cases containing the dresses worn by the mistresses of the White House are arranged now in two rows of eight cases each on either side of the main aisle. Additional costumes are arranged in wall cases installed against the north, east, and south sides of the hall. The Richard Mansfield collection of historical theatrical costumes is shown in a series of screen cases on the south side of the hall, and a series of four floor cases contains jewelry and other costume accessories.

One of the important exhibition units of the military section has for a number of years been the small-arms collection located in the northeast court, which was poorly lighted and was served by only one doorway. In connection with other changes the old doorway on the north wall was reopened, making a direct passageway through the court, and the court was repainted in a lighter color. The collection of the United States Cartridge Co., which had long been the main unit on exhibition in this court, was returned to the present owners during the year. This collection, received by the Museum in 1906, comprised between 500 and 600 specimens, together with the exhibition cases in which they were installed. The withdrawal of this loan material has made it possible for the Museum now to install the court with small arms from its own possessions.

The exhibition requirements of coins are the reverse of those of costumes, and the transfer of the numismatic collection from the west north range with its north light to the lighter northwest range, where the costumes had previously been shown, has greatly enhanced its appearance and usefulness.

The various units of the coin collection are now so arranged that their relation to the other units and to the collection as a whole is apparent. The numismatic collection is now displayed in eight large units, namely, the coins of the United States, the coins of Mexico, Central and South America, the coins of ancient Greece and Rome, those of the Roman-German Empire and the German Empire, of the British Empire, of various European countries, a series of American historical medals, and a series of European historical medals.

The new arrangement of the numismatic collection renders it much easier to locate any single specimen in the large collection, and also increases the facilities for safeguarding the collection.

The philatelic collection has also benefited from changes this year, as the cabinets containing the postage stamps were moved from the west north range into the northwest court, this court being made a philatelic and numismatic unit. The lighting of the cabinets in their previous location was very unsatisfactory. In the new location both sides of all the frames are equally well lighted both by natural and artificial light from above. These cabinets are now installed in two symmetrical rows, one on the north and the other on the south side of the court. The stamp cabinets now contain a total of 620 frames and thus constitute a book of 1,240 pages 22 by 28 inches in size, the stamps being arranged in alphabetical order under the heads of the various countries by which they were issued.

The various sections of the cabinet are now in such close proximity to one another that the continuity of the entire exhibit is well preserved. The present location will permit of further expansion, which was quite impossible in the former location.

The condition of the pictorial collections of the division of history was improved during the year, the installation of picture moldings around all the walls of the northwest range and the northeast court affording much additional space for the installation of pictures. A series of portraits of famous Americans and a number of paintings representing historical scenes were hung. A series of paintings originally made for exhibition in connection with the raising of the Liberty loan in 1919 was installed.

INVESTIGATION AND RESEARCH

Research by members of the staff.—The history of invention, engineering, and industrial progress is the major reason for the existence of the divisions of mineral and mechanical technology, and the members of the staff are constantly engaged in research bearing on these subjects. Research is undertaken to provide accurate information with which to prepare appropriate publications in these fields.

The curator of textiles has devoted all possible spare time to historical research on the development of textile inventions, including the sewing machine. To answer the question as to which of the many thousands of original patent models now in the Museum collection marked important advances in the evolution of the useful machines of the present day requires careful and time-consuming investigation. Connecting up patent history with the commercial development of hundreds of inventions in the field of textile machinery has yet to be accomplished, but many forgotten or buried facts have already been brought to light and are being prepared for publication.

The assistant curator, section of wood technology, has continued his investigations to identify the unclassified wood specimens in the collection. Particular attention has been given to the woods collected by the Philippine Commission for the Louisiana Purchase Exposition of 1904, and the Panama woods from the Panama-Pacific International Exposition of 1915.

Studies undertaken during the preceding year by the assistant curator, division of medicine, to develop a collection of medicines originally sold under letters patent, and to present an exhibit of the type of pharmaceutical preparations known as galenicals, were completed, and the required specimens procured by contribution. New work of the year involving research and investigation included a study of the drug Ma huang, known in China since 1500 B. C., but only coming into extensive use in the United States after the comparatively recent isolation of its active principle, the alkaloid ephedrine, and a study of the medical and pharmaceutical history of Arabia and the State of Virginia.

The curator of graphic arts continued research upon the life and works of Edward Greene Malbone with much success. One hundred and forty-eight miniatures and paintings have been definitely located, and in nearly every instance a photograph has been obtained. Many new facts have been discovered.

The curator of history completed and turned in for publication an extensive monograph on the American and European swords in the historical collections of the Museum. The curator has also devoted much time to numismatic research in connection with the reinstallation and labeling of the coin collection.

During the same period the assistant curator continued his study of the arms collection in the Museum.

Research of outside investigators aided by Museum material.—The wonderful collection of models assembled by the United States Patent Office from 1840 to 1890 was packed up and put in storage in 1908, and for the next 20 years was inaccessible to everyone. Now that the National Museum has made it possible for a portion of these valuable historical inventions to be examined, increasing use is being made of those that the Museum retained when the main collection was dispersed in 1927. Messrs. Sturtevant and Mason, patent attorneys of Washington and specialists in the sewing-machine art, brought to the Museum two experts of the Union Special Machine Co., Chicago, Ill., to examine the model of a most important patent. Miss Jessie L. Thompson, of Portland, Me., made studies of the tapestry loom in the textile hall to enable her to construct a similar loom for weaving. Mrs. Sarah Blaisdell, of Washington, D. C., was assisted in the same manner. Miss Esther Castleman, of Wilson

Teachers College, Washington, D. C., was assisted in obtaining material for a paper on the development of sewing. Mrs. Harry Monroe, of Louisville, Ky., made a study of the examples of hand weaving and was furnished with photographs of some of them to illustrate her book on old-time coverlets. Miss Nancy Andrews Reath, assistant curator of textiles of the Pennsylvania Museum of Art, Philadelphia, studied the examples of linen damask, and was furnished with photographs for a publication. Miss Margaret Lea and Miss Helen Mead, members of the senior class in the University of Maryland, spent five weeks in intensive study on the technique of the decoration and ornamentation of textiles. Charles R. Pierce made examination of the ramie fibers and fabrics for the Southern Textile Manufacturing Corporation, Miami, Fla. Dr. Howard Ditricks, curator of historical and cultural medicine, Academy of Medicine, Cleveland, Ohio, studied the Greek and Roman medical collection and made use of the data in the arrangement of exhibits for the Vergil celebration, when material illustrative of the medicine and surgery of that period was assembled by the Cleveland Medical Library and Museum. Mrs. Helena Smith Dayton, of New York City, carried on certain studies pertaining to the history of hospitalization and preventive medicine and later made use of illustrations relative thereto furnished by the Museum.

Wood specimens were sent to A. J. Pacini, director of the Pacini Laboratories, Chicago, to aid him in his study of the fluorescence of its aqueous infusion; to E. J. Lee, of Minneapolis, for experiment on account of its unusual properties; and to W. O. Robinson, of Falls Church, Va., for use in his search for a superior wood for arrow footings. Authentic wood samples of four species of true mahogany were sent to Dr. Harry P. Brown, of the New York State College of Forestry, Syracuse, N. Y., to aid in researches on the differentiation of true mahogany by means of the wood structure alone.

In the division of history the most important research work undertaken by outside investigators aided by Museum material was the process of copying the sword and mess kit of Gen. George Washington used by him during the period of the Revolution, and the gold-headed cane presented to Washington by Benjamin Franklin. These replicas were made for the Commission of the United States to the International Colonial and Overseas Exposition at Paris, at the request of C. Bascom Slemph, commissioner general, and were intended for display at Paris. The work was done in the Museum by H. W. Hendley.

Expert cabinetmakers representing the War Department also made a special study of the collection of Washington furniture in the historical collection in connection with the restoration of the interior

furnishings of the Lee Mansion at Arlington, Va. A number of pieces of furniture were carefully copied for that purpose.

Assistance by members of staff to other Government bureaus and private individuals.—As the division of mineral and mechanical technology is the oldest active organization in the United States engaged in technical museum work, its staff was called upon on numerous occasions during the year to render assistance and advice to individual staff members of the newly organized industrial and engineering museums in New York, Philadelphia, Chicago, and elsewhere. The Museum collections include a great many original objects bearing on industrial and engineering developments that exist nowhere else, and the divisions accordingly are in a position to help these other institutions in the preparation of reproductions. Thus, during the year spare parts of the Langley-Manly radial aircraft engine were loaned to the Chicago Museum of Science and Industry for the purpose of reproducing this most important engine; a scale model of the Langley steam aerodrome No. 5 was loaned to the Los Angeles (Calif.) Museum for copying; and two reproductions of the Morse telegraph of 1837 were loaned to the New York Museum of Science and Industry for reproduction. Probably the largest share of assistance rendered, however, was through daily official correspondence and conferences with individuals involving the answering of a variety of queries pertaining to engineering history and the solution of engineering problems. Included in this work were the examination and identification of three lots of materials sent in by correspondents.

The requests on the curator of textiles and his assistants for special information and references to technical literature have occupied much time. These included the identification of an old sewing machine, for the North Carolina State Museum and the Museum of Science and Industry, Chicago, Ill.; methods of distinguishing Paisley, broché, Persian, and Indian shawls, for the Pennsylvania State Museum, Harrisburg, Pa.; review of definitions and cordage terms, for the American Society of Testing Materials; sources of silkworm eggs, for the textile division, United States Department of Commerce; historical data on the introduction of looms and cotton gins, for Joseph N. Kane, of New York City; how to repair antique fabrics, for Mrs. Nina Bernath, of Providence, R. I.; approved methods of fumigation of Museum specimens, for Ralph C. Smith, of Washington, D. C.; data for a book on early American bedding, for Mrs. George Peck, of LeRoy, N. Y.; reference to literature on hand weaving, for Miss Myrtle McClelland, of Tallahassee, Fla.; review of literature on cotton-fiber research, for Miss Jean McClew, of the University of Washington.

Prof. George W. Fiero, of the University of Buffalo School of Pharmacy, was furnished information on the marketing of crude

vegetable drugs, and G. Laurence Meier, associate editor of the Topics Publishing Co., New York City, was supplied with historical facts pertaining to certain old pharmaceutical preparations. The textile division, United States Department of Commerce, was provided with information concerning the history of bandaging. Amos Lindner, of Friendship, Wis., was given data relative to fixed and volatile oils. Miss Gwen Kaldenback, of Wilson Teachers College, Washington, D. C., utilized the division's data and references pertaining to the history of hygiene and sanitation. Melvin N. Lovelless, of Washington, D. C., and Aaron Lichtin, of Philadelphia, Pa., were given facts concerning the origin of drug-store show globes. M. D. C. Crawford, of New York City, was furnished with information on the subject of primitive drugs and medicines. Rowland Carlton, of San Francisco, Calif., was furnished with data concerning X-ray tubes, and Charles A. Gast, of Tacony, Pa., data on synthetic medicines.

The assistant curator, section of wood technology, identified specimens of Honduras mahogany for James D. Cushman, United States Quartermaster Supply Office, Washington General Depot; nine samples of white pine sold to the Government as yellow pine, and match sticks from a Canadian factory for the National Committee on Wood Utilization. Assistance by this section to private individuals was as follows: Listed publications dealing with the strength of American woods, for William V. Noe, of Nashville, Tenn.; references on wood turning and wood staining to Willard Knupp, of Santa Monica, Calif.; suggestions for the preservation of a rubber tree section for Herbert F. Poehle, of the United States Rubber Company, Detroit, Mich.; recommended treatment for preserving a wood carving, for Marion E. Warner, of Marymount College, Salina, Kans.; defined the purpose of medullary rays in wood for Emery H. Chase, of Addison, N. Y.; data on bethabara wood to Public Library, Eau Claire, Wis.; information to Mrs. Hawley, of Pulp Products Corporation, Anacostia, D. C., relative to the Drake process, and on the use of the same process in toy manufacture to W. H. Moudy, of Portage, Pa.; information on masonite for Mrs. Withers, of Charlotte, N. C.; J. A. Lucas, of the Civic Committee of the Memphis Museum, was furnished an outline for wood exhibits; identified cactus cane, for Irving E. Tier, of Washington, D. C.; Andaman padauk, for J. H. O'Bern, of Minerva, Ohio; three pieces of Spanish cedar and one of southern white cedar, for Phillip Ransom, of Washington, D. C.; and two Douglas fir arrows made from wood sold to W. O. Robinson, of Falls Church, Va., as Norwegian pine.

Many miniatures and paintings were brought or sent into the division of graphic arts for identification or for other information.

and much help has been given in this line of work. Information and advice were supplied to the United States Capitol and to more than 130 persons visiting the division seeking data about some object of art.

Besides assistance to the War Department and to the International Colonial and Overseas Exposition at Paris, already mentioned, the staff of the division of history gave assistance to the Post Office Department in connection with the designing of a series of postage stamps to commemorate the celebration of the Olympic games to be held in California in 1932.

The division of history has also been in close contact with the work of the George Washington Bicentennial Commission and has rendered much assistance by furnishing photographs and information concerning the Washington relics in the national historical collection.

DISTRIBUTION AND EXCHANGE OF SPECIMENS

The distributions from the department of arts and industries and the division of history during the year aggregated 5,615 specimens, of which 99 were gifts in aid of education, 178 were exchanges for which material has or will be received, and 5,338 specimens were loans for educational or research purposes. In addition, during this period 1,859 specimens that had temporarily been in the Museum were returned to their owners.

NUMBER OF SPECIMENS UNDER DEPARTMENT AND DIVISION

The number of specimens in the department of arts and industries and the division of history at the close of the year on June 30, 1931, was 508,965 assigned as follows:

Mechanical technology.....	9, 890
Mineral technology.....	4, 294
Textiles.....	12, 875
Wood technology.....	7, 721
Organic chemistry.....	18, 921
Foods.....	1, 102
Medicine.....	15, 834
Graphic arts, including photography.....	36, 558
Loeb collection of chemical types.....	1, 277
History.....	400, 493
Total.....	508, 965

ACCESSIONS TO THE COLLECTIONS DURING THE FISCAL YEAR 1930-31

[EXCEPT WHEN OTHERWISE INDICATED THE SPECIMENS WERE PRESENTED, OR WERE
TRANSFERRED IN ACCORDANCE WITH LAW BY BUREAUS OF THE GOVERNMENT]

ACADEMIE COMMERCIALE, Quebec, Canada: 1 red bat (111729). Exchange.

ACADEMY OF NATURAL SCIENCES, Philadelphia, Pa.: 1 bird skin, Fulleborn's long-claw (112553). Exchange.

ADAMS, ANSEL EASTON, San Francisco, Calif.: 60 photographs, for exhibition during January, 1931 (113-108). Loan.

ADAMS, FRANKLIN. (See under Pan American Union, Washington, D. C.)

ADKINS, W. S., Austin, Tex. (through Dr. L. W. Stephenson): 3 fossil shells from Weno formation, Tarrant County, Tex., the type locality (114240).

AGRICULTURE, DEPARTMENT OF: The specimens of moths and butterflies known as Barnes collection of Lepidoptera (113543).

Bureau of Biological Survey: (Through W. C. Henderson) 5 specimens of mosses collected by Vernon Bailey in the Kaibab Forest, Ariz. (110733); (through W. B. Miller) 183 specimens of plants collected near Nome, Alaska (110-791); 9 frogs, 3 snakes, 4 lizards, 2 turtles, and 1 crayfish (112631); 50 copepods, 22 amphipods, 5 crabs, 6 isopods, from birds stomachs (112717, 113817); 768 specimens of plants chiefly from the United States (112848, 113974); 845 birds from Laysan, Johnson, Wake, and other islands, also a collection of birds' eggs from the same region (113563); 25 specimens of amphipods from stomach

of duck (114510); 564 mammals entered in the Museum catalogue Nos. 249426-249989, inclusive, new series—between July 1, 1930, and June 30, 1931 (115196).

Bureau of Entomology: (Through W. W. Yothers) 1 specimen of hairworm from Florida; 585 specimens of plants collected in connection with fruit-insect investigations; 1 fresh-water bryozoan; 1 coral snake from Florida and remains of a lizard, which it had eaten (110328, 110711, 111740, 112363); (through Maurice Mullanva) 1 specimen of plant from Florida (110689); 2 isopods (111722); 13 phyllopods from the Sierra Nevada, Calif. (111760); (through Dr. G. F. White) 1 isopod (111804); 2 specimens of land slugs from Wyoming (112035) 6 specimens of snails from McKinley Park, Alaska, collected by F. Morand (112556); 22 amphibians and 1 shrew from Sanford, Fla. (113552); 2 isopods from Panama (113887); 3 specimens of land shells from Europe, 1 isopod and 1 lizard from Smyrna, Turkey (114370); 20,472 miscellaneous insects retained out of material received for identification by various specialists during the fiscal year 1930-31 (115363).

Office of Experiment Stations: 2 lots (6 specimens) of slugs from Guam (113213).

Food, Drug, and Insecticide Administration (through A. E. Taylor): 1 specimen of crab from north-eastern coast of Korea (110760).

AGRICULTURE, DEPT. OF—Contd.

Bureau of Home Economics. (See under North Billerica Co.)

Bureau of Plant Industry: (Through division of foreign plant introduction) 2 specimens of plants from Mexico (113233); 44 specimens of plants from China (110704); 39 specimens of plants from Brazil (110705); (through Dr. J. A. Stevenson) 4 specimens of plants; specimen of plant from Maryland (110803, 111943); (through Dr. A. S. Hitchcock) 5 specimens of plants collected in Africa by L. C. Liebenberg; 5 specimens of plants (sedges) from Africa; 1 specimen of plant from Mississippi; 4,162 specimens of grasses (111159, 111575, 115178, 115210); (through P. L. Ricker) 1 specimen of plant from Virginia (111343); (through Mrs. Agnes Chase) 111 specimens of plants, collected in Brazil by Mrs. Chase (111774); (through Lyster H. Dewey) specimen (fruit) of plant (112048); (through Dr. Frederick V. Coville) 3 photographs of plant specimens; specimen of plant from West Australia; 543 specimens of plants from United States; 86 specimens of plants collected in France by I. Tidestrom; 1 small billet of wood of the black high blueberry collected by Doctor Coville at Lanham, Md.; 35 specimens of plants from the Chesapeake Bay region; specimen of plant from Florida; 70 specimens of plants from Arizona, Africa, etc.; 1 specimen of plant from California (112152, 112184, 112597, 112616, 112735, 113802, 113803, 113977, 113980, 114006, 114834, 114837); (through A. C. Dillman) specimen of plant from North Dakota (112153); (through Dr. H. C. Skeels) 3,500 specimens of plants collected in Japan by Dorsett and Morse; 36 specimens of plants from Mexico (112199, 112860); wood samples of 3 exotic trees

grown in the department's grounds and felled during reconstruction work in October, 1930 (112262); (through Dr. T. H. Kearney) 582 specimens of plants from Arizona; photograph of type specimen of plant; 9 specimens and 1 photograph of plants from the Southwestern United States (112266, 112378, 112519, 112615, 112828, 112859, 113695, 113979, 114074, 114108, 114835); 17 miscellaneous specimens of plants from United States and Hungary (113211); (through Dr. S. F. Blake) 2 specimens of plants from Florida; 80 specimens of plants collected in Texas by D. C. Ingram; 1 specimen of plant from Utah; 1 specimen of plant from California (113234, 114376, 114630, 114631, 114836); (through Knowles A. Ryerson) 1,162 specimens of plants from Madagascar (113235, 113978); (through Prof. E. O. Wootton) specimen of fern from Colorado (113257); specimen of plant from Texas (113576); 310 specimens of Mexican plants (113577); (through G. N. Collins) 60 specimens of plants from Jamaica; 300 specimens of plants, chiefly from Lower California, collected by the Armour expedition of 1931 (114107, 115237); 1,386 specimens of plants collected in the Southwestern and Western United States by D. C. Ingram, I. Tidestrom, and others (114340, 115211); 468 specimens of plants from Arizona (115123); 1 specimen of plant (115124); 3 specimens of plants from Costa Rica (115160).

Plant Quarantine and Control Administration: 7 specimens of slug from Samoa (107344); 11 specimens of isopods and 1 specimen of land snail from Louisiana (110811); 39 specimens of isopods (110830, 112161, 113820); 3 specimens, 3 species, land mollusks from Mexico, Jamaica, and Italy,

AGRICULTURE, DEPT. OF—Contd.

Plant Quarantine and Control Administration—Continued.

- 18 specimens of isopods, and 1 lizard (111264); 34 specimens, 3 species, fresh-water shells from Germany (111581); 8 isopods and 1 specimen of land mollusk from Canada (111790); 15 isopods and 1 land slug from France (112013); 3 specimens of plants from Florida (112179); 8 isopods from various countries and 1 specimen of land snail from the Philippine Islands (112267); 3 lizards (112362); 8 specimens, 4 species, of land mollusks from Europe (112712); (through Foster H. Benjamin) 5 specimens of plants from Florida (112889); 7 specimens, 2 species, of land mollusks from Europe and 3 isopods from Algeria and Holland (113110); 4 specimens, 3 species, of land mollusks from Mexico, Scotland, and Japan, and 8 isopods from Bermuda and Spain (113275); 3 isopods from Japan and Holland and 1 specimen of slug from Holland (113403); 2 specimens, 2 species, of land mollusks from Texas and Belgium, 1 isopod from Madeira Islands, and 2 lizards from Honduras (113604); 2 specimens of land mollusks, 1 from the State of Washington and 1 from Italy, and 1 isopod from France (114018); 4 isopods, and 9 specimens, 3 species of land snails from Europe, Cuba, and Colombia (114188); 2 specimens of slugs from Italy and tropical America (114591); 2 specimens, 2 species, of land mollusks from Europe (114703); 7 specimens, 3 species, of slugs and 1 land planarian from Jamaica, Bermuda, Italy, and Hawaii (114818); 4 specimens of slug from Germany and 3 isopods from Poland (115154).
- AINSLE, C. N., Sioux City, Iowa: 4 flies from Iowa (110898).
- ALABAMA MUSEUM OF NATURAL HISTORY, University, Ala.: 4 valves of a fossil oyster from Otabeite, Fla. (112180). Exchange.
- Fire Engine Company, Seneca Falls, N. Y. (110262).
- ALABAMA POLYTECHNIC INSTITUTE, Auburn, Ala.: 6 specimens of flies (114078).
- ALASKA AGRICULTURE COLLEGE AND SCHOOL OF MINES, College, Alaska (through Dr. Charles E. Bunnell): 50 specimens of human skeletal material from Alaska; 27 specimens of fossils and 4 recent shells from St. Lawrence Island, Alaska (113023, 113808).
- ALBAND, Mrs. JENNIE BANCROFT, Silver Spring, Md.: 1 linen damask tablecloth woven in Vermont about 1780 by Mrs. Hare, the great-grandmother of the donor (112032).
- ALDRICH, F. R., Balboa, Calif.: 2 barnacles (110813).
- ALDRICH, T. H., University, Ala.: 9 specimens, 1 species, of fresh-water mussel from Georgia and Tennessee (114751).
- ALEXANDER, Prof. C. P., Amherst, Mass.: 530 specimens of miscellaneous flies and 2 specimens of fly larvae (111810).
- ALLEN, WILLIAM PORTER, New York, N. Y. (through Mrs. William Porter Allen): Transit with case and accessories, used by Robert E. Peary during his north polar expedition, 1898 (114089).
- ALLEN, Mrs. WILLIAM PORTER, New York, N. Y. (See under William Porter Allen.)
- AMERICAN BEMBERG CORPORATION, New York, N. Y.: Series of 20 specimens, and photographs, illustrating the manufacture of a synthetic fiber, Bemberg, by the cuprammonium process (113997).
- AMERICAN HOSPITAL ASSOCIATION, Chicago, Ill. (through Richard P. Borden): One colored transparency illustrating the subject of hospitalization (110721).
- AMERICAN LA FRANCE AND FOAMITE CORPORATION, New York, N. Y. (through C. B. Rose,

- AMERICAN LA FRANCE AND FOAMITE CORPORATION**—Contd.
 president): An old and complete horse-drawn steam fire engine, period of 1890, Metropolitan model, made by the American La France Fire Engine Company, Seneca Falls, N. Y. (110262).
- AMERICAN MEDICAL ASSOCIATION**, Chicago, Ill.: A set of 28 photomechanical reproductions of portraits of presidents of the American Medical Association from 1903 to 1930 (112894).
- AMERICAN MUSEUM OF NATURAL HISTORY**, New York, N. Y.: 1 shrimp and 1 hermit crab (86607); 167 bird skins (103 species) from South America (111670, exchange); (through Dr. Willard G. Van Name) 9 specimens of isopods (112233, exchange); 3 flies, 1 a paratype (112823); 15 flies, including the paratypes of 9 species (113961).
- AMERICAN NUMISMATIC ASSOCIATION**, New York, N. Y.: Coins of China, Finland, Latvia, and Rumania; specimens of silver coins of Estonia, Germany, and Portugal, struck 1928-1930; specimens of coins from Angola, Belgium, Germany, Hungary, and Lebanon; specimen of the rod money of the Gizi tribe of northwestern Liberia, Africa; coins of Austria, Belgium, China, Czechoslovakia, Denmark, Ecuador, Hungary, Iceland, Lebanon, Syria, and Uruguay; coins of Bulgaria, Greece, Luxemburg, and Panama, struck 1929-30; coins of Egypt, Portugal, and Siam, struck in 1929; coins of Vatican City and Uruguay (110696, 111153, 111571, 112348, 112588, 113551, 114220, 114589); 70 specimens of coins. Loan.
- AMERICAN PHARMACEUTICAL ASSOCIATION (INC.)**, Baltimore, Md. (through Dr. E. F. Kelly, secretary): 1 copy of the Pharmaceutical Recipe Book, first edition (112034).
- AMERICAN SCHOOL OF PREHISTORIC RESEARCH**, New Haven, Conn.: 31 specimens of paleolithic flint implements from two caves in southern Kurdistan (Kingdom of Iraq), dug out in 1928 (112197).
- ANDERSON, WILLIAM W.**, Grande Isle, La.: A collection of marine invertebrates comprising approximately 3 anemones, 20 marine annelids, 10 crabs, 3 hermit crabs, and 6 callianassas, also 7 specimens of mollusks (111257).
- ANONYMOUS**: Pair of black lace mitts of the early part of the nineteenth century (112732).
- ANTONELLI, SEVERO**, Philadelphia, Pa.: 50 portrait and illustrative photographs for special exhibition through the month of November, 1930 (112201, loan); 4 pictorial photographs—The Whip, The Model, The Guide, and Morning Attire (112885).
- ARBELAEZ, ENRIQUE PEREZ**. (See under Colombia, Ministerio de Industrias.)
- ARCHAEOLOGICAL SOCIETY OF WASHINGTON**, Washington, D. C.: Collection of flint and bone implements from the Abri "Les Merveilles" at Castel Merle, near Sergeac, Dordogne, France, excavated by the American School of Prehistoric Research, 1930 (95604). Loan.
- ARCHER, W. A.**, Medellin, Colombia: 1,968 specimens of plants from Colombia; 362 specimens of plants from Colombia, also 2 fiber bags with ball of fiber material (110714, 111122, 111133, 111454, 111573, 111775, 112200, 112627, 112895, 113232, 113398, 113722, 113828, 114014, 114075, 114462).
- ARMOUR & CO.**, Chicago, Ill.: 1 specimen each of pancreatin and pepsin, U. S. P. (111912).
- ARNOLD ARBORETUM**. (See under Harvard University.)
- ASCHAUER, JULIUS**, Vienna, Austria: 35 bromoil transfers to be exhibited in December, 1930 (112536, loan); 2 bromoil transfers (113546).
- ASCHEMEIER, C. R.**, Gainesville, Fla.: Indian skull taken from a burial mound near High Springs, Fla. (109915).

- AUSTRALIA, COMMONWEALTH OF**, Division of Economic Entomology, Canberra, Federal Capital Territory, Australia (through A. L. Tonnoir): 2 flies (111180) Exchange.
- AUSTRALIAN MUSEUM**, Sydney, Australia: A specimen of the mineral sturtite from Broken Hill, New South Wales, Australia (113276). Exchange.
- AUTOMATIC ELECTRIC (INC.)**, Chicago, Ill. (through William Brandt): A decorative hand telephone of the "Continental" type, showing the most recent technical development incorporated with artistic finish (112520).
- AVERY, MYRA H.**, Poughkeepsie, N. Y.: Steel plaque, 2 lamps, and a pedestal (111835).
- BAILEY, HAROLD H.**, Miami, Fla.: 9 bird skins from tropical America, and 1 fox squirrel from Florida (111724); 21 birds from tropical America (111954); 7 raccoon skulls, 1 skin of broad-winged hawk from Florida (113217).
- BAIN, ROBERT E. M.**, St. Louis, Mo.: Brass model of a ship's anchor, marine type, scale about $\frac{1}{2}$ (113600).
- BAKEFELT, MRS. DORIS.** (See under Mrs. Cora Langworthy Jacobson.)
- BAKER, C. H.**, Wanamaker, Ind.: Unfinished bannerstone, plowed up on the donor's farm in Marion County, 9 miles southeast of Indianapolis, Ind. (113465).
- BAKER, CHARLES L.**, Houston, Tex. (through Department of the Interior, Geological Survey): A slab of cretaceous flagstone containing shells, from the Eagle Ford formation, Val Verde County, Tex. (113597).
- BAKER, DR. F. H.**, Richmond, Victoria, Australia: 6 specimens of insects from Australia (114984).
- BAKER, DR. HORACE B.**, Philadelphia, Pa.: 7 specimens of land mollusks, including paratypes of 5 species or subspecies from Virginia, Tennessee, and Washington (112729).
- BAKER, T. H.**, Washington, D. C.: Archeological specimens from the coast of Chile (113229).
- BALL, DR. C. R.**, Chevy Chase, D. C.: 7 specimens of plants from Utah (113804).
- BALL, WILLIAM HOWARD**, Washington, D. C.: 2 specimens of isopods, 125 amphipods, 7 crayfishes, and 1 earthworm (110732); 100 amphipods, 30 shrimps, and 1 crab collected near Piney Point, Md. (110779); 12 amphipods (111161); 7 birds (111397); 8 birds from Hains Point, D. C. (111468); 1 mole from Maryland (111586); 2 crayfishes, 3 crabs, 1 barnacle (111778); 29 birds and 6 alcoholics and skeletons from the District of Columbia and vicinity, including several records for this region (112734); 5 birds from Virginia, including a snowy heron (113104).
- BALTIMORE & OHIO RAILROAD**, Baltimore, Md.: Two sections of types of rails now in use by the company, namely, a 2-inch section of the 130-pound R. E. 1921, and a 2-inch section of the 130-pound Head Tree, 1929, rails (113581).
- BANDEIRA, MISS MARIA C.** (See under Jardim Botânico, Rio de Janeiro, Brazil.)
- BARBER ASPHALT COMPANY**, Philadelphia, Pa.: Photograph of Michigan Avenue Boulevard, Chicago, Ill., illustrating use of Trinidad Lake asphalt paving (111376).
- BARBER, H. S.**, Washington, D. C.: 1 hippa from Cape Henry, Va. (111708). (See also under Dr. E. P. Reed, Valparaiso, Chile.)
- BARBOUR, DR. THOMAS.** (See under Harvard University, Cambridge, Mass., Museum of Comparative Zoölogy.)
- BARBOUR, WILLIAM R.** (See under Tropical Plant Research Foundation.)
- BARNARD, MRS. AGNES**, Washington, D. C.: Sword and pistol owned by Capt. John H. Barnard, Seventy-sixth New York Volunteer Infantry (114523).

- BARRETT, Dr. EDWARD J., Sheboygan, Wis.: 96 samples of woods of Luzon, Philippine Islands (112726).
- DE BARROS, CARLOS AUGUSTO MONTEIRO, Sao Paulo, Brazil (through Frank L. Hess): Sample of gold from State of Goyaz, Brazil (112625).
- BARRY, J. NELSON. (See under Mrs. Joseph Galvin.)
- BARTLETT, Prof. H. H. (See under University of Michigan.)
- BARTLETT, Capt. ROBERT A., New York, N. Y.: A collection of 684 specimens of marine invertebrates, fishes, birds, mammals, echinoderms, mollusks, and plants, from the east coast of Greenland (110538).
- BARTRAM, EDWIN B., Bushkill, Pa.: 36 specimens of mosses from Costa Rica, collected by Manuel Valerio (114464).
- BARTSCH, Dr. PAUL, Washington, D. C.: Skin of a cerulean warbler; Aruba parakeet (115018, 115140). (See also under Walter Rathbone Bacon scholarship, and J. P. Whitefield.)
- BASCHAL, Mrs. LOIS, Chevy Chase, Md.: 1 "Japanese robin" (113544).
- BATCHELLER, Miss KATHERINE, Saratoga Springs, N. Y.: Badges, decorations, insignia, uniform coat, with accessories, presentation sword, silverware, and vases owned by George S. Batcheller, soldier and jurist (1837-1908), 28 specimens (112477).
- BATES, LEWIS B. (See under Colegio de La Salle.)
- BAXTER, EDGAR, Bellflower, Calif.: 1 specimen of plant (114379).
- BEAN, BARTON A., Chevy Chase, Md.: 1 mourning warbler in the flesh (114990).
- BEAULINE, JOSEPH I., Montreal, Canada: 50 specimens of beetles, representing 14 species (115206). Exchange.
- BEBOUT, Dr. ESTHER, Akron, Ohio (through Dr. Riley D. Moore, Washington, D. C.): An osteopathic swing (110864).
- BECKWITH, FRANK, Delta, Utah: A fine specimen, representing a new genus and species of merostome, from the Middle Cambrian, House Range, Utah (113598).
- BELL, ERNEST L., Flushing, N. Y.: 476 specimens of moths from Jamaica, West Indies; 75 insects from Jamaica (114714, 115135).
- BENEDICT, JAMES E., Jr., Linden, Md.: 1 specimen of plant; 2 isopods collected at Tall Timbers, Md., by the donor (111158, 115151).
- BENJAMIN, FOSTER H. (See under Department of Agriculture, Plant Quarantine and Control Administration.)
- BEQUAERT, Dr. JOSEPH, Boston, Mass.: 34 specimens of flies, representing 22 species, 2 of which are represented by paratypes (111445, exchange); 1,800 specimens of Hymenoptera, chiefly in the families Ichneumonidae and Braconidae, mostly collected by the donor in North and South America (112079).
- BERGLUND, A., Prescott, Oreg.: 7 isopods from Oregon (113886).
- BERNHEIMER, CHARLES L., New York, N. Y.: Archeological material collected by the eighth Bernheimer expedition, 1930, in the Carriso-Lukaichukai district, northeastern Arizona, 182 specimens (111763).
- BERNOWITZ, BERNARD VON, Washington, D. C.: A scale model of a "Sea Hawk" airplane, the type now used for service with the naval aircraft carriers (114524); a model (1/28 size) of a SE-5 airplane, the type used by Great Britain for fighting in the World War (114747).
- BETHEL, H. M., Baltimore, Md.: 10 specimens of coat-of-mail shells and 6 isopods from Aruba Island, Dutch West Indies (110857).
- BETHLEHEM STEEL COMPANY, Bethlehem, Pa.: Complete mine railway unit for full-size bituminous coal mine exhibit, prepared in cooperation with the United States Bureau of Mines (114242).
- BIBBEE, Prof. P. C., Athens, W. Va.: 1 specimen of fresh-water jellyfish (111592).

- BIESTER, Prof. H. E. (See under Iowa State College, Ames, Iowa.)
- BILLAU, J. LOUIS, Baltimore, Md.: 1-dollar note of the Commercial Bank, D. C., dated September 1, 185-, and 1-dollar note of the Bullion Bank dated July 4, 1862 (113414).
- BINGHAM OCEANOGRAPHIC COLLECTION, Peabody Museum of Natural History, Yale University, New Haven, Conn. (through Dr. A. E. Parr): 2 specimens of fishes (105022).
- BIOLOGICAL BOARD OF CANADA. (See under Canadian Government.)
- BISELL, Mrs. ELEANOR WOLFLEY. (See under Mrs. Elizabeth F. Wolfley.)
- BISHOP MUSEUM, BERNICE P., Honolulu, Hawaii: (Through E. H. Bryan, jr.) 2 flies, recorded from Hawaii for the first time (112822); (through Dr. Erling Christophersen) 4 specimens of plants from the Galapagos Islands (114387, exchange).
- BISHOP, S. C., Rochester, N. Y.: 14 specimens of mosquitoes and 4 larvae (110569).
- BLAISDELL, Dr. F. E., San Francisco, Calif.: 4 beetles, representing 3 species—2 of the specimens are paratypes of 2 species (114743).
- BLAKE, Dr. S. F. (See under Department of Agriculture, Bureau of Plant Industry).
- BLOEDORN, HELEN MAY, Washington, D. C.: Mahogany cradle of the colonial period (112972).
- BLOOMENTHAL, JAMES H., Washington, D. C.: French bronze token struck in 1610 (112150).
- BONNATSAS, AGSILAOS, Washington, D. C.: A "Zonata," or hand-woven scarf prepared from native wool in 1895 at Troy, Turkey (111911).
- BORDEN, RICHARD P. (See under American Hospital Association).
- BORGMEIER, Dr. P. THOMAS, Sao Paulo, Brazil: 2 specimens of isopods (110571); 3 gall wasps, all type specimens (114003, exchange). (See also under Instituto Biologico, Sao Paulo, Brazil.)
- BOSCHMA, Dr. H., Leiden, Holland: 3 crabs bearing rhizocephalid parasites (112993).
- BOTANIC GARDENS, Singapore, Straits Settlements (through M. R. Henderson, director): 94 specimens of ferns from Malay Peninsula (112530). Exchange.
- BOTANICAL INSTITUTE, Brno, Czechoslovakia: 100 specimens of plants from Czechoslovakia (113533). Exchange.
- BOTANICAL INSTITUTE, Sun Yatsen University, Canton, China (through Prof. Woon Young Chun): 95 specimens of plants from China (113988). Exchange.
- BOTANISCHES MUSEUM, Berlin-Dahlem, Germany (through Dr. I. Urban): 1 specimen of plant from the Dominican Republic (110850). Exchange.
- BRACELIN, Mrs. H. P. (See under Mrs. Ynes Mexia.)
- BRANDT, WILLIAM. (See under Automatic Electric, Inc.)
- BRAUER, ELMORE CEDRIC, F. R. P. S., Gothenburg, Nebr.: 4 pictorial photographs (110804).
- BRIDGE, Dr. JOSIAH. (See under C. L. Dake.)
- BRIDWELL, J. C., Washington, D. C.: Nest of tailor bird from India; shrew from India (110862, 110905).
- BRIGHAM, ALBERT H., Whitman, Mass.: Old tack and nail tools, including a Reed tack heading vise with interchangeable dies, 2 nail anvils, 3 swages, hammer, and a series of tacks and nails made by them. All more than 100 years old (111990).
- BRIGHT, JOHN, Pittsburgh, Pa. (through Mrs. Agnes Chase): 51 specimens of plants from Florida (114626).
- BRITISH GOVERNMENT:
British Museum (Natural History).
 London, England: 1 quail-plover from the Sudan; 638 specimens of plants, chiefly ferns; 36 specimens of flies in the family Simuliidae

BRITISH GOVERNMENT—Contd.

- British Museum (Natural History)*—Continued.
(111095, 114241, 114832, exchange); (through F. W. Edwards) 2 specimens of flies, paratypes of 2 species (112745); 2 flies (113400).
- Imperial Institute of Entomology*, London, England: 40 specimens of parasitic Hymenoptera, comprising 16 species and 18 types (113241, exchange); 1 fly and 2 puparia (114335).
- BRITTON, Dr. N. L., New York, N. Y. (See under New York Botanical Garden.)
- BROCKETT, PAUL, Washington, D. C.: 1 lens for detective buttonhole camera, Craig's patent, February 18, 1862 (112974).
- BROOKLYN BOTANIC GARDEN, Brooklyn, N. Y.: 4,020 specimens of cultivated plants (114226). Exchange.
- BROWN, R. W., Washington, D. C.: Wood sample of buttonbush (114785).
- BROWN, W. L., Washington, D. C.: 43 shrimps, 6 crabs, 3 isopods, collected at Cobb Island, Md., 1930; 192 specimens of fishes, 17 insects, and 6 parasitic isopods, from Cobb Island, Md. (111402, 111449, 111744).
- BROWN, ZOE LOWE. (See under heirs of Thaddeus S. C. Lowe.)
- BROWNBAC, Mrs. HENRY M. (See under heirs of Thaddeus S. C. Lowe.)
- BROWNE, Mrs. ALDIS B., Washington, D. C.: 1 bird of paradise (114356).
- BROWNE, F. R., Miami, Fla.: 10 specimens, 2 species, of land snails from Florida (113774).
- BROWNFIELD, ROBERT L., Atlantic City, N. J. (through his son, Robert L. Brownfield): Philadelphia "Coachee," a light family carriage of the late eighteenth century, and believed to be one of the oldest carriages in the United States now preserved (111857).
- BROWNING, Mrs. FANNIE C., Washington, D. C.: 3 models of obelisks, 2 columns, 4 cups, and 2 candlesticks (114249).
- BROWNING, Mrs. ROBERT BARRETT, Washington, D. C.: 4 pieces of old Venetian furniture and 5 French bronzes (111937).
- BRUCE, DOUGLAS, Washington, D. C.: A true scale model of a Travelair cabin airplane, 1929 (110725); a scale model of a Mohawk "Pinto" low-winged monoplane (111270, loan).
- BRUCE, Mrs. EUGENE, Washington, D. C.: 1 mounted elk head (114093).
- BRUNER, Prof. S. C. (See under Estacion Experimental Agronomica.)
- BRYAN, E. H., Jr. (See under Bernice P. Bishop Museum, Honolulu, Hawaii.)
- BRYANT, OWEN, Banff, Canada: 12 amphipods taken in Hastings Lake, Tofield, Alberta, Canada, 15 phyllo-pods, 1 leech, 1 bat, and about 1,200 specimens of land and fresh-water mollusks, and 15 specimens of reptiles from Alberta and Northwest Territories (108347).
- BUCHANAN, L. L. (See under Dr. E. A. Chapin.)
- BUCHER, WILLIAM F., Washington, D. C.: Wood samples of cedar of Lebanon, olive, quartered beech, and quartered sycamore; wood samples of Italian cypress, honey locust, and boxelder (113383, 114788).
- BUCHHOLZ, Prof. JOHN T., Urbana, Ill.: 4 specimens of plants from Texas (113117).
- BUCK, Gov. C. D., Dover, Del.: A collection of 3,800 birds' eggs and 12 nests, chiefly from North America (109404).
- BUFFALO MUSEUM OF SCIENCE, Buffalo, N. Y. (through Dr. Charles J. Fish): 3 vials of marine invertebrates (112584).
- BUFFALO NUMISMATIC ASSOCIATION, Buffalo, N. Y. (through Robert H. Lloyd, secretary): 2 convention badges of the American Numismatic Association, 1930 (111908).
- BULLOCK, D. S., Angol, Chile: 1,320 insects and 4 vials of parasitic worms; 94 specimens of flies from

BULLOCK, D. S.—Continued.

Chile, collected by the donor (114095, 115167).

BUNCH, F. A., Las Cruces, N. Mex.: 2 specimens of plants (cactuses) from New Mexico (114604).

BUNNELL, Dr. CHARLES E. (See under Alaska Agricultural College and School of Mines.)

BUREAU OF ENTOMOLOGY, Nanking, China: 123 specimens of beetles (114343).

BURK, Rev. ELLEN I., Shabunda, Africa: A small collection of African ethnological material and 2 mammal skins (114516).

BURKENROAD, M. D., New Orleans, La.: 13 specimens of medusae, including 1 type and 12 paratypes (114806).

BURKHARDT COMPANY, Detroit, Mich. (through John C. Burkhardt, president): 2 demonstration books, "Dow—How to Maintain Roads," demonstrating Burk art-processed covers (111469).

BURKHARDT, JOHN C. (See under Burkhardt Company, Detroit, Mich.)

BURROWS, RAYMOND H., Washington, D. C.: 1 Asiatic jay, in the flesh, found on the street near the New Japanese Embassy (112733).

BURT, Dr. CHARLES E., Waxahachie, Tex.: A collection of 87 reptiles and amphibians from Kansas, Nebraska, and Oklahoma; 80 amphibians and reptiles from the western United States; 1 albino bullfrog; a collection of reptiles, isopods, amphipods, mollusks, and insects from Texas and Mexico; 77 reptiles and amphibians from Texas; a collection of reptiles, amphibians, isopods, shrimps, scorpions, insects, and mollusks from Texas (112581, 113971, 114193, 114245, 114723, 114803). (See also under Oliver J. Millard.)

BUSHNELL, DAVID I., Jr., University, Va.: Archeological specimens collected by the donor in Albemarle and Orange Counties, Va. (111428).

CAHN, Dr. R. A., University of Illinois, Urbana, Ill.: 1 turtle from the Illinois River (113953).

CALIFORNIA ACADEMY OF SCIENCES, San Francisco, Calif.: (Through Miss Alice Eastwood) 70 specimens of plants from Arizona; 33 specimens of plants (110722, 111700, exchange); 142 specimens of plants, mostly from California; 2 specimens of beetles (113991, 114479, exchange); (through E. P. Van Duzee) 3 insects, paratypes of 2 species (114820); 2 insects, male and female paratypes, collected at Cypress Ridge, Calif. (115136).

CALIFORNIA AGRICULTURAL COMMISSIONER, Los Angeles, Calif.: 7 fly larvae from California (114646).

CALIFORNIA DEPARTMENT OF AGRICULTURE, Sacramento, Calif.: (Through H. H. Keifer) 9 specimens of flies reared by Mr. Keifer, all paratypes; 1 fly (107893, 112571); 3 flies (114621).

CALIFORNIA, UNIVERSITY OF, Berkeley, Calif.:

Department of Botany: 102 specimens of plants; 398 specimens of plants, chiefly from California (112710, 114710, 114759). Exchange.

CAMEROONS, TREASURY DEPARTMENT OF (through Department of State, Washington, D. C.): 10 specimens of coins of the Cameroons, struck in 1926 (112596).

CAMPOS R., Prof. F., Guayaquil, Ecuador: 10 flies from Ecuador (111721); (through Dr. L. O. Howard) 98 specimens of miscellaneous insects from Ecuador (112272).

CANADIAN GOVERNMENT:

Biological Board of Canada, Toronto (through Prof. A. G. Huntsman): 47 lots, approximately 235 specimens, of marine invertebrates from Hudson Bay (112832); 27 lots, 57 specimens, marine shells from Hudson Bay and vicinity (114725).

Department of Agriculture, Entomological Branch, Vernon, British Columbia: 6 beetles (112992).

- CANNON, HERBERT D., Whiteriver, Ariz.: Arrowshaft straightener found at Bonito Ruin, about 20 miles east of Whiteriver; an Indian skull (110585; 112547).
- CANNON, DR. JOSEPH N., Kodiak, Alaska: (Through Dr. Aleš Hrdlička) stone ax from Kodiak Island, Alaska; Aleutian stone lamp found on Shuyak Island on December 24, 1930 (112284, 113967).
- CARIBBEAN BIOLOGICAL LABORATORIES (INC.), Biloxi, Miss.: (Through Stewart Springer) 16 crabs and 3 hermit crabs; 3 crabs taken at 12 fathoms off Pass a Loutre, La., 3 stomatopods and 3 shrimps; 13 crabs from Louisiana; 5 crabs, 1 hermit crab, 1 porcellanid, 5 shrimps, and 14 isopods (112965; 113362; 113555; 114473; 114592); 4 crabs taken between Horn Island and Round Island, Miss., August 20, 1930; 2 crabs (113969; 115005).
- CARNEGIE INSTITUTION OF WASHINGTON, Washington, D. C.: Model of the Uuaxactun pyramid (113282).
- CARNEGIE MUSEUM, Pittsburgh, Pa.: 2 specimens of fresh-water mussel from the Republic of Colombia (112337); 1 skin of Shelley's olive-backed weaver (113536, exchange).
- CARR, F. S., Medicine Hat, Alberta, Canada: 6 specimens of beetles, including 4 paratypes of 2 species (113392, exchange); 7 beetles, including paratypes of 2 species (113692).
- CARTER, A. D., Los Angeles, Calif.: 22 specimens of mineralogical and paleontological material (111509). Exchange.
- CARTER, FRED WILLIAM, Santa Monica, Calif.: 4 pictorial photographs titled "The Sea Laguna," "In a Dancer's Studio," "The Nest," and "Still Life" (110574).
- CARTY, ALTON B. Washington, D. C.: Miscellaneous collection of banknote engravings, photomechanical reliefs, lithographs, "poppups," book cloth, newspapers, metal-surfaced paper, rotogravure, wiping cloth, Spirax binding, etc. (115162). (See also under John Davis.)
- CASEY, MRS. LAURA WELSH, Washington, D. C.: Samples of cotton prints collected by the donor's father, Henry D. Welsh, about 1865; 1 specimen of coral and 1 starfish; 4 miniature cotton bales; African basket, Choctaw Indian basket, Cherokee soapstone pipe, and a Guadaluajara (Mexico) pottery jar and cup (112548, 112742, 112892, 113200).
- CATHOLIC UNIVERSITY OF AMERICA, Washington, D. C.: (Through Father Hugh O'Neill) 220 plants from Louisiana collected by A. B. Langlois; 246 specimens of plants, mainly from Florida (110709, 111701); 92 specimens of plants from Brazil (113599). Exchange.
- CAUTIN, Dr. F., Brie Comte Robert, France (through Dr. Philip W. Place): Aircraft compass taken from airplane in which Maj. Gervais Raoul Lufberry was mortally injured during the World War, May 19, 1918, at Maron, France (113768).
- CEYLON, Peradeniya, Department of Agriculture: 24 specimens of grasses from Ceylon (113413).
- CHACE, E. P., San Pedro, Calif.: 5 isopods, 3 amphipods, 1 shrimp, collected by the donor, near San Pedro, Calif. (110573).
- CHAMBERLAIN FUND, FRANCES LEA, Smithsonian Institution: Carvings of coral, fluorite, and rose quartz (110775); 5 rubies from Siam, total weight 4.94 carats (110860); carved objects of jade, coral, rose quartz, and carnelian (111795); 3 Mexican opals and 1 tourmaline from South Africa (113409); 2 carved pendants, 1 rose quartz, and 1 aquamarine (113411); 162 specimens of land shells from Natal, South Africa (114004); a cut gem of scapolite (115114); a mandarin buckle of jade (115116).
- CHAMBERLIN, R. V., Salt Lake City, Utah: 2 specimens of mollusks (paratypes) from Utah, collected by E. G. Berry (114198).

- CHAPIN, Dr. E. A., and L. L. BUCHANAN, Washington, D. C.; 2 specimens of fishes from the Chesapeake and Ohio Canal above Widewater, Md. (111467).
- CHASE, Mrs. AGNES, Washington, D. C.: (See under Department of Agriculture, Bureau of Plant Industry, and John Bright.)
- CHASE, THEODORE L., Washington, D. C.: A group of 54 photographs illustrating famous racing automobiles and their drivers, covering the period 1904 to date (111432).
- CHAUVET, Dr. STEPHEN, Paris, France: 2 photographs of a native seat from Africa (110884).
- CHEETHAM, HARRY R., Quincy, Mass.: 6 pieces of early amateur wireless apparatus and a switch lever from the wireless set of the steamship *Carpathia*, rescue ship to the *Titanic* in 1912 (110988); a microphone detector stand, part of an early amateur radio equipment, made and used by the donor in 1902 (112189); a pair of oscillators used for wireless telegraph transmission in 1896-97; a pair of photographs and a drawing illustrating early radio apparatus and stations; and a series of the donor's radio operator's licenses for the period 1911 to 1929 (112399); 2 Leyden jars, which formed part of the radio equipment of the steamship *Carpathia*, used in answering the call for help from the sinking *Titanic* in 1912 (113406); a radio operator's license, commercial, first class, issued to donor and just expired (114707).
- CHEN, T. Y., Amoy, China: 7 crabs collected by the donor (110354).
- CHEW, L. F., Washington, D. C.: 1 goldfinch (114704).
- CHINESE LEGATION, Washington, D. C. (through Department of State): 3 plates showing the national flag and seal of the Republic of China (112254).
- CHOPRA, Dr. B. N. (See under Zoological Survey of India, Calcutta, India.)
- CHOSEN FOREST EXPERIMENT STATION. (See Forest Experiment Station.)
- CHRISTENSEN, Dr. CARL. (See under Universitetets Botaniske Museum, Copenhagen, Denmark.)
- CHRISTOPHERSEN, Dr. ERLING. (See under Bishop Museum.)
- CHUN, Prof. WOON YOUNG. (See under Botanical Institute, Sun Yat-sen University, Canton, China.)
- CIFERI, Dr. R., Santiago, Dominican Republic: 1 skin of Hudsonian godwit and 1 beetle from the Dominican Republic (113368). (See also under Compania Agricola Dominicana, Santiago).
- CLAPP, ALSTON, Sr., and HANS NAGEL, Houston, Tex.: 1 albino and 1 normally colored coral snake from Texas (107914).
- CLAPP, Dr. WILLIAM F., Boston, Mass.: Test block of wood containing specimens of shipworm from Maracaibo, Venezuela (114513).
- CLARK, A. H., Washington, D. C.: 1 nest and 5 eggs of grasshopper sparrow (115146).
- CLARK, ALEX, Long Beach, Calif.: 2 specimens of Eocene fossil shells from California (115191).
- CLARK, CHARLES F., Washington, D. C.: Watch and sword carried during the French and Indian War by Capt. Jeremiah Marston, of the British Army (113694).
- CLARK, Dr. F. C., Santa Barbara, Calif.: Approximately 500 specimens of bryozoans from the Pliocene of California (113878).
- CLARK, Mrs. MARIAN BRUCE, Sea Cliff, Long Island, N. Y.: Souvenir plate of the type distributed by the City of Amsterdam among the school children of the city upon the occasion of the coronation of Wilhelmina as Queen of the Netherlands in 1898 (109886).

- CLINE, CHARLES G., Alliance, Ohio: Collection of 13 hand tools used in the middle nineteenth century in making wooden water pipe for pumps and for cutting leather pump valves (113992).
- CLINTON, H. G., Manhattan, Nev.: A gallery of a wood-boring larva containing cocoons of a sawfly (113116).
- COCKERELL, Prof. T. D. A., Boulder, Colo.: 31 insects and 2 snails (111742); 81 specimens of miscellaneous insects (112705); 15 insects from Morocco (114748); 13 named insects, including 1 type (115138).
- CODY, M. D., Gainesville, Fla.: 1 specimen of plant collected at Gainesville, Fla. (111750).
- COE MANUFACTURING COMPANY, W. H., Providence, R. I.: One roll XX gold leaf cut into two rolls $\frac{3}{8}$ of an inch wide, one roll $\frac{1}{8}$ of an inch wide, and one roll 2 inches wide; 3 gilding wheels, one $\frac{3}{8}$ of an inch wide, one $\frac{1}{8}$ of an inch wide, and one 2 inches wide; 1 improved gilding brush $\frac{3}{8}$ of an inch wide; and 1 book cover showing XX ribbon gold (111718).
- COE, Dr. WESLEY R., New Haven, Conn.: 4 vials of bryozoans from La Jolla, Calif. (110079); 2 specimens of shipworms from New Haven Harbor (112056); 2 small collections of shells from California, one showing growth stages (112995).
- COKER, Dr. R. E. (See under Rodney Podgett.)
- COLBURN, BURNHAM S., Biltmore, N. C.: Samples of minerals from Webster and Franklin, N. C. (114795).
- COLCORD, WILLARD ALLEN, Takoma Park, Md.: 1 Baltimore oriole in the flesh (111395).
- COLEGIO DE LA SALLE, Ancon, Panama (through Lewis B. Bates): 4 snakes from Ancon (114243).
- COLGATE UNIVERSITY, Hamilton, N. Y.: (Through H. O. Whitnall) a rare echinoid from the Devonian of New York; 8 specimens of Devonian starfishes from Hamilton and Georgetown, N. Y. (113785, 114500). Exchange.
- COLLINS, G. N. (See under Department of Agriculture, Bureau of Plant Industry.)
- COLOMBIA, MINISTERIO DE INDUSTRIAS, Bogota (through Enrique Perez Arbelaez): 546 specimens of plants from Colombia (112198, 112532, 112982, 114015, 114225). Exchange.
- COLORADO MUSEUM OF NATURAL HISTORY, Denver, Colo.: 2 deer skins with skulls, and 1 cat skin with skull from Matta Grasso, Brazil (113496). Exchange.
- COLORADO STATE AGRICULTURAL COLLEGE, Fort Collins, Colo.: 4 pupae (insects) (110829); (through Sam C. McCampbell) 2 flies reared from celery in Colorado (110878).
- COMLY, Miss MARIETTA, Washington, D. C.: 217 lantern slides, 1 Bausch and Lomb Balopticon, 1 corrugated flask with cup stopper, and a miscellaneous collection of about 3,000 souvenir post cards of paintings, places, etc. (111405).
- COMMERCE, U. S. DEPARTMENT OF:
Bureau of Fisheries: 3 lots of nematodes from stomachs of seals from Alaska (102578); 11 pieces of fish and shark skin leathers, 30 small scraps of miscellaneous named leathers, also 3 samples of fish glue (110766); a collection of marine invertebrates, echinoderms, fish eggs and fishes, mollusks, and a model illustrating the Florida sponge fishery, also salamanders and turtles and types of 2 Chesapeake Bay sponges (110854); 1 tray of sharks' jaws, 5 boxes and 2 trays of fishes, 13 boxes of shells, 1 box of sponges, 1 tank of sponges, 1 box of annelids, and 3 small vials of fresh-water mollusks estimated to contain nearly 2,000,000 specimens (111567); 12 specimens of marine mollusks

COMMERCE, U. S. DEPARTMENT
OF—Continued.

Bureau of Fisheries—Continued.

(112253); approximately 280 specimens of marine invertebrates from Hawaii (112570); approximately 345 specimens of marine invertebrates, 7 lots (about 125 specimens) of marine mollusks, a small vial of parasitic worms, 1 crinoid and 3 holothurians, from Labrador and Baffin Land, taken by the MacMillan expedition in 1929 (112897); (through Dr. S. F. Hildebrand, Beaufort, N. C.) 37 isopods collected by Doctor Hildebrand at Beaufort (113415); spat collector with young oysters (113561); (through J. S. Gutsell) 1 isopod, approximately 40 amphipods and 150 shrimps, 1 hermit crab, 7 crabs, and 1 marine mollusk, collected at Beaufort, N. C. (114227); (through Dr. Walter Weymouth) 70 specimens of fresh-water shrimps from Brunswick, Ga., collected March 26, 1931 (114520); a collection of echinoderms, crustaceans, mollusks, 4 amphibians, 29 reptiles, from Key West, Fla. (114624); collection of fishes made by Dr. S. P. Galtsoff on Pearl and Hermes reef, Hawaiian Islands, during July and August, 1930; also a few shrimps, crabs, and shells (114840); 5 amphipods and 1 leech from Lake Titicaca, Peru (115003). (See also under W. B. Redmond.)

Bureau of Mines: 4 specimens of potash minerals from the Carlsbad district, N. Mex. (114768).

Bureau of Standards: A copy of the original report on altitude determination for balloon flight made by Capt. H. C. Gray on November 4, 1927, and 2 photographs of barographs, 1 under test (110708).

COMPANIA AGRICOLA DOMINICANA, Santiago, Dominican Republic (through Dr. R. Ciferi): 22 specimens of insects from Dominican Republic (110894).

COMPERE, HAROLD, Riverside, Calif.: 31 specimens of parasitic Hymenoptera, representing 8 species, 6 of them by type material (115137).

CONANT, ROGER. (See under Toledo Zoological Society, Toledo, Ohio.)

CONGER, MISS FLORENCE W., Washington, D. C.: Clay figurine of a Mexican "hunger god" (112390).

CONGER, PAUL S., Washington, D. C.: 50 specimens of medusae from Tortugas, Fla. (110730).

CONNOR, MRS. JEROME, Washington, D. C.: Collection of 9 American Indian ethnological specimens (115148).

COOKE, C. WYTHE, Washington, D. C.: 3 species, about 100 specimens, of fresh-water mollusks from Georgia (112025); 2 lots, about 300 specimens, of fresh-water mollusks from Belize River, British Honduras, collected by the donor and Prof. H. H. Bartlett (113987); a collection of approximately 10,000 specimens of shells, 1 archeological specimen, and some fossils from British Honduras and Guatemala (114986).

COONEY, WILLIAM, Bancroft, Canada: A large specimen of sodalite from Bancroft, Ontario, Canada (111768).

COOPER, DR. G. A., Washington, D. C.: 2 boxes of washings with Middle Devonian fossils from East Bethany, N. Y. (111583); 103 specimens of invertebrate fossils from the Devonian of New York (112256); approximately 2,500 specimens of invertebrate fossils from the Tully limestone of New York (114084).

COOPER, W. E., Roanoke, Va.: Specimen of plant (110868).

COPELAND, DR. E. B., Berkeley, Calif.: 109 specimens of plants, chiefly from the Tonga Islands (113193). Exchange.

COPENHAGEN MUSEUM, Copenhagen, Denmark (through Dr. K. Stephensen): 26 specimens of amphipods (111337). Exchange.

CORBRY, MRS. WILLIAM S., Chevy Chase, Md.: 327 bookplates for special exhibition from December 1,

- CORBY, Mrs. WILLIAM S.—Contd.
1930, to January 4, 1931 (112563).
Loan.
- COSTA LIMA, Dr. A. DA. (See under Instituto Oswaldo Cruz, Rio de Janeiro, Brazil.)
- COTTAM, CLARENCE, Washington, D. C.: 1 specimen of marine mollusk from Smith Island, N. C. (115189).
- COTTON-TEXTILE INSTITUTE (INC.), New York, N. Y.: 22 specimens of cotton textiles produced by American manufacturers for the fall and winter trade of 1930 (111909); 27 specimens of cotton textiles produced by American manufacturers for the spring and summer of 1931 (113382).
- COVILLE, Dr. FREDERICK V. (See under Department of Agriculture, Bureau of Plant Industry.)
- COX, Dr. L. R., London, England: (Through Dr. Julia Gardner) 18 lots, 66 specimens, of fossil mollusks (112624, exchange); 3 lots, 7 specimens, of fossil shells from India (113826, exchange); 27 specimens of Eocene fossil shells from the Samana Range, Northwest Frontier Province, India (115174).
- COXEY, W. JUDSON, Philadelphia, Pa.: (Through Dr. William Schaus) 241 specimens of moths and butterflies from Ecuador (112372); 284 specimens of moths and butterflies from Ecuador (112746).
- CRAIL, Hon. JOE. (See under United Spanish War Veterans.)
- CRANE, Miss SARAH L., Washington, D. C.: 1 Davis and Kidder magneto-electric machine, patented August 1, 1854, for the treatment of nervous diseases (111157).
- CRAWFORD, WILLIAM P., Bisbee, Ariz.: 1 specimen showing cerargyrite associated with uranium mineral (112061).
- CREASER, EDWIN P., Ann Arbor, Mich.: 3 specimens of isopods (112521); 1 crab (112969, exchange); 12 crayfishes, paratypes of 3 new species, collected by the donor (114501); 105 specimens of amphipods taken from fresh waters of United States (114812). (See also under University of Michigan.)
- CREIG, HARRY, Sudbury, Canada: A large specimen of nickel ore from Sudbury, Ontario, Canada (111770).
- CREMONIM, J. V., New York, N. Y.: 2 plates of "Elektron" metal, one unused and the other a finished half-tone plate, a mat from the half-tone plate, and 2 proofs printed from Elektron plates (112833).
- CROFFUT, Mrs. W. A., Washington, D. C.: A mat and 2 baskets made by Alaskan Indians, and an old Russian drinking cup obtained in Alaska in 1897 (111815).
- CROOK, MARY E., Washington, D. C.: 2 blue-and-white coverlets, woven in 1841 and 1844 near Syracuse, N. Y., for the mother of the donor's grandfather (111910).
- CROOK, Mr. and Mrs. OLIN L., Austin, Tex., and Miss MAUDE NEVILLE, Paris, Tex.: 2 human skeletons excavated from mounds in Lamar County, Tex. (112029).
- CUNNINGHAM, G. M. (See under Standard Oil Company of California.)
- CURRAN, Mrs. HENRIETTA M., Washington, D. C.: Chinese shawl purchased in San Francisco in 1850 by the Hon. Wilson Shannon, the donor's grandfather (113777).
- CURTIS, FRANK L., Fort Ringgold, Tex.: Specimen of cactus from Texas (114178).
- CUSHMAN, Dr. JOSEPH A., Sharon, Mass.: Types and figured specimens of Cretaceous foraminifera from Trinidad, British West Indies (114709).
- DAHL, M. A., Hartford, Conn.: 1 pamphlet containing commercial wood engravings made by Dahl and Sinnott (113567).
- DAKE, C. L., Sulphur, Okla. (through Dr. Josiah Bridge): A small collection of trilobites from Oklahoma (112557).

- DALY FUND, Smithsonian Institution: 1 specimen of Ludwig's bustard (111471); jackass penguin, and trunk skeleton from South Africa (112374); 8 African birds (114357); 20 bird skins from Africa, representing 10 species new to the collection (114750).
- DALY, MARCUS, New York, N. Y.: 23 bird skins, mostly from Tunis, representing 14 species and subspecies new to the Museum (111131); 3 birds from Mediterranean Islands, new to the Museum (111746).
- DAMM, FREDERICO, Durango, Mexico: 1 specimen of cactus from Durango (108527).
- DANFORTH, STUART T. (See under University of Porto Rico.)
- DARBY, Miss CHARLOTTE L., East Falls Church, Va.: 1 Australian zebra finch in the flesh (113381).
- DAVIS, J. J., Lafayette, Ind.: 3 specimens of isopods, collected from a well in Indiana (110879).
- DAVIS, JOHN, Washington, D. C. (through Alton B. Carty): 1 book, "The Gospel according to Saint Luke," made by Judd & Detweiler and one of the "Fifty Books of the Year," 1930 (115199). Loan.
- DAVIS, Mr. and Mrs. P. H., Washington, D. C.: Collection of Javanese art objects (63 specimens) (114758). Loan.
- DEAN, F. A. W., Alliance, Ohio: 1 insect (112970); 12 specimens, 1 species, of fresh-water shells from Virginia (114764).
- DEARDEN, WILLIAM, Putnam, Conn.: 1 long-tailed shrew from Eastport, Conn. (112347).
- DEATS, HIRAM E., Flemington, N. J.: 1 No. 4 kodak, purchased April, 1893, (113112).
- DECKER, CHARLES E., Norman, Okla.: A collection of fossil brachiopods from Oklahoma (113123).
- DEFORD, C. A., Savannah, Tenn.: A specimen of the trilobite *Goldius* from Hardin County, Tenn. (114987).
- DEGENER, ORTO, Kilauea, Hawaii: 1 specimen of fish (111123).
- DE LAVAL SEPARATOR COMPANY, New York, N. Y.: De Laval oil purifier, No. 901, with steam turbine drive, sectioned to show construction and operation (112305).
- DELAWARE & HUDSON RAILROAD, New York, N. Y.: A framed photograph of the Delaware & Hudson locomotive *James Archbald*, No. 1402 (113297).
- DENBY, CHARLES, Washington, D. C.: Specimens showing diffusion rings in sandstone, from the southern shore of Lake Superior (111766).
- DENLEY, C. F., Rockville, Md.: 3 immature Impeyan pheasants in the flesh (112043).
- DEROOSE, FRANK, Washington, D. C.: Black-throated blue warbler in the flesh (111559).
- DEUSSEN, ALEXANDER, Houston, Tex.: (Through the U. S. Geological Survey) a small collection of Pleistocene teeth and bone fragments from the Lissie formation near Berclair, Tex. (111150); 3 upper cheek teeth of the fossil horse *Hipparion*, and a scute of a large alligator, from Texas (114514).
- DEWEY, LYSTER H. (See under Department of Agriculture, Bureau of Plant Industry.)
- DICKERSON, Dr. L. M., Lebanon, Tenn.: Collection of trematodes from opossum (113502).
- DICKEY, S. S., Waynesburg, Pa.: 5 specimens of plants (110654).
- DICKSON, Mrs. JANE K., Washington, D. C.: Collection of anthropological and geological specimens and an abnormal wood specimen, 22 in all (112257).
- DILLINGHAM, Mrs. WILL, Platte City, Miss.: Fife owned during the Civil War by James A. Carpenter of the One-hundredth Ohio Infantry (111812).
- DILLMAN, A. C. (See under Department of Agriculture, Bureau of Plant Industry.)
- DIXON, H. N., Northampton, England: Specimen of fern from Scotland (111915).

- DOANE, Capt. GEORGE PRICE, Washington, D. C.: 18 Chinese ivory carvings, and 2 bronzes (111452). Loan.
- DOBBIN, FRANK, Shushan, N. Y.: 5 specimens of plants from New York State (110820, 111579); 3 specimens of plants (111113).
- DOBBINS, W. J., Silver Center, Ontario, Canada: A specimen of argenteite from Ontario, Canada (111767).
- DODGE & OLCOTT COMPANY, Bayonne, N. J.: 6 specimens of official medicinal oils (111883); a series of 6 specimens, comprising peppermint and official medicines made from it (111939).
- DOUGLAS, JAMES E., Jr., Chevy Chase, Md.: 1 canary in the flesh (113103).
- DOWDY, W. W., Jefferson City, Mo.: 1 fly larva; 7 specimens of insects (111502, 113558).
- DRAEB, GEORGE, Sturgeon Bay, Wis. (through W. N. Shoemaker): 8 specimens of brachiopods from the Niagara at Sturgeon Bay, Wis. 113718).
- DRAPER, T. W., Springfield, Ohio: 2 specimens of plants (111407).
- DRUGGISTS APPLIANCE MANUFACTURING COMPANY, Port Richmond, New York, N. Y.: 1 "Applebaum" suppository machine (113800).
- DRUMMOND, GORDON, Washington, D. C.: A model of the Army Curtiss racing airplane of 1925, winner of the Pulitzer and Schneider trophies of that year (113601). Loan.
- DRUSHEL, Dr. J. A., New York, N. Y.: 156 specimens of plants from the United States (111949; 112753).
- DUNCAN, Sergt. F. J., Washington, D. C.: Specimen of crane fly (110735).
- DUNCKER, HENRY A., South Bend, Ind. (through Dr. Marcus W. Lyon): 3 mammal skulls (113696).
- DUNN, DALY AND BAIN, New York, N. Y. (See Wiebusch, estate of Charles F.)
- DUNN, L. H., Ancon, Canal Zone: 3 flies (110094). (See also Gorgas Memorial Institute of Tropical and Preventive Medicine, Inc.)
- DUTCHER, F. E., Springfield, Mass.: 681 specimens of marine and land shells from South Africa, Japan, Florida, etc.: 3 fossil shells (110333, 110637, 110890, 111116, 111361, 111425, 112165).
- DUVAL, HUGH H., Bastrop, Tex.: Specimen of plant; 38 plants from Texas (110429, 110781).
- EALER, GEORGE C., Philadelphia, Pa.: 1 quartz banner stone and 1 arrowhead from Florida (111328).
- EARLE, C. D., Rector, Ark.: 1 snake from Arkansas (91567).
- EASTWOOD, Miss ALICE. (See under California Academy of Sciences.)
- EATON, Prof. E. H., Geneva, N. Y.: A specimen of fern (110753).
- EATON, MERLE, High View, W. Va. (through Miss Caroline E. Kidder): 2 specimens of brachiopods from the Devonian, Hampshire County, W. Va. (111556).
- EBERLE, Dr. E. G., Baltimore, Md.: 1 framed picture of Jacob Bell's Pharmaceutical Laboratory, Oxford Street, London, England, a half-tone reproduction of The Laboratory, engraved by J. D. Murray from the painting by W. Hunt in 1840 (114784).
- ECKLER, H. E., Buffalo, N. Y.: 2 pictorial prints (111147).
- ÉCOLE SUPERIEURE D'AGRICULTURE, Hanoi, Tonkin, Indo-China (through Prof. A. Petelot): 139 specimens of plants from Tongkin (111258); 169 specimens of plants from French Indo-China (113989). Exchange.
- EDMONDSON, Dr. C. H., University of Hawaii, Honolulu, Hawaii: 3 crabs and 4 shrimps from Hawaii (110749, 114207).
- EDMUNDSON, Miss M. INEZ, Houston, Tex.: 1 specimen of plant (111415).
- EDWARDS, F. W. (See under British Museum, Natural History.)

- EDWARDS, HARRY T., Washington, D. C.: 2 grades of paper pulp manufactured from waste (110720).
- EGBERTS, W. H., Washington, D. C.: 1 homing pigeon (111585).
- EGGLESTON, Mrs. GARDNER, Washington, D. C.: Faience disk with head of Bes in intaglio, from Cairo, Egypt (113209).
- ELL, HERBERT. (See under William H. Heman.)
- ELLIS, Miss MARJORIE, Chevy Chase, Md.: 13 bird skins from Iowa (110863); 1 cedar waxwing (115019).
- ELLSWORTH, LINCOLN, New York, N. Y. (through Dr. George F. Kunz): Bronze copy of the gold medal awarded by the Congress of the United States to the donor for his courage, sagacity, and perseverance in the transpolar flight in the dirigible *Norge*, in May, 1926 (113708).
- EMELIANOV, Dr. A. A., Vladivostok, East Siberia, U. S. S. R.: 22 reptiles and amphibians from Russia (112351).
- ENDERS, Dr. ROBERT K., Baltimore, Md.: 20 specimens of mammals from the Canal Zone (112928).
- ENDO, Dr. RYUJI, Mukden, Manchuria, China: Types and figured specimens of Manchurian fossils collected and described by Doctor Endo (94722). Exchange.
- ENGELHARDT, GEORGE P., Hartsdale, N. Y.: 140 specimens, 57 species, of European moths (113719).
- ENGELS COPPER MINING COMPANY, San Francisco, Calif.: A large specimen of copper ore from California (110695).
- ENGLAND, KING OF. (See under George V, King of England.)
- ENGLISH, Prof. P. F., College Station, Tex.: 7 specimens of pocket gophers from College Station, Tex. (114601); 2 skins, with skulls, of pocket gophers from Texas (114993).
- ESTACION EXPERIMENTAL AGRONOMICA, Santiago de las Vegas, Cuba (through Prof. S. C. Bruner): 4 insects, 2 of which are types of new species (114821).
- ESTONIA, GOVERNMENT OF (through Department of State, Washington, D. C.): 71 specimens of Estonian coins and paper currency, issued 1919-1930 (111957).
- EVANS, Dr. ARTHUR T., Oxford, Ohio: 1 snake and 1 salamander from Nova Scotia (112190).
- EVANS, ARTHUR L. (See under estate of Victor J. Evans.)
- EVANS, Mrs. KAREN G. (See under estate of Victor J. Evans.)
- EVANS, VICTOR J., Washington, D. C.: 1 scarlet ibis and 1 crimson rosella in the flesh (111391); 1 blesbok (111455). (See also under E. W. Keyser.)
- EVANS, ESTATE OF VICTOR J. (through Arthur L. Evans and Mrs. Karen G. Evans, executors): The Victor Justice Evans collection of Indian and other relics, comprising 5,192 specimens (113605). Deposit.
- EWAN, JOSEPH, Los Angeles, Calif.: 45 specimens of plants, chiefly from the western United States (113203).
- EYER, Dr. J. R. (See under New Mexico College of Agriculture and Mechanic Arts, State College, N. Mex.)
- FAIRBANKS AND COMPANY, E. AND T., Chicago, Ill.: A scale model of the first platform scale invented by Thaddeus Fairbanks in 1830 (109993).
- FAIRCHILD, Mrs. MARY CASE, Westport, Conn.: A specimen of hand-woven carpet, part of an 80-yard length woven by Amanda Orville Edwards, mother of the donor, at Ceres, N. Y., between 1844 and 1854 (112891).
- FALL, H. C., Tyngsboro, Mass.: 1 beetle (113205).
- FALLASS, C. W., Petoskey, Mich.: Specimen of grass from Utah (113501).

- FAN MEMORIAL INSTITUTE OF BIOLOGY, Peiping, China: (Through C. J. Shen) 2 crabs from China (112593); 23 specimens of crabs from China (113710, exchange).
- FAUBION, W. D., Washington, D. C.: 3 fans of about 1850 (114200).
- FEIDT AND COMPANY, GEORGE D., Philadelphia, Pa.: 11 specimens of pharmaceutical equipment (113721).
- FELIPPONE, Dr. F., Montevideo, Uruguay: 26 lots (about 60 specimens) of land, fresh-water, and marine shells from South America and Siam, 5 starfishes, and 33 insects from South America (106759); 2 insects and 4 specimens of fresh-water and marine shells from Uruguay (114205).
- DE FERRIERE, Miss JUANITA LA LANDE, Clarendon, Va.: 3 pistols and 4 French rapiers, of the early part of the nineteenth century (113197).
- FETTER, H. H., Washington, D. C.: 1 specimen of Devonian trilobite found near Strasburg, Shenandoah County, Va. (111334).
- FIDUCCIA, C. S., New Orleans, La.: 1 cockroach (114507); 1 cricket from Louisiana (114848).
- FIELD MUSEUM OF NATURAL HISTORY, Chicago, Ill.: 147 wood samples from southern India, Brazil, Paraguay, British Honduras, and the United States (106393); 359 plants collected in Peru by L. Williams (110902); 238 specimens of plants collected in Peru and Brazil (111562); 6 specimens of ferns collected in China by the Kelley-Roosevelts Expedition (111727); 5 specimens of ferns from British Honduras (112023); 2,083 specimens of plants from Peru (112083, 112715, 115194), exchange; 1 fiddler crab from Peru (102191); cast of a fruit of *Trigonocarpus*, found in a coal "ball," Polkpatch Mine, Carbondale, Ill., in collection of A. C. Noe (114794).
- FINCKEL, EDWARD, Washington, D. C.: 25 specimens of invertebrate fossils from Canandaigua, N. Y., collected by the donor (111333).
- FISH, Dr. CHARLES J. (See under Buffalo Museum of Science, Buffalo, N. Y.)
- FISHER, Dr. A. K., Washington, D. C. (See under Eastham Guild, Papeete, Tahiti, French Oceania.)
- FISHER, GEORGE L., Houston, Tex.: 77 specimens of plants from Texas and Mexico (112076).
- FISHER, Dr. WALTER K., Pacific Grove, Calif. (Through Dr. M. W. de Laubenfels): 6 specimens of sponges (111789). (See also under Hopkins Marine Station.)
- FLORES, FERNANDO, Oruro, Bolivia (through Frank L. Hess): Specimen of crystallized wolframite, from Cerro Chicote Grande, northeast of Oruro (112825).
- FLORIDA STATE GEOLOGICAL SURVEY, Tallahassee, Fla.: (Through Herman Gunter) 20 mollusks from Miami (110425); (through Gerald M. Ponton) 10 specimens of mussels from Dead Lake, Gulf County, Fla. (111252); 3 specimens of fresh-water mussels from northern Florida (111416); topotypes of a new species of foraminifera (113287, deposit).
- FLORIDA STATE MUSEUM, Gainesville, Fla.: 9 bats from Balfate, Honduras (113131); 2 barnacles (113957).
- FLORIDA, UNIVERSITY OF, Gainesville, Fla. (through Prof. T. H. Hubbell): 3 specimens of fly, 1 adult and 2 larvae (110154); 2 specimens of fly (114472).
- FOERSTE, Prof. A. F., Dayton, Ohio: Approximately 1,000 specimens of fossils illustrating Silurian faunas of the Ohio Valley (111144).
- FOKKER AIRCRAFT CORPORATION OF AMERICA, New York, N. Y.: A model of the U. S. Army Air Corps Fokker airplane *Question Mark*, which in January, 1929, established a record for refueled flight of more than 150 hours (109259).

- FOREST EXPERIMENT STATION**, Chosen, Japan (through Dr. M. Tozawa, director): Samples of 50 woods collected in Chosen, Japan (111375). Exchange.
- FOSTER, MARTIN**, Seattle, Wash. (through Dr. Aleš Hrdlička): Head of Eskimo doll and double seal head in ivory (112281).
- FOUNDATION PRESS (INC.)**, Cleveland, Ohio: 40 halftone reproductions in full color, called "The Pageant of a Nation," all from paintings by J. L. G. Ferris (115241).
- FOURNIER, RAYMOND**, Biloxi, Miss. (through Stewart Springer): 1 shovel-nosed shrimp, collected by the donor (115198).
- FRANKLIN MACHINE COMPANY**, Providence, R. I.: Blue prints of Corliss Centennial engine, a catalogue and blue prints of the Greene-Wheelock engine, a model of the Greene-Wheelock type of valve, and a model of the Jeremiah Wheelock of Worcester type of valve (108073).
- FREYER, Mrs. F. B.**, Washington, D. C.: 3 prehistoric specimens from Peru (112047); strip of ancient Peruvian cloth from a mound between Lima and Callao (112849).
- FRIEDMANN, Dr. HERBERT**, Washington, D. C.: 1 bird skin, 1 nest, and 2 eggs of African birds (112561); 1 nest and 5 eggs of Henslow's sparrow (115147).
- FROST, Dr. S. W.**, Arendstville, Pa.: 12 specimens of flies, 3 of them holotypes and the other 9 paratypes, representing 3 species in the family Agromyzidae (112276); 320 insects from Paradise Key, Fla. (114104).
- FULLER BRUSH COMPANY**, Hartford, Conn. (through R. S. Spangler): 30 specimens of various types of bristle brushes and attachments for addition to the collection of brushes presented by the American Brush Manufacturers Association (115177).
- FULLER, LEO H. (INC.)**, Long Island City, N. Y.: 2 examples of silk stencil printing in watercolor, Cactus Flower and Salome's Dance (112755).
- FULLER, Mrs. NETTIE**, Breedsville, Mich.: 72 specimens of insects from Michigan (104818); 44 specimens of insects and 1 lot of cocoons (109048).
- FUMASONI-BIONDI, Archbishop PETER**, Washington, D. C.: Set of the coins issued by the Vatican City in commemoration of the reconciliation between the Government of Italy and the See of Rome (114989).
- GAERSTE, Dr. THOMAS**, Curacao, Dutch West Indies: 1 insect (111461).
- GAGE, R. B.**, Trenton, N. J.: A large specimen of pectolite from West Paterson, N. Y. (113843).
- GALVIN, Mrs. JOSEPH**, Portland, Oreg. (through J. Neilson Barry): Chinese opium pipe of copper (111426).
- GARBER GALLERIES (INC.)**, Washington, D. C.: Sedan chair of the French Empire, period of Louis XV, with elaborate molding decorations and paintings attributed to Watteau (114183). Loan.
- GARBER, PAUL E.**, Washington, D. C.: A vertical inclinometer, an airplane instrument for indicating the angle of climb or descent (111947); 1 4-inch cross section of an olive tree (112612); a postcard sent by air mail in 1912, a relic of an early postal aviation service between Ocean City and Stone Harbor, N. J., (114518); a collection of 15 old door keys reputed to have come from a castle in Spain (115011); 1 horseshoe crab taken at Cape May, N. J., May 6, 1931 (115152).
- GARDNER, Dr. JULIA**. (See under Dr. L. R. Cox.)
- GARRETT, GEORGE E.**, Washington, D. C.: 1 northern pileated woodpecker from Maine (112377).
- GATES, WALTER L.**, Teaticket, Mass.: (See under Precancel Stamp Society.)
- GATEWOOD, Mrs. C. B., Sr.**, Los Gatos, Calif.: 18 ethnological specimens (110622).

- GAVER, GORDON P., Maryland Academy of Science, Baltimore, Md.: 1 lizard from Jamaica (115142).
- GEE, DR. HALDANE, La Jolla, Calif.: 1 large specimen of hermit crab from Loggerhead Key, Tortugas, Fla., collected by the donor (112287).
- GEIST, OTTO W., Fairbanks, Alaska: 9 specimens of mollusks from fossil pits, Cleary, Alaska, collected by Mr. Wann of the F. E. Company (113126).
- GENERAL ELECTRIC COMPANY, Schenectady, N. Y.: A 3-stage steam turbine, with parts cut away to show how it operates (106194).
- GEOLOGISCH-PALAEONTOLOGISCHEN INSTITUTES DER UNIVERSITÄT, Halle, Germany: A collection of ammonites, echinoids, and other paleontological and geological material (113877). Exchange.
- GEORGE V, KING OF ENGLAND, HIS MAJESTY, London, England: Chenille Axminster carpet made in Glasgow, Scotland, for the 1851 exhibition in London and subsequently purchased for Queen Victoria for use in the Council Chamber at Osborne (111293).
- GEORGE WASHINGTON FOUNDATION FOR CITIZENSHIP AND EDUCATION (INC.), New York, N. Y.: 2 etched books, Volume 1, Number 1, of the Etched Monthly, and Abraham Lincoln—American, by William E. Barton; both books etched by Bernhardt Wall (114468).
- GILES, HAYDEN T., Worcester England: 2 bookplates, 1 of William Gordon and the other of William Harcastle (111457).
- GILL, DELANCEY, Washington, D. C.: 5 specimens of archeological material from an Indian village site on a small stream about 4 miles north of Chester, S. C. (112182).
- GIRSCH, CHARLES W., Mount Vernon, N. Y.: 2 engraved steel plates—Grand Ma's Toast and Alpine Girl and a print from the former (110734).
- GLADWIN, R. H., Centerbrook, Conn.: 2 elm-leaf beetles (114643).
- GLASCOCK, ALFRED E., Washington, D. C.: 40 stone implements from Molly Boat Cove, Anacostia, D. C. (113231).
- GLEASON, DR. H. A. (See under New York Botanical Garden.)
- GOODWIN, MRS. JOHN W. (See under United Daughters of the Confederacy.)
- GORDON, JACK G., Corsemalzia, Whauphill, Wigtownshire, Scotland: 11 clutches (54 eggs) of birds' eggs from Scotland (113891).
- GORGAS MEMORIAL INSTITUTE OF TROPICAL AND PREVENTIVE MEDICINE (INC.), Ancon, Canal Zone (through L. H. Dunn): 9 specimens of flies from the Canal Zone (111595); 2 insects from the Canal Zone (114596).
- GOSLIN, ROBERT, Columbus, Ohio: 16 small mammals from Ohio (111948); 3 bats from Ohio (114492); 1 wood rat from Ohio (115197).
- GOWER, MISS MABEL A., Clayton, N. C.: 1 specimen of moss collected in North Carolina (111413).
- GRAHAM, DR. DAVID C., Suifu, Szechwan, China: 3 frogs and 1 lizard, 4,517 insects, 57 mammals, 28 birds, 2,000 shrimps, 35 isopods, 4 earthworms, 2 crabs and 15 leeches, 562 mollusks, 236 fishes, and 13 vases, figurines, and snuff bottles, 2 samples of human hair, etc., from China (110717); collection of miscellaneous natural-history material comprising insects, earthworms, leeches, shrimps, snakes, lizard, mammals, mollusks, bird skins and bird skeletons, fishes, silver 10-cent pieces struck in Yunnan Province, China, in 1920; fragments of ancient Chinese pottery and stone snuff bottle secured by the donor in China during the spring and summer of 1930; approximately 6,700 specimens (111332); approximately 8,700 insects, 2 skeletons, and 4 skins of birds, 2 mammals, 50 specimens of mollusks, 2 specimens of crabs and 19,000 specimens of shrimp, 14 snakes, 1 lizard, and 9 frogs, and 43

- GRAHAM, Dr. DAVID C.—Continued. fishes (111730); a collection of natural-history specimens comprising 66 reptiles, approximately 260 mollusks, 22 marine invertebrates, 29,150 insects, 3 fossils, 14 miscellaneous ethnological specimens, and 654 fishes (112365); a collection of natural-history specimens comprising 683 fishes, 1,750 insects, 90 bird skins and 237 skeletons, 46 mammals, 14 miscellaneous ethnological specimens, 140 reptiles, and approximately 1,000 mollusks, 3 shrimps, and 1 earthworm (112598); a collection of natural-history specimens comprising 9,700 insects, 54 fishes, 24 mammals, 12 miscellaneous ethnological specimens, 3 snakes, 31 frogs, and 16 turtles, 40 specimens of crabs, 30 shrimps, 78 bird skins and 21 bird skeletons, and 1 vial of mollusks (113369); battle club used by the idols in West China to protect their worshippers from demons (113585); a collection of approximately 950 insects, 3 turtles, and 5 bats, mollusk, and 1 worm from China (113709); 35 bird skins, 122 bird skeletons, and 2 cloth belts (114100); 2 Chinese coins of the Han Dynasty from caves near Chengtu, Szechwan, China (114461).
- GRAHAM, EDWIN BOYD, Pittsburgh, Pa.: A cravat made from a bolt of silk sent by Morehouse-Martens Company, Dayton to Columbus, Ohio, November 7, 1910, believed to be the first commercial airplane shipment (113039).
- GRAHAM, Miss NELLIE L., Tulsa, Okla.: 15 chipped stone implements from Colorado, Oklahoma, and Missouri (114612).
- GRAHAM, Judge WILLIAM J., Washington, D. C.: One lot each of copper and shell beads from Port Tobacco Creek, Charles County, Md. (111429).
- GRANT, Dr. ADELE LEWIS. (See under Missouri Botanical Garden.)
- GRANT, Maj. CHAPMAN, San Juan, Porto Rico: 2 skins of yellow-crowned night heron from Mona Island, Porto Rico (112162).
- GRANT, J. M., Marysville, Wash.: 63 specimens of plants from Washington (111272, 111439).
- GRANT, ROBERT J., Washington, D. C. (through F. L. Hess): A specimen of calaverite, from Stratton's Independence Mine, Cripple Creek, Colo. (114597).
- GRAUERT COMPANY, R. W., New York, N. Y.: Samples of "Oeser" Antioxide Bronze, and color charts, and 3 rolls of transfer color (111162).
- GREEN, WYMAN R., Chattanooga, Tenn.: Collection of trematodes from a crayfish (114506).
- GREENFIELD, RAY, Takoma Park, Md.: 2 amphipods, 4 isopods, 2 medusae, 1 crab from beach at Camp Roosevelt, Chesapeake Bay, Md. (115213).
- GREGG, DAVID M., Reading, Pa.: Sabers, uniform coats with sashes, spurs, bridle bit, and flag of the Second Cavalry Division of the Army of the Potomac, owned during the Civil War by Brig. Gen. David McMurtrie Gregg; 12 specimens (112646).
- GRIEPENTROG, ELMER L., Salem, Oreg.: 783 specimens of miscellaneous insects, 16 mammals, 1 snake, and 1 horned toad (110644).
- GROESBECK, WILLIAM M., Hornell, N. Y.: 10 copepods from a well (113968).
- GRUENIG, ADAM, Ceres, Calif.: Head of an English sparrow with abnormal bill (112471).
- GUENTER, FRITZ E., Coryville, Pa.: 6 specimens, 4 species, of freshwater mussels from northeastern Pennsylvania (112589).
- GUILD, EASTHAM, Papeete, Tahiti, French Oceania (through Dr. A. K. Fisher): 1 egg of Makatea fruit pigeon from Makatea Island (111726).
- GUNNELL, LEONARD C., Washington, D. C.: 1 bobwhite from Virginia (115017).

- GUNTER, HERMAN. (See under Florida State Geological Survey.)
- GUSTAFSSON, C. E., Tralleborg, Sweden: 19 specimens of plants, mainly from Sweden (115149). Exchange.
- GUTSELL, J. S., Beaufort, N. C.: 11 crayfishes and 1 insect (112328). (See also under Department of Commerce, Bureau of Fisheries.)
- HAAS, Dr. F., Frankfurt on the Main, Germany: Cotype of a mollusk from Borneo (110519, exchange); 65 photographs, mostly of types and paratypes of unfigured South American fresh-water mussels (115139).
- HAGEDORN, HERMAN. (See under Mrs. Leonard Wood.)
- HALL, DAVID G., Charleston, S. C.: 6 specimens of flies (112585).
- HAMEL, CLAUDE C., Balboa Heights, Canal Zone: 13 specimens of plants from Canal Zone (112188, 112870); photograph of palm (113789).
- HANSEN, JOHN V., Washington, D. C.: Collection of 26 ancient Egyptian objects (114745).
- HANSON, Miss THEBE, Oacoma, S. Dak. (through Department of Interior, Geological Survey): A fine specimen of a Cretaceous ammonite, from the Pierre shale, about 6 miles southwest of Oacoma, Lyman County, S. Dak. (112360).
- HAPEMAN, Dr. H., Minden, Nebr.: 2 plants from Nebraska (110831).
- HARES, C. J., Casper, Wyo.: A small collection of fossil fish scales from the Payette formation, Sourdough Basin, Oreg. (115009).
- HARENAPE, VAL, Washington, D. C.: Photograph of the Mystery "S," Sunbeam automobile in which the late Sir Maj. H. O. D. Segrave established a world record speed of 203.79 miles an hour at Daytona Beach, Fla., March 29, 1927 (111430).
- HARMAN, Mrs. ELIZABETH WOLFLEY. (See under Mrs. Elizabeth F. Wolfley.)
- HARPER, Dr. FRANCIS, Swarthmore, Pa.: 1 red-backed mouse from New Jersey (115238).
- HARPER, Dr. R. M., Tallahassee, Fla.: 18 specimens of plants from southern United States (112259).
- HARRINGTON, EDWIN, Joplin, Mo.: 1 crayfish (110421).
- HARRIS, G. W., East Lynn, Mass.: 2 bees collected in East Lynn (110378).
- HARRISON, Miss CARRIE, Washington, D. C.: Square of darned net made in Quito, Peru, about 1910 (112881); wooden spoon from Norway, carved and decorated by Hans Oleson, who was 80 years old, collected by the donor in 1904 (113836).
- HARRISON, FAIRFAX, Washington, D. C.: A copy of the Southern Railway Centennial Medal, 1830-1930, by Paul Manship (113220).
- HART, Miss ESTHER H., Washington, D. C.: 1 yellow-breasted chat (111451).
- HARTWEG, NORMAN. (See under Michigan, University of, Museum of Zoology.)
- HARVARD UNIVERSITY, Cambridge, Mass.: (Through Sidney Powers) a collection of rocks from the Hawaiian Islands, obtained by Mr. Powers in 1915 (112080); a specimen of a new mineral, allodelphite (113876, exchange).
- Arnold Arboretum*, Jamaica Plain, Mass.: (Through Dr. J. G. Jack) 149 specimens of ferns collected in Cuba (110715, 112854); (through Dr. Alfred Rehder, curator of the herbarium) fragmentary specimen and photograph of plant from China (112151); 2,533 specimens of plants (115125). Exchange.
- Farlow Herbarium*, Cambridge, Mass.: 16 specimens of marine algae (114098). Exchange.
- Gray Herbarium*, Cambridge, Mass.: (Through Lyman B. Smith) 1 specimen of plant collected in Brazil (111576); 188 specimens of ferns from Brazil (112274); 1,119 specimens of plants (113212); 173 specimens of plants from Van-

HARVARD UNIVERSITY—Contd.

Gray Herbarium—Continued.

couver Island, collected by W. R. Carter (114752); 14 specimens of ferns from Costa Rica (115023). Exchange.

Mineralogy, Department of, Cambridge, Mass.: A specimen of magnesium chlorophoenicite from Franklin, N. J. (114105, exchange); specimen of cenosite from Burgess Township, Lanark County, Ontario, Canada (11448); 2 mineral specimens, joaquinite with neptunite from San Benito County, Calif., and landesite with fairfieldite and rhodochrosite, from Poland, Me. (114480). Exchange.

Museum of Comparative Zoölogy, Cambridge, Mass.: 1 Tristan rail (111897); (through Dr. Thomas Barbour) 1 paratype of a lizard from Turks Islands, Bahamas (112572); 41 bird skins from Tanganyika Territory, representing 38 forms new to our collections (113811); 1 alcyonarian (113994); 1 toad and 6 chameleons from Tanganyika (114842). Exchange; (through Dr. Thomas Barbour) 37 specimens of Atlantic deep-sea fishes collected in 1929 by Columbus O'D. Iselin (111745); (through A. Loveridge) 14 crabs, 2 hermit crabs, 150 shrimps from Africa (112540); 1 crab from Tanganyika Territory (115188).

HASKIN, LESLIE L., Brownsville, Oreg.: 2 specimens of plants, 1 moss and 1 lichen (110582).

HASTINGS AND COMPANY, Philadelphia, Pa.: 1 sample of Diamond decorative leaf, an imitation gold leaf, samples and color charts of Diamond transfer color rolls, and 2 examples of stamping with Diamond transfer color rolls, also 2 rolls of Diamond transfer color (111551).

HAUPT, Miss HOPE ELIZABETH, Lorton, Va.: A pewter medal commemorating the unveiling of the monu-

ment to Gen. Robert E. Lee, in Richmond, Va., in 1890 (114375).

HAWKS, JOSEPHINE E., New York, N. Y.: Miniature bas-relief of Abraham Lincoln (113798).

HEALD, Dr. K. C., Pittsburgh, Pa.: Collection of shipworms from Maracaibo, Venezuela, including the type of a new species and 25 isopods (97874).

HECKART, Miss SIDNEY I., Buena Vista Spring, Pa.: A collection of 144 mineral specimens from Potosi, Bolivia, assembled by the late Joseph H. Frazer (111648).

HEIDNER, Maj. S. J., Washington, D. C.: 1 ruby-throated hummingbird in the flesh (114783).

HEILFURTH, FRITZ, Mexico, D. F., Mexico: 2 lizards from Tres Marias Islands and Mexico City (112366).

HEINER, Lieut. Commander J. N., Oakland, Calif.: Leg bone of a mammoth from Kotzebue Sound, Alaska (113135).

HEINTZ AND KAUFMAN (LTD.), South San Francisco, Calif.: Radio transmitting apparatus designed and made by the donors and used in Wing Commander Kingsford Smith's airplane *Southern Cross* on both trans-Pacific and trans-Atlantic flights (111513).

HELIOTYPE COMPANY, Boston, Mass.: 2 prints in full color made by a combination of collotype and lithography (112380).

HELLWEG, Capt. J. F., U. S. Navy, Washington, D. C.: A large billet of ironwood collected on Niuafoou, South Pacific Ocean, by Lieut. H. C. Kellers, U. S. Navy (114892).

HEMAN, WILLIAM H., Cincinnati, Ohio (through Herbert Ell): 1 tablet mold and a set of avoirdupois cup weights (113996).

HENDERSON, E. P. (See under Roebling Fund.)

HENDERSON, M. R. (See under Botanic Gardens, Singapore, Straits Settlements.)

HENDERSON, W. C. (See under Department of Agriculture, Bureau of Biological Survey.)

- HEPP, FRANK**, Berwick, Ohio: Relics of the original rail structure of the Mad River & Erie Railroad, laid 1836 (113134).
- HERMAN, BERNARD**, Washington, D. C.: Senna rug from Persia (114013).
- HERON, Mrs. L. A.**, Bethel, Alaska (through Dr. Aleš Hrdlička): Double-grooved ax from McGrath, Kuskowim River, Alaska (112280).
- HERRERA, Prof. FORTUNATO L.**, Cuzco, Peru: 92 specimens of plants from Peru (111913, 112341).
- HESS, FRANK L.**, Washington, D. C.: Specimen of gold ore from Dome Mine, South Porcupine, Ontario, Canada (113976). (See also under Fernando Flores; Robert J. Grant; H. C. Kumar; W. S. March, jr.; D. William Metzlar; Carlos Augusto Monteiro de Barros; and T. A. Wellstel.)
- HEWETT, Dr. D. FOSTER**, Washington, D. C.: Specimen of fern from Nevada (114097).
- HILDEBRAND, Dr. S. F.** (See under Department of Commerce, Bureau of Fisheries.)
- HITCHCOCK, Dr. A. S.** (See under Department of Agriculture, Bureau of Plant Industry.)
- HIXSON, STANLEY F.**, Grandview, Wash.: 23 archeological specimens from the banks of the Columbia River (113264).
- HOFFMAN, RALPH.** (See under Santa Barbara Museum of Natural History.)
- HOLLISTON MILLS (INC.)**, New York, N. Y.: 1 sample roll of Glofoil, an imitation gold leaf, and 2 sample books of bookbinding cloths (110761).
- HOPKINS, Dr. ALFRED F.**, Washington, D. C.: Instrument case and 6 instruments owned during the Civil War by Dr. Nahum P. Monroe, Twentieth Maine Infantry, and a gold-headed cane presented to him in 1872 (111725). Loan.
- HOPKINS MARINE STATION**, Pacific Grove, Calif.: (Through Dr. Walter K. Fisher) 5 lots, 14 specimens of sipunculid worms, including 4 types (112395); 47 specimens of crabs from California (113993); 29 crabs and 7 hermit crabs from California (114099).
- HOPKINS, N. S.**, Williamsville, N. Y.: 6 specimens of numismatic membership tokens, struck in 1929 and 1930 (111164).
- HORTON, F. W.**, Washington, D. C.: 17 specimens of minerals (113195, exchange); uranium minerals from Spruce Pine, N. C. (113962); a large block of cyanite schist from North Carolina (115008).
- HOUGH, FRANCIS Z.**, Washington, D. C.: 2 small pieces of whale baleen, from Ocean City, Md. (111456).
- HOUGH, Dr. WALTER**, Washington, D. C.: Section of a Tartar composite bow (115022).
- HOUGH, Mrs. WALTER**, Washington, D. C.: Cotton and wool, overshot, coverlet material hand woven in Connecticut about 1830 (114517).
- HOWARD, Dr. L. O.** (See under Prof. F. Campos R.)
- HOWELL, A. B.**, Baltimore, Md.: 10 specimens of small aquarium fishes (113693); 1 Eskimo wolf-dog skull from Alaska (115239).
- HOWELL, A. H.**, Washington, D. C.: 30 land shells from North Carolina (110798).
- HRDLIČKA, Dr. ALEŠ**, Washington, D. C.: 2 ivory knives, recent, with animal effigy on handle (112283). (See also under Dr. Joseph N. Cannon; Martin Foster; Mrs. L. A. Heron; Harry Lawrence; Miss Anna Martin; George M. Pilcher.)
- HUBBELL, Prof. THEODORE H.** (See under University of Florida.)
- HUCKEL, EARLE W.** (See under F. Boyd Waters.)
- HUDSON, Dr. G. V.**, Hillview, Karori, Wellington, New Zealand: 7 specimens of rare moths (115233).
- HUDSON, Mrs. OSCAR**, Sausalito, Calif.: "Rockbound," a block print by Muriel Hudson, gift of the artist (115215).

- HUGHES FUND, BRUCE, Smithsonian Institution: A kufa, Sassanian jug of the seventh century (110773); 1 bronze archaic figurine of Marduk, Babylonia, 2200 B. C. (111699); 6 pieces of ancient Persian pottery (111747); Sumerian marble bottle with archaic inscription dating from 2300 B. C. (112081).
- HUGHES, Mrs. CHARLES E., Washington, D. C.: 1 mounted specimen of the quetzal from Guatemala (114082).
- HUGHES, J. H., Orlando, Fla.: A fresh-water bryozoan (111555).
- HUGO, E. H. (See under Meriden Gravure Company.)
- HULCHER, LOUIS F., Bethesda, Md.: Objects unearthed 18 inches beneath the surface along old highway between Panama City and Cruces; bronze weight, marked "XXX," bronze cup with cover for set of silversmith's weights, and bronze escutcheon frame (broken) (114757). Loan.
- HUMPHREYS, Prof. W. J., Washington, D. C.: A fragment weighing 162 grams of the Paragould (Ark.) meteoric stone (115117).
- HUNT, BERT L., Washington, D. C.: Indian skull from old burials near Santa Marta, northern Colombia (114705).
- HUNTER, DARD, Chillicothe, Ohio: 8 samples of handmade paper, made in the paper mill of the donor (114712).
- HUNTSMAN, Prof. A. G. (See under Canadian Government, Biological Board of Canada.)
- IDAHO, UNIVERSITY OF (through Prof. Claude Wakeland), Moscow, Idaho: 8 specimens of flies (112402).
- ILLINOIS STATE NATURAL HISTORY SURVEY, Urbana, Ill.: (Through L. R. Tehon, botanist) 2 specimens of grass from Illinois (111799); (through Herbert H. Ross) 5 specimens of flies (113417).
- INDIAN MOTOCYCLE COMPANY, Springfield, Mass.: An Indian motor cycle, the first built, made by George M. Hendee and Oscar Hedstrom, of Springfield, Mass., in 1902 (109248).
- INDRAMBARYA, BOON C., Bangkok, Siam: 25 specimens of fresh-water shrimps from United States Fisheries station, Tupelo, Miss. (110729).
- INGLES, L. G., Bakersfield, Calif.: 1 slide of trematode (112856).
- INSTITUTO BIOLOGICO, Sao Paulo, Brazil (through Dr. P. Thomas Borgmeier): 33 specimens of insects containing 22 species (113227). Exchange.
- INSTITUTO OSWALDO CRUZ, Rio de Janeiro, Brazil: (Through Dr. A. Da Costa Lima) 4 specimens of flies (110161); 1 specimen of fly (113882).
- INTERIOR, DEPARTMENT OF THE: *United States Geological Survey*: A small collection of Lower Cambrian invertebrates obtained by D. F. Hewett in the Ivanpah quadrangle, California (110110); part of a femur of a sauropod dinosaur collected by N. H. Darton from the Lower Cretaceous of Texas (110892); 2,000 specimens of Miocene gastropods and scaphopods, including types and figured specimens from the Choctawhatchee formation of Florida (111126); 143 specimens of plants from Alaska, collected by J. B. Mertie, jr. (111741); holotypes of 2 species of invertebrate fossils described by W. C. Mansfield (112171); tooth of a bison of Pleistocene age found in central Texas (112580); suite of specimens representing the formations and types of ore deposits found in the Gold Hill quadrangle, Utah (112704); 2 lots of Tertiary fossils from the areas of Punta Gorda and Puerto Mexico, comprising 459 specimens (112709); 2 specimens of fossil plants (112997); miscellaneous saline samples (113015); 78 invertebrates of Cambrian age collected by J. B. Mertie, jr., in Alaska (113374); 3

INTERIOR, DEPT OF THE—Contd.

United States Geological Survey—
Continued.

dinosaur footprints from Green River Desert, Utah (113566); 2 collections of Pleistocene aquatic and land shells, comprising approximately 880 specimens, collected in Arkansas by D. G. Thompson (113691); 62 specimens of Cambrian fossils from the Alma district, Colorado (113835); 8 lots of Cambrian fossils from the Tybo district, Nevada, and 5 lots of Upper Cambrian fossils from the Marathon Basin, Tex. (113874); about 180 specimens of Tertiary barnacles from localities in Maryland, Virginia, North Carolina, and Florida (114002); trails from the Dewey limestone, 80 feet below the top, 2.5 miles northeast of Sand Springs, Okla. (114010); 2 samples of sylvite from the U. S. Potash Company's Government lease east of Carlsbad, N. Mex. (114011); 2 boxes of miscellaneous mineral specimens (114521); miscellaneous Mesozoic crustacean material, collected by members of the Geological Survey, chiefly from the Atlantic and Gulf Coastal Plains (114647); a mass of scoriaceous lava from a Tertiary lava flow, Chisos Mountains, Brewster County, Tex., collected by N. H. Darton (114791); a miscellaneous collection of Cenozoic crustacean material collected by members of the survey staff in Florida, Texas, and Maryland (114813). (See also under Charles L. Baker, Alexander Deussen, Miss Thebe Hanson, and Prof. I. A. Keyte.)

INTERNATIONAL NICKEL COMPANY OF CANADA (LTD.), Copper Cliff, Ontario, Canada: Specimen of nickel-copper ore from Creighton Mine, Ontario, Canada (112543).

IOWA STATE COLLEGE, Ames, Iowa (through Prof. H. E. Biester): 1 fly larva found in the eyelid of a Persian cat (112538).

IOWA, STATE UNIVERSITY OF, Iowa City, Iowa: (Through Prof. G. W. Martin) 24 specimens of plants (112861); 24 specimens of plants mainly from western United States (113990). Exchange.

ITALY, GOVERNMENT OF (through Department of State): 6 specimens of Italian coins issued 1924-1928 (112026).

IVES, Prof. J. D., Jefferson City, Tenn.: 1 insect (109043).

JACK, J. G. (See under Harvard University, Arnold Arboretum.)

JACKSON, D. A., Nashville, Tenn.: 2 beetles from Tennessee (110651); 1 insect (110788).

JACKSON, HARRY N., Woodbridge, N. J.: Copper one-fourth real piece struck by the town of Caracas in 1921 (110713).

JACOBSON, Mrs. CORA LANGWORTHY, Washington, D. C. (through Mrs. Doris Bakefelt): Alaska Indian basket (115120).

JACOT, ARTHUR MONROE, Botsford, Conn.: 1 snake and 6 frogs from China (113099). (See also under Shantung Christian University, Tsinan, Sung, China.)

JAEGER, EDMUND C., Riverside, Calif.: Botanical specimen (110903).

JAPANESE FOREST EXPERIMENT STATION. (See under Forest Experiment Station.)

JAQUES, Mrs. BERTHA E., Chicago, Ill.: 51 dry points and etchings in color for special exhibition from October 6 to November 2, 1930 (111751). Loan.

JARDIM BOTANICO, Rio de Janeiro, Brazil: 417 specimens of plants from Brazil (114377); (through Miss Maria C. Bandeira) 153 plants from Brazil, collected by Doctor Ducke (114484). Exchange.

JARDIN BOTANIQUE PRINCIPAL, Leningrad, U. S. S. R.: 122 grasses and Compositae, chiefly from Mexico and Colombia (110858). Exchange.

JELLISON, WILLIAM I. (See under Treasury Department, Public Health Service.)

- JENSEN, J. K., and M. W. TALBOT, Washington, D. C.: 4 eggs of the Rocky Mountain evening grosbeak from New Mexico (111390).
- JOHNSON, Dr. DUNCAN S. (See under Dr. Robert Marshall.)
- JOHNSON, Miss FRANCES BENJAMIN, Washington, D. C.: 5 lots of broken Sandwich glass (111132). Loan.
- JOHNSON, FRANK, New York, N. Y.: 128 specimens of Lepidoptera (110707), 300 specimens of moths and butterflies, chiefly from tropical America, many new to collections (112604).
- JOHNSON, GEORGE, Washington, D. C.: 1 robin in the flesh (111394).
- JOHNSTON, W. D., Jr., Washington, D. C.: 1 specimen of blind fish from Hines, Lauderdale County, Ala. (113786).
- JONES, Mrs. COPELAND, Washington, D. C.: Collection of 23 pieces of old glassware and chinaware (115010). Loan.
- JONES, JOHN C., Washington, D. C.: 1 wood thrush from the District of Columbia (110777).
- JONES, Capt. JOHN R., Anna Maria, Fla.: 1 ring-necked snake from Anna Maria Key, Fla. (113237).
- JONES, LYND, (See under Oberlin College, Zoological Museum, Oberlin, Ohio.)
- JONES, STOCKTON W., Washington, D. C.: 2 porcelain transparencies made in Germany about 1840 (111814).
- JONES, WALDO, Chula, Va.: 5 small specimens of manganotantalite from Morefield Mine, Amelia, Va. (113784).
- JOSEPH, Rev. Brother CLAUDE, Temuco, Chile: 281 specimens of plants from Chile (111946, 114339).
- JUDAY, Dr. CHANCEY, Madison, Wis.: 6 vials of copepods, including 2 new species of parasitic copepods, obtained from fishes living in the lakes of northeastern Wisconsin (113839); 200 mysids and amphipods from Wisconsin lakes (114116).
- KANSAS STATE AGRICULTURAL COLLEGE, Manhattan, Kans. (through Prof. R. H. Painter): 1 fly larva (112037).
- KANSAS, UNIVERSITY OF, Lawrence, Kans.: 7 specimens of leafhoppers (insects), 5 of which are paratypes of 4 species (112338); 4 specimens of insects, paratypes of new species (114606, exchange).
- KARLOVICH, JOHN, Zeigler, Ill.: 1 beetle (109189).
- KEARNEY, Dr. T. H. (See under Department of Agriculture, Bureau of Plant Industry.)
- KEELEY SILVER MINES, LTD., Ontario, Canada: A large specimen of cobalt ore, showing the vein in the rock, from Silver Center, Ontario (115175).
- KEEP, F. E., Johannesburg, South Africa: A specimen of the new mineral, "maufite." (112516). Exchange.
- KEIFER, H. H. (See under California Department of Agriculture.)
- KELEHER, T. A., Washington, D. C.: 300 live silkworms (115159).
- KELLERS, Lieut. H. C. (M. C.), U. S. Navy. (See under Navy Department, Naval Eclipse Expedition to Niuafoou, 1930.)
- KELLEY, A. P., Washington, D. C.: A specimen of plant from Maryland (112084).
- KELLOGG, Dr. REMINGTON, Washington, D. C.: 1 slate-colored junco (115119).
- KELLY, Dr. E. F. (See under American Pharmaceutical Association, Inc.)
- KELSO, LEON, Washington, D. C.: 17 specimens of plants from Wyoming (114386).
- KENEDY, C. M. (See under John White, Port Isabel, Tex.)
- KENNEDY, JOHN E., Washington, D. C.: 1 barred owl in the flesh (113379).
- KEYSER, E. W., Washington, D. C.: (Through Victor J. Evans) a buffalo robe and a large Apache basket

KEYSER, E. W.—Continued.

- (111453); a lace fan bearing Spanish scenes, made in Spain in 1860 (113210).
- KEYTE, Prof. I. A., Colorado Springs, Colo. (through Department of Interior, U. S. Geological Survey): 6 specimens of fossil material from Colorado and Wyoming (114753).
- KIDDER, CAROLINE E. (See under Merle Eaton.)
- KIESS, Miss JULIA P., Washington, D. C.: Baby's coach of about 1863 (a miniature chaise) (115212).
- KILLIP, ELLSWORTH P., Washington, D. C.: 131 specimens of plants from New Jersey (111749); 272 specimens of plants collected in Peru by Guillermo Klug (111776); 2 specimens of ferns from Panama (114629).
- KIMMAN, MARTIN T., Chicago, Ill.: Early pneumatic tools invented by Henry James Kimman (1862-1921), consisting of 3 piston air drills and a 3-cylinder compressed-air engine (112722).
- KLEINSCHMIDT, Dr. OTTO, Schloss, Germany: Specimen of American crow (111106). Exchange.
- KNABENSHUE, P., Jerusalem, Palestine (through Department of State): 7 specimens of coins of Palestine, struck in 1927 (112195).
- KNIGHT, Dr. J. BROOKES, New Haven, Conn.: Paratypes of 46 species of gastropods and metatypes of 25 species of ostracods from the Coal Measures of Missouri (113394).
- KNIGHT, W. C., Jr., Columbia, Mo.: 4 specimens of mosses (113019).
- KNITBAC SERVICE COMPANY (INC.), New York, N. Y.: Motion-picture projector and reel of film for demonstrating work of the Knitbac machine (112579).
- KNOWLTON, GEORGE F. (See under Utah State Agricultural College.)
- KUHN, ANDREAS, Allenstein, East Prussia, Germany (through Department of State): 3 German aluminum 3-mark pieces, issued in 1922 (112545).
- KUMAR, H. O., Oruro, Bolivia (through Frank L. Hess): A specimen of the mineral pyrrargyrite from Colquechaca, Bolivia (112157).
- KUMM, Mrs. H. K. W., Pacific Beach, Calif.: 5 specimens of passionflower (111945; 112286); 4 paintings of plants (114466).
- KUMP, JOHN R., Washington, D. C.: Leather percussion cap box of the period of the Civil War (113588).
- KUNZ, Dr. GEORGE F. (See under Lincoln Ellsworth.)
- LABOR, DEPARTMENT OF:
Children's Bureau: A strip film, "The Preschool Days of Betty Jones," for use in supplementing the child-welfare exhibits of the section of public health (111596); 2 models—a miniature cottage institution for dependent children and a miniature maternity and child-health clinic (111962).
- LABORATORY PRESS, Pittsburgh, Pa.: 12 specimens of fine printing done by students of the Carnegie Institute of Technology (115240).
- LACROIX, Prof. A., Paris, France: 5 specimens of minerals (114627).
- LAKE, E. R., Fairfax, Va.: 1 European starling from Virginia (114471); 1 Florida gallinule from Virginia (114645).
- LAMB, ALEX. J., Lonmay, Scotland: 1 stone blade and 8 projectile points from northeastern Nevada (111973).
- LANG, W. B., Roswell, N. Mex.: A slab of limestone showing supposed ice crystal markings (111381).
- LANGWORTHY, A. E., Topeka, Kans.: Staurolites from the Mississippi region, thomsonites and chlorastrolite from Isle Royale, Lake Superior (114796).
- LANKESTER, C. H., Cartago, Costa Rica: 1 specimen of fern from Costa Rica (113779).
- DELAUBENFELS, Dr. M. W. (See under Dr. W. K. Fisher.)
- LAWRENCE, HARRY, Anvik, Alaska (through Dr. Aleš Hrdlička): Stone ax from Anvik, Alaska (112279).

- LEE, E. J., Minneapolis, Minn.: 64 samples of wood collected in Indo-China (112019); 1 sample of leatherwood (111269); 2 pieces of madrona wood from California (112611). Exchange.
- LEHIGH VALLEY RAILROAD COMPANY, Bethlehem, Pa.: A 2-inch section of the 136-pound Lehigh Valley railroad rail (113268).
- LEMAN, W. H., Norwich, N. Y.: 1 screen for taking photographs by the McDonough color process and a screen for viewing transparencies taken by the same process (111816).
- LERMOND, NORMAN W., St. Petersburg, Fla.: 2 specimens of mollusks from Florida and West Africa (112526); 10 specimens, 9 species, of fresh-water mussels from Africa and the United States (113690).
- LE SESNE, R. H., Daytona Beach, Fla.: 9 photographs of record making automobiles and their drivers who have raced at Daytona Beach, Fla., photographed by the donor and collected by T. L. Chase, Washington, D. C. (111431); an aerial photograph of Daytona Beach, Fla., scene of the World Speed Trials for Automobiles, conducted from 1904 to date (113201); 2 photographs of the *Blue Bird II*, world's record-making automobile, recently piloted by Malcolm Campbell at a speed of 245 miles an hour (113838).
- LIGON, J. STOKLEY, Carlsbad, N. Mex.: 1 skin of the lesser prairie chicken (113100).
- LILLY AND COMPANY, ELI, Indianapolis, Ind.: 48 specimens to illustrate the use of insulin in the treatment of diabetes (111796); 10 specimens of official pharmaceutical preparations (111906); 28 boxes and 21 bottles of empty gelatin capsules of various colors in 11 sizes; 4 bottles of filled gelatin globules and 12 boxes of filled elastic capsules (112529).
- LINTON, Dr. EDWIN, Philadelphia, Pa.: 6 slides of cestodes—type and cotype (114096); 225 slides (of which 108 are types) of helminths from the Tortugas (114636).
- LITTLE, ELBERT L., Jr. (See under Oklahoma Forest Service.)
- LITTLETON, F. C., Aldie, Va.: A slab of fossil footprints of Triassic age, from near Aldie, Va. (114988).
- LLOYD, Dr. J. T., Cincinnati, Ohio: A prescription balance and a set of cup Troy weights of the period of 1860 (112901). (See also under Walter Wetterstroem).
- LLOYD, ROBERT H. (See under Buffalo Numismatic Association.)
- LOCKHART, W. E., Ashland, Ky.: A specimen of gold ore from Elliott County, Ky. (115007).
- LODGE, Mrs. GEORGE CABOT, Washington, D. C.: Ancient Greek vase dating from about the fourth century B. C. (114114).
- LODGE, G. TOWNSEND, Ashtabula, Ohio: Examples of cone-in-cone formation (110727).
- LOMEN, Mr. and Mrs. CARL J., Nome, Alaska: 203 archeological specimens from the Bering Sea region (113787).
- LOPEZ, A. W. (See under Philippine Sugar Association.)
- LOS ANGELES, CALIF., AGRICULTURAL COMMISSIONER: 12 insects (112059).
- LOUISIANA STATE UNIVERSITY, Baton Rouge, La.: 1 insect (113983).
- LOVERIDGE, A. (See under Harvard University, Museum of Comparative Zoölogy.)
- LOWE, HEIRS OF THADDEUS S. C. (through Mrs. Henry M. Brownback): Relics and illustrations of the aeronautical work of Thaddeus S. C. Lowe, noted American aeronaut, who organized the first American Air Corps during the Civil War (110000).
- LOWE, LEON P. (See under heirs of Thaddeus S. C. Lowe.)
- LOWE, THADDEUS. (See under heirs of Thaddeus S. C. Lowe.)
- LUEDERWALDT, Dr. H. (See under Museu Paulista, Sao Paulo, Brazil.)

- LUQUER, THATCHER T. P., Bedford Hills, N. Y.: Bronze medalet commemorating the two hundred and fiftieth anniversary of the purchase of the site of the town of Bedford, N. Y. (113120).
- LUTZ, Dr. ADOLPHO, Rio de Janeiro, Brazil: A collection of frogs from Brazil (111563).
- LYNCH, JAMES E., Stillwater, Okla.: 6 specimens of crayfishes, collected by the donor (111403).
- LYON, Dr. M. W., Jr., South Bend, Ind.: Skin and skull of a skunk and skin and skull of a bat, from Indiana (112550). (See also under Henry A. Duncker.)
- LYONNET, E., Colonial del Valle, Mexico, D. F.: 303 specimens of plants from Mexico (110572).
- MACCALLUM, Dr. G. A., Baltimore, Md. (through Dr. W. G. MacCallum): 15 slides of helminths, 11 being types and paratypes of 4 new species (111273).
- MACCALLUM, Dr. W. G. (See under Dr. G. A. MacCallum.)
- MACDONALD, PETER, Hybla P. O., Ontario, Canada: A large specimen of the mineral ellsworthite (111769).
- MAGINITIE, G. E., Hopkins Marine Station, Pacific Grove, Calif.: 27 isopods, 4 crabs, 1 hermit crab, 100 mysids, and 40 shrimps (114724). Exchange.
- MCATEE, W. L., Washington, D. C.: 4 specimens of plants from Great Falls, Md. (112394).
- MCCAMPBELL, SAM C. (See under Colorado State Agricultural College.)
- MCCOY, Mrs. JOSEPH S., Beltsville, Md.: 3 early calculating machines, including a Frank S. Baldwin machine built before 1876, a Michael Bouchet machine of about 1885, and a W. T. Odhner arithmometer of about 1890 (113246).
- MCCRARY, O. F., Raleigh, N. C.: 1 specimen of plant (111568).
- MCFADDEN, HARVIN E., Hagerstown, Md.: Skull of a moose from Ontario (111146).
- McGLANNAN, Mrs. ALEXIUS, Baltimore, Md.: Japanese costumed doll collected by the donor's father, H. L. Law., U. S. N., in 1876 (114482).
- MCGREGOR, R. C. (See under Philippine Government, Bureau of Science.)
- MCGUIRE, ESTATE OF JAMES C.: Jewelry, furniture, and miscellaneous relics, formerly on loan (10 specimens) (109032). Bequest.
- MCGUIRE, Miss MARY M., New York, N. Y.: Mahogany worktable owned by Dolly Madison (114248).
- McINTOSH, A. C., Rapid City, S. Dak.: 8 specimens of land shells from South Dakota (113819).
- McKEE, FRED W., Long Beach, Calif.: 1 buffalo skull from Bowman, N. Dak. (111963).
- McLELLAN, GEORGE M., Lodi, Calif. (through Dr. F. H. H. Roberts, jr.): Woman's yucca fiber skirt of the Basket Maker II period from Tseot-tso Cave, Canyon del Muerto, Ariz. (112183).
- McNAIR, JAMES B., Chicago, Ill.: 2 of the donor's bookplates by James Cady Ewell (114754).
- MACALESTER COLLEGE, St. Paul, Minn.: 1 skin of the so-called Japanese robin of the cage-bird trade (113272). Exchange.
- MAIL, Prof. G. ALLEN. (See under University of Montana.)
- MAINE FOREST SERVICE, Augusta, Me. (through H. B. Pierson, State entomologist): 100 insects, moose ticks (110120).
- MALLINSON AND COMPANY (INC.), H. R., New York, N. Y.: 12 samples of novelty silk crêpe dress fabrics printed in Moroccan designs, and 1 sample of plain silk chiffon for draping (112893).
- MALLOCH, J. R., Washington, D. C.: 2 flies, types of a new species (112388); 6 specimens of flies (112594); 1 specimen of fly, paratype of a species (112595); 4 flies, type of 1 genus (113393).
- MANTER, H. W., Lincoln, Nebr.: 11 slides of type specimens of trematodes from marine fishes of Beaufort, N. C. (114985).

- MARBLE CHAIR COMPANY, B. L., Bedford, Ohio: An H-16 seaplane propeller, manufactured by the donors during the World War (110480).
- MARCH, W. S., Jr., Chuquicamata, Chile (through Frank L. Hess): A specimen of the mineral quetenite from Chile (114009).
- MARIS COMPANY, JOHN M., Philadelphia, Pa.: 10 specimens of pharmaceutical equipment (113827).
- MARSHALL, BYRON C., Imboden, Ark.: 37 specimens of fishes from various localities (111691, 112620); 4 specimens of earthworms and 6 insect larvae (114460).
- MARSHALL, ERNEST B., Laurel, Md.: 2 warblers from Laurel, Md. (111396).
- MARSHALL, GEORGE, Laurel, Md.: 3 small mammals from Maryland (110865); 1 skeleton of meadowlark and skin of orange-cheeked wax-bill (111392).
- MARSHALL, Dr. PATRICK, Wellington, New Zealand: Specimen of phonolite containing the mineral ameleite from New Zealand (110726); 6 specimens of minerals and rocks from New Zealand (114481). Exchange.
- MARSHALL, Dr. ROBERT, Baltimore, Md. (through Dr. Duncan S. Johnson): 2 specimens of plants from Alaska (110394).
- MARTIN, Miss ANNA, Bethel, Alaska (through Dr. Aleš Hrdlička): Eskimo doll, dressed (112282).
- MARTIN, A. G., Clarksburg, W. Va.: 5 specimens of brook silverside (110866).
- MARTIN, CHARLES H., Whittier, Calif.: 1 fly (110072).
- MARTIN, Prof. G. W. (See under Iowa, State University of.)
- MARTIN, WILL K., Washington, D. C.: 1 portable sewing machine, No. 28241, without stand, made by the White Sewing Machine Company, Cleveland, Ohio (114115).
- MARTYNOV, Dr. A. B. (See under Zoological Museum, Academy of Sciences, Leningrad, U. S. S. R.)
- MARYLAND GEOLOGICAL SURVEY, Baltimore, Md.: Types and figured specimens of Upper Cretaceous invertebrates (114711). Deposit.
- MASON, Mrs. MARGARET FARNHAM, Newton Heights, Mass.: China fruit dish owned by Daniel Webster when Secretary of State, 1850-1852 (111813).
- MATTHEWS, Mrs. E. O., and DAUGHTERS, New York, N. Y. (through Miss Lillian E. Matthews): A silver niello-work teapot and basketry tea cosy, presented to the late Rear Admiral E. O. Matthews, U. S. Navy, by the King of Siam, the late Chulalongkorn (114610).
- MATTHEWS, Miss LILIAN E. (See under Mrs. E. O. Matthews and daughters.)
- MAVROMOUSTAKIS, G. A., Limassol, Cyprus: 27 named insects, including 10 species, from Cyprus (115234). Exchange.
- MAXON, Dr. WILLIAM R., Washington, D. C.: 9 specimens of moss from England (112082).
- MAY, Dr. RENEL, Jackson, Miss. (through W. H. Monroe): A fossil shell from Moodys Branch, Jackson, Miss. (112743).
- MEDICUS, PHILIP, New York, N. Y.: 13 numbers of Camera Work (115141).
- MELL, C. D., New York, N. Y.: 3 specimens of plants from Mexico 110688, 110692, 114347). (See also under Philippine Mahogany Association, Inc.)
- MELSON, N. S., Duck, N. C.: 5 small plates of baleen (95991).
- MERCK AND COMPANY (INC.), Rahway, N. J.: 7 specimens of official chemical drugs (112258).
- MERIDEN GRAVURE COMPANY, Meriden, Conn. (through E. H. Hugo): 5 prints and 1 pamphlet, examples of collotype (113399).
- METTLER COMPANY, LEE B., Los Angeles, Calif.: Industrial gas burner and photographs of installations (112298).

- METZELAR, D. WILLIAM**, Oruro, Bolivia (through Frank L. Hess): 2 mineral specimens from Porvenir de Huanuni Mine, Huanuni, Bolivia (112747).
- MEXIA, Mrs. YNES**, Berkeley, Calif.: (Through Mrs. H. P. Bracelin) 65 specimens of plants from Mexico (111802; 114182; 114490).
- MEYER, WILLIAM C.**, New York, N. Y.: 10 specimens of ferns from British Honduras (114236).
- MICHIGAN STATE COLLEGE**, East Lansing, Mich. (through R. H. Pettit): 3 specimens of flies from cherry trees in Michigan; 2 specimens of fly larvae (110684, 113000).
- MICHIGAN, UNIVERSITY OF**, Ann Arbor, Mich.: 37 specimens, representing 18 species, of Devonian fenestellids from Michigan (112890, exchange—in part); (through Prof. H. H. Bartlett) 182 specimens of plants from Tamaulipas, Mexico (112896); specimen of fern from Costa Rica (113384); 341 specimens of plants collected in Tamaulipas by H. H. Bartlett (113396); 2 reconstructions of the heads of pterosaurs, *Brachysuchus* and *Rhytiodon* (113513), exchange; (through Norman Hartweg) 1 turtle from Texas (114771); (through E. P. Creaser) about 30 specimens of amphipods, being part of the type lot of a species described by Prof. A. S. Pearse (115214).
- MILLARD, OLIVER J.**, San Francisco, Calif. (through Dr. Charles E. Burt): 1 scorpion, collected 3 miles north of San Rafael, Calif. (111565).
- MILLER, GERRIT S., Jr.**, Washington, D. C.: 1 specimen of plant from New York (111941).
- MILLER, W. B.** (See under Department of Agriculture, Bureau of Biological Survey.)
- MILLS, EDWIN W.**, Seymour, Mo.: A notched, chert implement found on a village site near Bell Springs, on the James River, 6 miles south of Marshfield, Webster County, Mo. (114382).
- MINNESOTA, UNIVERSITY OF**, Minneapolis, Minn.: 1 fly larva from Minnesota (112074); 414 specimens of plants from Minnesota (113580, 114912). Exchange.
- MISSISSIPPI DEPARTMENT OF ARCHIVES AND HISTORY**, Jackson, Miss.: Skeletal material and small lots of potsherds collected by James A. Ford and Moreau B. Chambers from various sites in western Mississippi and a few turkey bones (114526).
- MISSOURI BOTANICAL GARDEN**, St. Louis, Mo.: (Through Dr. Adele L. Grant, acting curator of the herbarium) 609 specimens of plants; 4,703 specimens of plants from the United States, chiefly collected by E. J. Palmer (111914, 112837); 1,396 specimens of United States plants (113128); 1 specimen of plant from Mexico (113981). Exchange.
- MISSOURI, UNIVERSITY OF**, Columbia, Mo.: 32 beetles (113573).
- MITCHELL, Master EDWARD OTIS, MARY WEBSTER MITCHELL, and RACHELL MITCHELL**, Guantanamo, Cuba: 106 lots, about 150 specimens, of marine and land shells and 1 worm tube, from Guantanamo, Cuba (111354).
- MITCHELL, MARY WEBSTER.** (See under Master Edward Otis Mitchell.)
- MITCHELL, RACHELL.** (See under Master Edward Otis Mitchell.)
- MOHL, JOHN M.**, Washington, D. C.: An "A" tuning fork from Germany (115000).
- MOLL, Dr. ING. FRIEDRICH**, Sudende-Berlin, Germany: 5 valves of mollusks (114755).
- MONOD, Dr. TH.** (See under Muséum National d'Histoire Naturelle, Paris, France.)
- MONROE W. H.** (See under Dr. Renel May.)
- MONTANA, UNIVERSITY OF**, Bozeman, Mont.: (Through Prof. G. Allen Mail) 3 flies—spider parasites (110805); 46 miscellaneous insects (114142).

- MOORE, Dr. E. C., Memphis, Tenn.: 124 specimens of plants from Tennessee (109918).
- MOORE, JOHN A., Washington, D. C.: 30 amphipods from Tidal Basin, Washington, D. C. (115161).
- MOORE, Dr. RILEY D. (See under Dr. Esther Bebout.)
- MORAES, Dr. LUCIANO J., Rio de Janeiro, Brazil: A small diamond with inclusions of quartz from Minas Geraes, Brazil (113371).
- MORAVSKE ZEMSKE MUSEUM, Brno, Czechoslovakia (through Prof. Dr. Frant. Pospisil): 10 dyed eggs and a painting showing the process, from Czechoslovakia (113293). Exchange.
- MORGAN, Mrs. EDWIN L., Washington, D. C.: 1 buffalo robe, 1 pair of buffalo horns, 1 elk antlers and portion of skull, 1 sperm whale tooth and 2 ethnological specimens (115126).
- MORRIS, Dr. ROBERT T., Ojai, Calif.: 1 mink skin (113564).
- MORRISON, Dr. HAROLD, Washington, D. C.: 103 specimens of insects, mostly myriapods, collected in Carter Caves in eastern Kentucky in August, 1930 (112728).
- MORTON, ETTA MARGARET HILL (Mrs. Isaac Carrington Morton), Staunton, Va.: A cotton-print applique quilt made in 1847 by ladies of the Presbyterian Church of Maltaville, Saratoga County, N. Y., for the pastor's wife, Mary Benton Barnard Hill, grandmother of the donor (109459); an indelible ink drawing on linen, "St. John's Church, Richmond, Va.," and outfit for making such a drawing (112085).
- MOSS, Rev. A. MILES, Windemere, England: 33 specimens of plants from Brazil (112379; 112628).
- MUHTAR, AHMET. (See under Government of Turkey.)
- MULVANIA, MAURICE, Orlando, Fla.: 1 specimen of plant (110891); specimen of plant from Florida (111780). (See also under Department of Agriculture Bureau of Entomology.)
- MULVANEY, S. J., Asheville, N. C.: 3 samples of olivine from Balsam Gap, N. C. (114822).
- MUNCHMAYER, Miss FANNIE, Washington, D. C.: 6 pieces of handwork of Dorothea Seestadt, made in 1848-1850 as a scholar in Lubeck, Germany (112391).
- MUNGER'S GIFT SHOP, Asheville, N. C.: 8 pieces of pottery made by W. B. Stephen, Pisgah Forest Pottery, Asheville N. C., during 1931 (115121).
- MUNRO, H. K., Pretoria, South Africa: 18 specimens of flies from South Africa (112706); 22 specimens of flies, representing 14 species, including paratypes of 3 species (114625). Exchange.
- MUNZ, Prof. PHILIP A. (See under Pomona College, Claremont, Calif.)
- MUNZER, AUGUST C., Jr., Baltimore, Md.: Antique Japanese silver coin (111363).
- MURILLO, Dr. LUIS MARIA, Bogota, Colombia: 20 specimens (2 species) of land and fresh-water mollusks and 57 specimens of insects from Colombia (110652).
- MURRAY, ARLTON, Washington, D. C.: A skull of a fossil cetacean from the Calvert formation, Miocene, near Camp Roosevelt, Chesapeake Bay, Md. (114713).
- MUSEE PHYSIOGRAPHIQUE, Academie Polonaise des Sciences, Krakow, Poland: 7 specimens of plants from Poland (113663). Exchange.
- MUSEO NACIONAL, San Jose, Costa Rica (through J. Fid Tristan, director): 17 miscellaneous insects from Costa Rica: 1 butterfly (110685, 110838).
- MUSEO NACIONAL DE HISTORIA NATURAL, Buenos Aires, Argentina: 29 specimens of crabs (92490); 159 specimens, 50 species, of land, fresh-water and marine mollusks from South America (112173); 15 specimens of mollusks from South America (112721). Exchange.
- MUSEU PAULISTA, Sao Paulo, Brazil: (Through Dr. H. Luederwaldt) 26 specimens of annelids, including

- MUSEU PAULISTA—Continued.
holotypes of 3 new species and cotypes of 1 new species; 2 anemones and 1 tube of a new species from Brazil being described by Dr. O. Carlgren (92626, 113964); 1 specimen of flycatcher from Brazil (111550, exchange).
- MUSÉUM NATIONAL D'HISTOIRE NATURELLE, Paris, France: 1 iris glossy starling from West Africa (111723); (through Dr. Th. Monod) 9 specimens of isopods from France (113660). Exchange.
- MUSEUM OF SCIENCE AND INDUSTRY, New York, N. Y.: The *Bremen*, the Junkers monoplane in which Baron Ehrenfried Guenther von Huenefeld and Capt. Herman Koehl, of Germany, and Comdt. James Fitzmaurice, of Ireland, made the first westbound Atlantic flight, from Baldonnel Airdrome, Dublin, Ireland, to Greeneley Island, Newfoundland, April 12-13, 1928, in 36 hours 30 minutes (113830). Loan.
- MYERS, FRANK J., Ventnor, N. J.: 30 slides of rotifers, including the types of 2 new species described by Har- ring and Myers and paratypes of 13 species described by Myers (113578).
- NAGEL, HANS. (See under Alston Clapp, sr.)
- NATIONAL AERONAUTIC ASSO- CIATION, Washington, D. C.: Bar- ograph carried in the *Spirit of St. Louis* during the historic flight of Col. Charles A. Lindbergh from New York to Paris, May 20-21, 1927 (112461). Loan.
- NATIONAL GEOGRAPHIC SOCIETY, Washington, D. C.: Collection of archeologica from Arizona (108625); 151 specimens of plants from Vene- zuela collected by Ernest G. Holt (110738); 670 bird skins, 7 mammal skins and 10 skulls, and 570 num- bers of herbarium specimens from Venezuela-Brazil border collected by E. G. Holt (111531); 180 birds from Venezuela collected by E. G. Holt (112017); 1,056 bird skins, 49 alco- holic birds, 11 birds' eggs, 2 mammal skins, and 3 skulls, alcoholic mam- mals, alcoholic reptiles, various in- sects, and 4 packages of herbarium specimens collected by E. G. Holt (114620).
- NATIONAL MUSEUM, Victoria, Aus- tralia: 67 bird skins from Australia (111525, 113390). Exchange.
- NATURHISTORISCHE MUSEUM, Vienna, Austria: 410 specimens of chalcid flies, representing 216 species (114749). Exchange.
- NATURHISTORISKA RIKSMU- SEET, Stockholm, Sweden: 152 spec- imens of mosses from Brazil (112988); 614 specimens of plants, chiefly from tropical America (113243); 70 Ecuadorean bird skins, representing 46 species (113658). Exchange.
- NAVY DEPARTMENT, Naval Eclipse Expedition to Niuafuoo, 1930 [through Lieut. H. C. Kellers (M. C.) U. S. N.]: 32 mammals, 212 birds, 39 eggs, 280 reptiles, 238 fishes, a collection of mollusks and marine invertebrates, 49 lots of echinoderms, 436 insects, 14 jars of plants (mostly algae), a collection of lava, and sev- eral pieces of ethnological material from the island of Niuafuoo (109644); 3 early wooden sextants and 1 of recent design (110828; deposit); 2 dirigible airship prop- ellers, one right-hand and one left- hand, formerly used in the U. S. N. A. S. *Shenandoah* (111497).
- NAVAL MEDICAL SCHOOL, U. S., Washington, D. C.: 3 snakes from President Hoover's camp on the Rapidan River, Va. (115166).
- NEELD, A. D., Jr., Plum Point, Md.: 2 Japanese cloisonné vases collected about 1900 and a carved elephant tusk vase by To-San (111342). Loan.
- NELSON, Prof. AVEN, Laramie, Wyo.: Specimen of plant from Arizona (113020).
- NEVADA - MASSACHUSETTS COM- PANY, Mill City, Nev.: 2 large specimens of tungsten ore (114374).
- NEVEL, W. D., Andover, Me.: A specimen of the mineral amblygonite from Newry, Me. (113596); a speci-

- NEVEL, W. D.—Continued.
men of the mineral herderite from Maine (114715).
- NEVILLE, Miss MAUDE. (See under Mr. and Mrs. Olin L. Crook.)
- NEW HAVEN CLOCK COMPANY, New Haven, Conn.: New Haven-Westinghouse electric clock with Westminster chime and hour strike and New Haven-Westinghouse sub-synchronous clock motor of 1/300 horsepower (112990).
- NEW MEXICO COLLEGE OF AGRICULTURE AND MECHANIC ARTS, State College, N. Mex. (through Dr. J. R. Eyer): 12 specimens of land mollusks from New Mexico (112619).
- NEW YORK BOTANICAL GARDEN, New York, N. Y.: (Through Dr. N. L. Britton) 26 specimens of plants from Porto Rico (111400); 1 specimen of plant (111757); (through Dr. H. A. Gleason) 6 negatives of a plant (112531); 1 specimen of plant from Porto Rico (112614); 299 specimens of plants collected on Mount Duida, Venezuela, by G. H. H. Tate (113801); 632 specimens of algae, chiefly from Porto Rico (114016); 8 fragmentary specimens and 11 photographs of type specimens of ferns from Venezuela and British Guiana (115150). Exchange.
- NEW YORK CAMERA CLUB, New York, N. Y.: 55 pictorial photographs for special exhibition during February, 1931 (113829). Loan.
- NEW YORK STATE COLLEGE OF FORESTRY, Syracuse, N. Y.: 1 blue-print copy of a chart of anatomical data on the commercial hardwoods of the United States, size about 29 by 43 inches (114706). Exchange.
- NEW YORK STATE MUSEUM, Albany, N. Y.: A specimen of plant collected in New York (111561, exchange); 4 specimens of starfishes from the Devonian Saugerties, N. Y. (114598).
- NEW YORK TIMES, New York, N. Y.: "The New York Times" Ant-arctic and aviation exhibit (384 specimens; photographs, labels, a map of Antarctica and a globe on which are marked 57 famous flights), for special exhibition September 15 to October 30, 1930 (109968). Loan.
- NICHOLSON, C. A., Washington, D. C.: 1 widgeon from Currituck Sound, N. C. (113198).
- NISBET, ROBERT H., South Kent, Conn.: 51 etchings and dry points, for special exhibition from March 2 to 29, inclusive (113603; loan); 2 etchings by the donor, "Moonlit Skies" and "Fisherman, Lake Tohopekaliga" (114341); 2 etching points, one a glass point in a hard rubber handle, and the other an ordinary Starrett "Scriber" (114708).
- NORTH BILLERICA COMPANY, North Billerica, Mass. (through Department of Agriculture, Bureau of Home Economics): 15 specimens showing stages in the manufacture of an all-wool blanket and 1 finished silk-bound blanket Style 770 (115209).
- NORTH CAROLINA STATE MUSEUM, Raleigh, N. C.: Slab from an iron meteorite and small slice from a stony meteorite (113810). Exchange.
- NORTH CAROLINA, UNIVERSITY OF, Chapel Hill, N. C.: Specimen of plant (112041).
- NORTH DAKOTA, UNIVERSITY OF, Grand Forks, N. Dak. (through Prof. G. C. Wheeler): 1 vial of insects (110806).
- NORTH GERMAN LLOYD, New York, N. Y.: Model of the S. S. *Bremen* (111994).
- OBERLIN COLLEGE, ZOOLOGICAL MUSEUM, Oberlin, Ohio (through Lynds Jones): 1 mounted Forster's tern, from the District of Columbia (103582). Exchange.
- OFICINA FEDERAL PARA LA DEFENSA AGRICOLA, San Jacinto, D. F., Mexico: (Through Ing. Foo. Garcia Robledo) 1 specimen of plant from Vera Cruz, Mexico (111260);

- OFICINA FEDERAL PARA LA DEFENSA AGRICOLA—Continued.
14 specimens of flies, types of a new species (112038).
- OGLOBLIN, A. A., Misiones, Argentina: 2 beetles (114072).
- OKLAHOMA FOREST SERVICE, Broken Bow, Okla. (through Elbert L. Little, jr.): 104 specimens of plants from southeastern Oklahoma (111259).
- OLDROYD, IDA S., Stanford University, Calif.: 11 specimens of fossil crab material from the Philippines (112842).
- OLMSTED, Dr. CHARLES M., Buffalo, N. Y.: An Olmsted propeller embodying smooth slipstream characteristics designed by the donor (111564).
- O'NEILL, Father HUGH. (See under Catholic University of America.)
- ÖPIK, Prof. A., Tartu, Estonia: 87 specimens of fossil brachiopods from Estonia (114106). Exchange.
- OSTROWSKY, ABBO, New York, N. Y.: 25 etchings and drawings, for special exhibition from January 5 to February 1, 1931 (112844). Loan.
- OVERTON, Dr. GEORGE N., Georgetown, Grand Cayman, British West Indies: 1 spider crab collected by the donor on Grand Cayman (112049).
- OWENS, J. E., Fort Yukon, Alaska: 3 implements of Eskimo manufacture (arrowhead, scraper, and knife) (110568).
- PACIFIC BIOLOGICAL LABORATORIES, Pacific Grove, Calif.: Specimens of crustaceans and other marine invertebrate material consisting of approximately 1,081 amphipods, 195 isopods, 19 pycnogonids, 11 shrimps, 2 porcellanids, 10 copepods, 8 marine annelids, 1 ascidian, 10 larvae, 21 decapods, 3 ostracods, 101 barnacles, 9 nebalia, 2 crabs, 3 parasitic copepods, 30 cumaceans, 7 brachiopods, 113 specimens of marine mollusks, 1 medusa with barnacle attached, and 1 munida from the California coast (110306, 110391, 110416, 111698, 112623, 113295).
- PAINTER, Prof. R. H. (See under Kansas State Agricultural College.)
- PAN AMERICAN UNION, Washington, D. C. (through Franklin Adams): 7 photographs of Miss Abigail Parecis in a costume of Museum specimens (110867).
- PANNING, Dr. A. (See under Zoologische Staatsinstitut und Zoologische Museum.)
- PARENT, ABBE O., Pas de Calais, France: 17 flies (112371). Exchange.
- PARKE, DAVIS AND COMPANY, Detroit, Mich.: 1 specimen of solution of adrenalin chloride, 1:1000 (112017); 7 specimens of pharmaceutical preparations (113885).
- PARR, Dr. A. E. (See under Bingham Oceanographic Collection.)
- PARRIS, W. G., Wirmingham, Tenn.: 60 lots, 74 specimens, of land and fresh-water mollusks from Pickett County, Tenn. (113689).
- PATTEN, JULIET C., Washington, D. C.: 22 drawings of plants (114827).
- PEABODY MUSEUM, Cambridge, Mass.: Archeological material collected from Basket Maker caves in Arizona and in the state of Coahuila, Mexico (108499). Exchange.
- PEARSE, Dr. A. S., Durham, N. C.: A fossil crab, 1 isopod, 3 specimens of insects, types and cotype of 2 species described by donor, 4 microscopic slides and 1 vial (types and paratypes) of trematodes from China (110588); 11 lots, 102 specimens, of land, fresh-water, and marine mollusks, a collection of marine invertebrates, including approximately 150 crabs, 3 fishes, and 2 frogs from Indian and China (112396).
- PEEBLES, Miss A. B., Washington, D. C.: Silver teapot and cream pitcher of the early part of the nineteenth century (112018). Loan.
- PEERLESS ROLL LEAF COMPANY (INC.), Union City, N. J.: 17 specimens of stamping bookbindings with flat Genuine Gold, Peerless Genuine Roll Gold, flat imitation Tissue Leaf, and Peerless Roll Leaf (113791).

- PELL, ALFRED DUANE, New York, N. Y.: Brocade silk dress worn by Mrs. James Duane at a ball given in New York City on the occasion of the inauguration of President George Washington in 1789 (114933). Bequest.
- PENDLETON, JOHN, Washington, D. C.: A model, $\frac{1}{8}$ size, of a Deperdussin seaplane, the first winner of the Schneider Trophy at Monaco in 1913 (114519).
- PENNSYLVANIA RAILROAD, Philadelphia, Pa.: (Through Daniel M. Sheaffer, chief of passenger transportation) copy of a painting showing the coordination between the railroad and air-transport systems (112535); 2 2-inch sections of rails, 100 and 130 pounds to the yard, respectively, showing the type now in use by donors (112864).
- PENNSYLVANIA, UNIVERSITY OF, Philadelphia, Pa.: 2 specimens of condor bones from University Museum (112375, loan); 55 specimens of plants from Massachusetts (113545, exchange).
- PEPPERELL MANUFACTURING COMPANY, Boston Mass.: A model, on scale of $\frac{1}{12}$, illustrating the production, transportation, and manufacture of cotton, constructed by Royal Rook, Garden City, N. Y.; also a scenic painting on canvas to form background of model, painted by Gates & Morange, New York City (113395).
- PERKINS, DR. ANNE E., Helmuth, N. Y.: 12 specimens of plants (111739).
- PERKINS, PROF. EARLE B., New Brunswick, N. J.: 14 specimens of amphipods taken in a greenhouse at Flemington, N. J. (114478).
- PERRY, WALTER J., Bend, Oreg.: Basketry fragments from Barlow Cave, six miles northeast of Bend, Oreg. (114091).
- PERRYGO, WATSON M., Washington, D. C.: 58 specimens of mollusks from Oxen Hill, Md. (112517).
- PETELOT, Prof. A., Hanoi, Tonkin, Indo-China: 148 specimens of plants from Indo-China (112544). Exchange. (See also under École Supérieure d'Agriculture, Hanoi, Tonkin, Indo-China.)
- PETTIT, Prof. R. H. (See under Michigan State College.)
- PHILADELPHIA ELECTRIC COMPANY, Philadelphia, Pa.: Model of the Conowingo Hydro-Electric Development on the Susquehanna River at Conowingo, Md., also the exhibition case and a group of framed photographs pertinent to the project (113963).
- PHILIP, Hon. HOFFMAN, Washington, D. C.: Collection of ethnological specimens from Abyssinia that have been in the Museum as loans, and 12 additional specimens recently acquired (111772).
- PHILIPPINE ISLANDS GOVERNMENT:
Bureau of Forestry, Manila: 132 study samples of Philippine woods (111940).
Bureau of Science, Manila: (Through R. C. McGregor) 1,202 specimens of miscellaneous insects, a few shells, and some marine invertebrates (110575, 111808).
- PHILIPPINE MAHOGANY ASSOCIATION (INC.), New York, N. Y. (through C. D. Mell, secretary): A specimen of plant from Mexico (111711).
- PHILIPPINE SUGAR ASSOCIATION, La Carlota, Occ. Negros, Philippine Islands (through A. W. Lopez): 18 miscellaneous insects from the Philippine Islands (108032); 12 specimens of flies (110186, 111351); 16 beetles from the Philippines (110817).
- PIERSON, H. B. (See under Maine Forest Service.)
- PICKEL, Prof. D. BENTO, Pernambuco, Brazil: 84 specimens of plants from Brazil (113255).
- PICKENS, A. L., Berkeley, Calif.; 5 vials of miscellaneous insects (114087).

- PIERCE, Dr. W. DWIGHT, Washington, D. C.: 104 insects, 2 vials of myriapods, crustaceans, mollusks, and nematodes, collected in Hawaii (111594); 109 lots, 885 specimens of land, fresh-water, and marine mollusks from the Philippine Islands (111743).
- PILCHER, GEORGE M., Marshall on the Yukon, Alaska (through Dr. Aleš Hrdlička): 8 implements from Alaska (112278).
- PINCHOT, Hon. GIFFORD, Washington, D. C.: 2 eggs of the red, blue, and yellow macaw (111958).
- PITTIER, Prof. H., Caracas, Venezuela: 25 specimens of plants (111756); 31 specimens of miscellaneous insects from Venezuela (114210).
- PITTS, WILLIAM B., Sunnyvale, Calif.: Approximately 150 pounds of orbicular jasper from California (111323, exchange).
- PIZZINI, ANDEEW, Washington, D. C.: 162 amphipods taken from outlet of a spring west of Georgetown, D. C. (110731).
- PLACE, Dr. PHILIP. (See under Dr. F. Cautin.)
- PLUMMER, Mrs. F. B., Austin, Tex.: Type specimens of 5 species of foraminifera from Bridgeport, Tex. (111786).
- PODGETT, RODNEY, Winston-Salem, N. C. (through Dr. R. E. Coker): 2 specimens of amphipods from North Carolina (114511).
- POLAND, REPUBLIC OF (through M. Zagrodzki and U. S. Department of State): 4 coins of the Republic of Poland, struck 1925-29 (110759).
- POMONA COLLEGE, Claremont, Calif. (through Prof. Philip A. Munz): Specimen of fern from California (113127). Exchange.
- PONTON, GERALD M. (See under Florida State Geological Survey.)
- POPE, J. B., Piura, Peru: 26 beetles from South America (110844).
- POPENOE, C. H., Silver Spring, Md.: 1 gray-headed love bird (112376); 2 young Lilian's love birds, with faulty feathering (112560); 2 love birds (113101); 375 specimens of United States plants (113121); 2 love birds in the flesh (114355).
- POPENOE, W. P., Pasadena, Calif.: 3 specimens of Eocene fossil shells from California (115190). Exchange.
- POPOVICI, Dr. ANDREI. (See under Rumanian Government.)
- PORTO RICO, UNIVERSITY OF, Mayaguez, P. R. (through Stuart T. Danforth, professor of zoology): 20 specimens of mosquitoes (112057).
- POSPISIL, Prof. Dr. FRANT. (See under Moravske Zemske Museum, Brno, Czechoslovakia.)
- POST OFFICE DEPARTMENT: Belgian air-mail stamps of the following denominations, issued 1930: 50 centimes, 1 franc 50 centimes, 2 francs, and 5 francs (110712); 12 sets of specimen stamps, etc., in triplicate (5,921 specimens), received from the International Bureau of Universal Postal Union, Berne, Switzerland (110757, 111127, 111464, 111685, 112146, 112839, 113364, 113982, 114017, 114094, 114640, 114800); 3 specimens each of the following United States postage stamps: 4-cent ordinary, portrait of Taft, issue of 1930, and 2-cent Battle of Braddock commemorative, issue of 1930 (111341); collection of pistols and revolvers (10 specimens) (112225); 2 specimens each of the 10-cent air-mail and 20-cent air-mail Canal Zone administration postage stamps, 4 specimens in all (114208).
- POWERS, SIDNEY. (See under Harvard University, Cambridge, Mass.)
- PREBLE, EDWARD A., Washington, D. C.: 15 wasps and 1 nest from New Hampshire (110846).
- PRECANCEL STAMP SOCIETY, New Berlin, N. Y. (through Walter G. Gates): 1920 precanceled United States postage stamps (114776).
- PRIEST, Capt. CECIL D., Southern Rhodesia, South Africa: 1 bird (honey guide) (114525). Exchange.

- PRINADA, V., Leningrad, U. S. S. R.: 104 beetles representing 37 species from Russia (111794). Exchange.
- PRYOR, EDWARD, Washington, D. C.: 1 spring lancet, a seventeenth-century import from Wales (112827).
- PUBLIC BUILDINGS AND PUBLIC PARKS OF NATIONAL CAPITAL, OFFICE OF, Washington, D. C.: Wood samples of the black high blueberry grown in the Smithsonian grounds (112613). Transfer.
- QUEEN, JOHN C., Marshfield, Oreg.: 18 lots, 25 specimens of crustaceans (111135); 6 medusae, 2 anemones, 2 sponges, 8 marine annelids, 2 sipunculid worms, 25 barnacles, 1 ascidian, 25 worm tubes, 3 fishes, and a small collection of marine mollusks from Oregon (112334); approximately 250 shrimps collected by the donor (113560).
- QUILIS, MODESTO, Burjasot, Valencia, Spain: 34 specimens of parasitic insects (111668). Exchange.
- RAFFLES MUSEUM, Singapore, Straits Settlements: 4 bird skins from Borneo and Java, representing 2 genera and species new to the National Museum collections (110754, exchange); 2 skins of wren-warbler (112798).
- RANDALL, PAUL, San Diego, Calif.: 10 specimens of fossil crab claws from Spanish Bight, Calif. (111544).
- RANKIN, WILLIAM G., Mount Pleasant, Mich.: The animal of the paper nautilus and its egg case filled with eggs, from Daytona Beach, Fla. (114497).
- RATCLIFFE, J. H., Woodhaven, N. Y.: A 4 by 5 Blair camera, patented March 29, 1887, and May 20, 1890 (114502).
- RATHBUN, DR. MARY J., Washington, D. C.: 3 crabs and 8 clusters of Bryozoa, collected at Brooklin, Me. (111404).
- RAWSON, DR. G. W., Detroit, Mich.: 10 specimens of European moth just introduced into the United States (111444).
- RAY, FRANK, Gaithersburg, Md.: Wood samples of common quince (114826).
- RAY, LAURANCE G., Windhoek, South-west Africa: A specimen of the mineral arandisite, from the district of Swakopmund, S. W. A. (113591).
- REDMOND, W. B., Emory University, Ga. (through Department of Commerce, Bureau of Fisheries): 1 dried specimen of shark (111437).
- REED, DR. E. L., Lubbock, Tex.: 454 specimens of plants chiefly from Texas (112050, 113204, 113416).
- REED, EDWYN P., Valparaiso, Chile: (Through H. S. Barber) 1 specimen of slug from southern Chile (113716); 1 fly (114819).
- REED, FRED C., Washington, D. C.: A collection of 7 radio vacuum tubes used by the donor for wireless telegraph broadcasting reception, 1918-1922 (114467).
- REED, FRED M., Riverside, Calif.: 16 specimens, 2 species, of marine mollusks from Gulf coast of Lower California (110643).
- REEVES, J. EDWARD, Washington, D. C.: A model of Curtiss Army airplane P-1, a modern type for pursuit service (114786).
- REHDER, DR. ALFRED. (See under Harvard University, Arnold Arboretum.)
- REID, MRS. BRUCE, Port Arthur, Tex.: Nest of cactus wren from Texas (112626).
- REID, E. D., Washington, D. C.: A specimen of fossil wood from Calvert Cliffs, Md. (110718); 138 pairs of otoliths dissected from the heads of fishes (112558, 115236).
- REINHARD, H. J., College Station, Tex.: 1 fly (111753); 28 specimens of flies, representing 2 new species, types of 2 and paratypes of 1 (112515); 7 flies collected by donor in College Station, Tex., during summer of 1930 (113194).
- REMFELDT, AAGE, Oslo, Norway: 62 portraits for special exhibition during March and April, 1931 (113715). Loan.
- RENSHAW, JOHN A., Arcadia, Calif.: Trona and other mineral specimens chiefly from California (111238). Exchange.

- REYNOLDS, M. K., Marquette, Mich.: Potsherds and other artifacts from Isle Royale, Mich. (111163).
- REYNOLDS, WILLIAM, Washington, D. C.: 2 male crabs from Analostan Island (111462).
- RHODE ISLAND STATE DEPARTMENT OF AGRICULTURE, Kingston, R. I. (through A. E. Stene): 1 vial of beetles from the base of an elm tree in Rhode Island (109446).
- RHODES, Mrs. C. D., Washington, D. C.: 2 embroidered Chinese fans with pierced ivory handles and a worked nautilus shell (114483).
- RHODES, Gen. C. D., Washington, D. C.: Japanese dagger with decorated ivory sheath, bought in Japan in 1907 (114787); 13 silver spoons, ebony handles; 11 silver forks without crest, ebony handles; 6 silver forks with crest, ebony handles; 24 ebony chopsticks, silver mounted; and 4 plain ebony chopsticks (114991).
- RICE INSTITUTE, Houston, Tex. (through Dr. M. A. Stewart): 11 specimens of insects from Texas (110683).
- RICH, Dr. WILLIS H., Stanford University, Calif.: Part of upper mandible of short-tailed albatross from Alaska (113720).
- RICHARDS, HORACE G., Philadelphia, Pa.: 21 vials of crustaceans (110360); 2 amphipods, 4 isopods, 5 crabs (110414); 11 amphipods, 2 crabs, 1 shrimp, and 7 isopods from New Jersey (111706).
- RICHTER, Dr. and Mrs. R., Frankfurt on the Main, Germany: Cast of the type of a Lower Devonian crustacean (112605).
- RICKER, P. L. (See under Department of Agriculture, Bureau of Plant Industry.)
- RIDENHOUR, C. VIRGINIA, Columbus, Ga.: Specimen of plant (112288).
- RITCHIE, Mrs. ELLA V., Washington, D. C.: Drum from the Indians of Panama (113199).
- ROADS, Miss KATIE M., Hillsboro, Ohio: 10 specimens of plants from Ohio (110648, 110909, 111554).
- ROAN ANTELOPE COPPER MINES (LTD.), Luanshya, Northern Rhodesia: Rocks illustrating the geology of the Roan copper district, Northern Rhodesia (110955).
- ROBBINS, JOHN W., Boston, Mass.: 18 Brulegravure prints, 6 on leather, 9 on wood, and 3 on paper, and 2 Brulechrome prints on wood (110776).
- ROBERTS, C. C., Malden, Mass.: 7 photographs of African natives (111145); 55 ethnological specimens from various localities in West Africa (113132).
- ROBERTS, Dr. F. H. H., Jr. (See under George M. McLellan.)
- ROBLEDO, ING. Fco. GARCIA. (See under Oficina Federal Para La Defensa Agricola.)
- ROCKEFELLER FOUNDATION, New York, N. Y.: 45 specimens, 2 species, of mosquito-destroying fishes from Pisino and Rovigno, Italy (114742).
- RODDY, Dr. H. JUSTIN, Lancaster, Pa.: A Cambrian trilobite, representing a new species, from near Lancaster, Pa. (113594).
- ROEBLING FUND, Smithsonian Institution: A large crystal of quartz and a crystal of green tourmaline from Mount Mica, Paris, Me. (110185); 1 cut black diamond weighing 8.97 carats (110774); crystal of the mineral scapolite (110900); a large group of cassiterite crystals from Bolivia (111447); 5 mineral specimens from Italy (111754); an iron meteorite weighing 23 pounds from near Santa Fe, N. Mex. (111758); a large mass of silver from the Keeley Silver Mines at Silver Center, Ontario, Canada (111765); miscellaneous silver minerals purchased in Canada by E. P. Henderson (111935); a specimen of the mineral ramdohrite from Bolivia (112346); a crystal of spodumene from Pala, San Diego County, Calif. (112373); 3 mineral specimens, azurite, arandisite, and angle-site, from Africa (112466); a large vein of silver in volcanic rock and

ROEBLING FUND—Continued.

- 16 specimens of ruby silver from the Keeley Silver Mines, Silver Center, Ontario, Canada (112607); 1 cut brown tourmaline, 2 crystals of green tourmaline, and 1 crystal of scapolite from Brazil (112674); minerals from Franklin Furnace, N. J. (112730); 1 bicolored beryl from Brazil (112731); 4 specimens of minerals from Franklin, N. J. (112876); 2 bowlders of jade (112879); a crystal of citrine quartz from Madagascar (112900); a diamond from California (112981); 2 specimens of the mineral claudetite (113118); 9 mineral specimens from Ontario, Canada (113119); a specimen of lepidolite from Mount Apatite, Me. (113240); 4 specimens of minerals (113363); precious opal replacing a vertebra of a swimming reptile from New South Wales, Australia (113407); 1 beryl crystal from California (113408); 2 amethyst geodes and 1 large specimen of scapolite (113410); 2 mineral specimens, korthite and wathlingenite (113640); 8 small diamonds with quartz inclusions from Minas Geraes, Brazil (113775); a specimen of sphalerite (Ruby Jack) from the Blue Goose Mine, Cardin, Okla. (114005); a specimen of the mineral joseite from Bolivia (114085); 1 specimen of pyrrhotite and 3 slices of meteorites (114173); 5 specimens of zinc minerals and 1 stalactite of curious growth (114498); a collection of minerals (114779); a group of octahedral crystals of galena (115113), 3 mineral specimens (115115).
- ROGERS, EDWARD H., Devon, Conn.: Archeological material from various localities in Peru and Mexico (111474). Exchange.
- ROGERS, FREDERICK P., Jamestown, N. Y.: Military relics of the World War (originally loaned by Maj. Gen. H. L. Rogers as Accs. 63472 and 63590), 132 specimens (115176).
- ROGERS, WILL, Beverly Hills, Calif., and FRED STONE, Forest Hills, N. Y.: An early American stagecoach, made in Concord, N. H. (110256). Loan.
- ROHDENDORF, Prof. B. B. (See under Zoological Museum, University of Moscow.)
- ROHWER, F. W., Calgary, Alberta, Canada; 2 samples of core, containing bryozoans from Spring Coulee, Alberta, Canada (115006).
- ROLLINS, EDGAR J., West Somerville, Mass.: Wool spinning wheel made before 1800 and formerly the property of the donor's grandmother, Louisa Wells, born in Loudon, N. H., August 5, 1810, and 1 pair of wool cards (111636).
- ROOK, STEPHEN H., Shreveport, La.: Rock bearing carving of an animal (114846).
- ROOSEVELT FIELD CLUB and ROOSEVELT HOBBY CLUB, Buffalo, N. Y.: Marcasite concretions from Alden, N. Y., and conodont material from the 18-mile Creek gorge, Erie County, N. Y. (114760).
- ROOSEVELT HOBBY CLUB. (See under Roosevelt Field Club.)
- ROOT, Dr. F. M., Baltimore, Md.: 6 miscellaneous insects from Peru and 2 snakes from Solomon Islands (111782).
- ROSE, C. B. (See under American-LaFrance and Foamite Corporation.)
- ROSE, Miss WINIFRED, Denver, Colo.: 3 specimens, 1 species, of land shells from Texas (114199).
- ROSEVEAR, ALBERT, Troy, Kans.: A specimen of fossil algae (112051).
- ROSS, HERBERT H. (See under Illinois State Natural History Survey.)
- ROWE, J. A. (See under University of Utah.)
- ROYAL BOTANIC GARDENS, Kew, Surrey, England: 38 specimens of ferns from Siam (112159); 90 specimens of plants from South America (114378). Exchange.
- ROYAL NATURAL HISTORY MUSEUM, Stockholm, Sweden: 31 skins of birds from Australia, Africa, Saghalin, Java, and Sweden (111893); 30 specimens of Swedish birds, all topotypes, representing 21 species (112956). Exchange.

- ROYAL ONTARIO MUSEUM OF MINERALOGY, Toronto, Ontario, Canada: A collection of minerals numbering 108 items, from various localities in Canada (111955); 4 large specimens of minerals and rocks, from localities in Ontario (113361). Exchange.
- ROYAL PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN. (See under Stephen H. Tyng Foundation.)
- RUBBER MANUFACTURERS ASSOCIATION (INC.), New York, N. Y.: 37 specimens showing the manufacture and application of rubber thread for elastic webbing, and 1 photograph of an extrusion process machine (110710); 1 plaque illustrating the manufacture of rubber erasers, 6 tapping knives, seeds of cultivated rubber trees, and 19 photographs illustrating the manufacture of golf balls and molded rubber articles (111572); 53 specimens of molded or pressed rubber goods (112991).
- RUDGE, WILLIAM EDWIN, New York, N. Y.: The work "A Christmas Carol," by Charles Dickens, in 2 volumes—examples of bookbinding (113106).
- RUDICH, Miss FRANCES, Miami, Fla.: 2 hooded siskins from Cuba (113286).
- RUMANIAN GOVERNMENT, The Rumanian Legation, Washington, D. C. (through Dr. Andrei Popovici): Collection of Rumanian arms, uniforms, decorations, maps, and photographs of the period of the World War (111982).
- RUNYON, ROBERT, Brownsville, Tex.: 35 specimens of plants from Texas (110719, 111160, 114487, 114844).
- RUSSELL, J. TOWNSEND, Washington, D. C.: A lot of human bones from the "Tumulus of St. Saviol" (111398); cast of the Willendorf Venus from the Loess station of Willendorf, Austria, secured from the Landes Museum, Vienna, Austria (112339).
- RUTH, Prof. ALBERT, Fort Worth, Tex.: 90 specimens of plants from Texas, collected by Dr. B. B. Harris and the donor (110849).
- RUZICKA, Dr. D. J., Jackson Heights, L. I., N. Y.: 45 pictorial photographs for special exhibition during the month of October, 1930 (111728, loan); 3 pictorial photographs (112342).
- RYERSON, KNOWLES A. (See under Department of Agriculture, Bureau of Plant Industry.)
- SALISBURY, FRANK, Washington, D. C.: A model of a Boeing P-12 B airplane, the type now used by the American Air Services for pursuit (114778).
- SAN ANTONIO, COMMITTEE OF ONE HUNDRED OF THE BICENTENNIAL OF, San Antonio, Tex.: Bronze medalet commemorating the bicentennial of San Antonio, Tex., 1931 (114334).
- SANTA BARBARA MUSEUM OF NATURAL HISTORY, Santa Barbara, Calif. (through Ralph Hoffman, director): 1 specimen of plant from California (111414).
- SAVAGE, M. F., New York, N. Y.: Confederate letterhead and badges and a United States silver dollar struck in 1860 (112065).
- SCHANZ, FELIX, Fort Wayne, Ind.: 7 photographic portraits (113582).
- SCHAUS, Dr. WILLIAM. (See under W. Judson Coxey.)
- SCHENCK, Dr. H. G., Stanford University, Calif.: 2 fossil crabs (112971).
- SCHIEFFELIN AND COMPANY, New York, N. Y.: 6 specimens of official pharmaceutical preparations (112193).
- SCHMID, EDWARD S., Washington, D. C.: 2 birds, troupials, and a red-cheeked cordon-bleu (110780); 6 birds in the flesh (111393, 113228); 6 birds (113102); 1 budgerigah of the blue variety (115021).
- SCHMIDT, HEINRICH, San Jose, Costa Rica: Approximately 5,000 insects, mostly flies from Costa Rica (104493).

- SCHMITT, DR. WALDO L., Washington, D. C.: 2 birds, troupial, and a red-ond cave, Mullendore property (past quarry cave), West Virginia, 1928 (110756).
- SCHNEIDER, MRS. STANISLAWA, Rosedale, L. I., N. Y.: 33 pieces of early motion-picture apparatus comprising cameras, projectors, film frames, printers, perforators, etc. (112261). Bequest.
- SCHUH, R. E., Washington, D. C.: Specimen of seaweed from Maine (112340); 40 specimens of plants, mainly from Maine and the District of Columbia (112514); 88 specimens of plants from the Eastern United States (112748, 112858, 114756); 117 specimens of algæ (113397); 25 microscopic mounts of algæ (114201).
- SCHULTZ, LEONARD P. (See under University of Washington.)
- SCHWARZ, HERBERT F., American Museum of Natural History, New York, N. Y.: 1 bee (110050). Exchange.
- SCIENCE MUSEUM, London, England: 7 sheets of drawings and 2 photographs of the Stringfellow monoplane of 1848, which made the first powered flight (113055).
- SCOFIELD, JOHN K., Washington, D. C.: 1 weaver bird (113799).
- SCRIPPS INSTITUTION OF OCEANOGRAPHY, La Jolla, Calif., (through Dr. T. Wayland Vaughan): A collection of foraminifera, including many types (112541).
- SEAMAN, DR. A. E., Houghton, Mich.: An example of the mineral seamanite from Chicago Mine, near Iron River, Mich. (110861). Exchange.
- SEBASTIEN, E., St. Thomas, Virgin Islands: 1 globefish and 1 batfish (110587).
- SECHRIST, E. L., Washington, D. C.: Conventionalized bird image in carved stone, from the ruins at Zimbabwe, near Bulawayo, South Africa (112031).
- SENCKENBERGISCHE NATURFORSCHENDE GESELLSCHAFT, Frankfurt on the Main, Germany; 18 specimens of a fossil brachiopod from Langenaubach, Germany (114782). Exchange.
- SERRANO Y SANZ, MANUEL, Cuesta de Santo Domingo, 18 Madrid, Spain: 2 lots of prehistoric stone implements from Spain (114125).
- SEVILLE, Miss M. W., Washington, D. C.: 5 daguerreotypes, 4 ambrotypes, and 2 tintypes (112260).
- SHAMEL, H. HAROLD, Washington, D. C.: 119 reptiles and amphibians, 62 mammals, 34 birds, 339 fishes, 89 marine invertebrates, 100 insects, and 88 mollusks from Missouri and Kansas (109966).
- SHANNON, MRS. CAROLINE WOLFLEY. (See under Mrs. Elizabeth F. Wolfley.)
- SHANNON, R. C., Bahia, Brazil: 21 specimens, type series, of flies from Brazil (111933).
- SHANNON, THOMAS J. (See under Mrs. Elizabeth F. Wolfley.)
- SHANTUNG CHRISTIAN UNIVERSITY, Tsinan, Sung, China (through Arthur Jacot): 2 moths and several pupa cases from China (110824).
- SHARP AND DOHME (INC.), Philadelphia, Pa.: 9 specimens of medicines from the animal kingdom (111195); 9 galenical pharmaceutical preparations (112011).
- SHAW, CHARLES M., Washington, D. C.: Specimen of plant from Texas (112987).
- SHEAFFER, DANIEL M. (See under Pennsylvania Railroad.)
- SHELDON, COL. RAYMOND, Scarsdale, N. Y. (through Mrs. Raymond Sheldon): 8 Philippine weapons, 1 French bayonet, and a leather gun scabbard (113454).
- SHELDON, MRS. RAYMOND. (See under Col. Raymond Sheldon.)
- SHELFORD, V. E., Champaign, Ill.: 1 isopod, 2 amphipods, and 1 nemertean worm (112077).
- SHEN, C. J., Peiping, China: 2 crabs from Tangku, China (110885). (See also under Fan Memorial Institute of Biology.)

- SHERWOOD, Miss RUTH, Washington, D. C.: 1 magazine stereoscope (112185).
- SHOEMAKER, C. R., Washington, D. C.: 1 amphipod from a well on Mineshoe Island, Potomac River, near Cabin John, Md. (114781).
- SHOEMAKER, F. D., Washington, D. C.: Copper powder flask and canteen of the Civil War period (114600); 20 Indian ethnological specimens and a spoon mold (114833).
- SHOEMAKER, W. N., Takoma Park, D. C.: A small collection of fossils from the Niagara at Sturgeon Bay, Wis. (113717). (See also under George Draeb.)
- SHUFELDT, P. W., Belize, British Honduras: 2 specimens of shrimps, 1 of Hippa, 4 stomatopods, 8 hermit crabs, 4 porcellanid crabs, 55 crabs, 1 marine annelid, and 3 fishes, from Sergeants Caye, Belize, British Honduras (110728).
- SILVEUS, W. A., San Antonio, Tex.: 2 specimens of plants from Texas (112967).
- SIMMONS, Mr. and Mrs. WILL, Roxbury, Conn.: 32 etchings and aquatints by Will Simmons and 21 etchings and aquatints by Mrs. Will Simmons, for special exhibition from March 30 to April 26, 1931 (114077). Loan.
- SIMPSON, Dr. EDWARD S., Perth, Western Australia: Examples of the mineral tanteuxenite from three localities in Western Australia (110841). Exchange.
- SINGER, J. W., Stamping Ground, Ky.: 529 specimens of plants from Kentucky (110904, 112054).
- SINGER MANUFACTURING COMPANY, Elizabethport, N. J.: 1 set of chromium plated attachments #120606 (15 pieces) for No. 101 class sewing machine (111268).
- SKEELS, Dr. H. C. (See under Department of Agriculture, Bureau of Plant Industry.)
- SKINNER, JOHN W., Bartlesville, Okla.: Holotypes of 5 species of Carboniferous foraminifera (112606); 8 thin sections representing 4 new species of fossils (114999).
- SKUTCH, Dr. A. F., Baltimore, Md.: 141 specimens of plants from Guatemala (113289).
- SLAVIK, Prof. F., Praha, Czechoslovakia: 2 mineral specimens, bilinite and poechite (114172).
- SMITH, ELMER M., San Francisco, Calif.: Specimen of fern from California (114368).
- SMITH, Dr. HUGH M., Bangkok, Siam: 753 bird skins, 9 bird skeletons, 2 bird nests, and 2 bird eggs; 1 sea urchin, 4 ophiurans, 736 insects, 319 fishes, 1 sponge, 23 isopods, 45 shrimps, 11 hermit crabs, and 47 crabs; pellet bow, Central Siam; bird snare, Lao Tribe; woman's decorated smock, Karen Tribe, Doi Angka, North Siam; 70 mammals; 60 specimens of reptiles; about 1,000 specimens of mollusks and 3 lots of parasitic worms; 50 specimens of plants—from Siam (112170).
- SMITH, LYMAN B. (See under Gray Herbarium of Harvard University.)
- SMITHSONIAN INSTITUTION:
Bronze medal commemorating the fiftieth anniversary of the Warner and Swasey Company, 1930 (110706); collection of skeletal and ethnological material from along the Kuskokwim and Yukon Rivers, Alaska, secured by Dr. Aleš Hrdlička in 1930 from funds supplied by the Smithsonian (112273); an original etching by George Elbert Burr, entitled "Evening, Arizona" (112522); several spare parts of the Langley-Manly engine of 1903 and the original carburetor (112830); 330 bird skins and 4 skeletons, 43 eggs and 1 nest, 5 birds and 1 lot of bird stomachs in alcohol; 27 reptiles; 2 lots of mollusks; 21 bats; a collection of potsherds, a flint spawl, and a large shell from a kitchen midden, all collected in Haiti by Dr. A. Wetmore and F. C. Lincoln during April and

SMITHSONIAN INSTITUTION—Con.
 May, 1931 (114298). Deposit.
 Wood specimens of the Chinese
 Scholartree growing within the
 Astrophysical Observatory inclo-
 sure (112736). Transfer.

Bureau of American Ethnology:

About 100 crania and parts of
 skeletons from Safety Harbor,
 Fla., collected by M. W. Stirling
 (111697); collection of about 22
 miniature clay toys made by Nav-
 ajo Indian children and collected
 by Dr. W. H. Spinks at Chin Lee,
 Ariz., together with 15 snapshots
 (111961); human skeletal mate-
 rial from a gravel bed along the
 Patuxent River, Md., collected by
 T. Dale Stewart (112046); collec-
 tion of 785 ivory specimens and 3
 pieces of pottery secured by Dr.
 Aleš Hrdlička along the Kusko-
 kwim in 1930 from funds supplied
 by the bureau (112277); archeolog-
 ical and skeletal material collected
 by Dr. F. H. H. Roberts, jr., dur-
 ing summer of 1929 from a site in
 Arizona (112393); archeological
 material from the vicinity of
 Tampa Bay, Fla., collected by
 M. W. Stirling, in 1929 (112888);
 skeletal material from Horrs
 Island, Collier County, Fla., col-
 lected during February and
 March, 1931, by M. W. Stirling
 (114648).

National Museum, collected by mem-

bers of the staff: Aldrich, Dr.
 J. M.: 2,000 flies from the Pacific
 Northwest, collected during the
 summer of 1930 (112045). Brown,
 W. L.: 20 deer, 10 raccoons, 9
 squirrels, 4 pigs, 1 opossum, and
 1 gray fox, principally from Hilton
 Head Island and Hunting Island,
 S. C. (113245). Collins, Henry B.,
 jr.: Collections of mammals, birds,
 fishes, paleobotanical material,
 human skeletal remains, and eth-
 nologica from St. Lawrence Island,
 Alaska, secured in 1930 (108529).
 Cox, W. T., Villard, Minn.: 9 skins
 and 5 skulls of large and medium-

sized mammals from Brazil
 (106347). Gidley, Dr. James W.:
 Relics of old prairie schooners,
 namely, 2 axle boxes and 5 ox
 shoes, found at an abandoned
 camp site, on the old Oregon
 Trail; a collection consisting prin-
 cipally of fossil bones of the horse
 from the vicinity of Hagerman,
 Idaho, obtained by an expedition
 under Doctor Gidley's direction in
 1930 (111336, 114073). Gilmore,
 C. W.: A collection of vertebrate
 fossils from the Bridger (Eocene)
 formation, Bridger Basin, Wyo.
 (110676). Henderson, E. P. (with
 cooperation of Roebling Fund):
 Silver, nickel, and cobalt minerals
 and ores from various localities in
 Ontario, and samples from a peg-
 matite dike at Hybla, Ontario
 (111654). Hess, Frank L.: 40
 mineral specimens from Bolivia
 (112501). Hough, Dr. Walter:
 Seaweed imported from Nova
 Scotia as a food product and found
 on sale at Revere Beach, Boston,
 Mass., 1930 (111335). Killip, E.
 P.: 150 specimens of plants from
 Cuba; 38 specimens of plants from
 Maryland and Virginia (113244;
 113562). Lewton, Dr. F. L.:
 Wood samples of Chinese maiden-
 hair tree, wisteria, and common
 lilac (114825). Miller, Gerrit S.,
 jr.: Mammals, reptiles, fishes, in-
 sects, shells, plants, and Indian
 relics, and 164 wood specimens,
 collected in Jamaica, February to
 April, 1931 (113053). Resser, Dr.
 Charles E.: Approximately 2,000
 Cambrian and Ordovician fossils
 from the Grand Canyon and the
 Rocky Mountains (111716).
 Schaller, Dr. W. T., U. S. Geolog-
 ical Survey: A series of potash
 minerals from Carlsbad, N. Mex.
 (114746). Schmitt, Dr. Waldo L.:
 A collection of marine inverte-
 brates, echinoderms, mollusks, and
 fishes collected by Doctor Schmitt
 under the auspices of the marine
 biological laboratory of the Car-
 negie Institution, Tortugas, Fla.,

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National Museum, collected by members of the staff.—Continued.

July and August, 1930 (111167). Wetmore, Dr. A.: 2 mammals, 256 birds, 25 bird skeletons, and 6 eggs, from Spain and England (110901).

National Museum, obtained by purchase: Bronze medals commemorating the installation of the "Bell of the Fallen Heroes" over the castle of Rovereto, Italy, in 1925 (2 specimens) (106849); a collection of fossil invertebrates from Cuba collected by Dr. R. H. Palmer (107543); 13 bird skins from Korea (108815); 54 raccoon skins with skulls, 7 rabbits, 1 bobcat, and 2 bird skins, from the Keys of Florida (109256); 879 specimens of plants from Peru (109405); 3 fossil skulls from the Permian of Texas, and 1 skeleton of fossil fish from the Cretaceous chalk of Kansas (109428); section of fossil log from near Carpinteria, Calif. (110424); photostatic copy of William Samuel Henson's patent specifications for an aerial steam carriage, issued in 1842 (110506); 34 specimens of butterflies from Mexico (110686); 956 specimens of plants from Chile (110691); 3 Prang proof books showing progressive steps in making a chromolithograph, "The Contented Gardener," containing 46 specimens; "California Views," containing 90 specimens; and "Birds and Flowers," containing 136 specimens (110755); approximately 5,000 specimens of insects, in the order of Diptera (2-winged flies) (110764); 228 plants from the Dominican Republic (110767); 1 dry point, "Idyle Moments," by Warren Davis (111344); 1,116 specimens of plants from Peru (111357); sword and scabbard presented to Col. H. R. Eddy, Q. M. C., U. S. Army, by clerks of the Memphis Depot, in 1864 (111387); 107 specimens of plants

from Ecuador (111443); photostats of text and illustrations from Marestier, "Memoire sur les Bateaux a Vapeur, Paris, 1824," about 26 pages of text, 4 separate figure plates (111702); 151 specimens of plants from Kamchatka (111773); 1 miniature book, "Addresses of Abraham Lincoln," published by Training Division, Kingsport Press, Kingsport, Tenn., 1929, size $\frac{7}{8}$ inch by $\frac{5}{8}$ inch (111779); collection of vertebrate fossils from near Hagerman, Idaho (111822); Westinghouse Junior Automatic Steam Engine, No. 2909, of about 1900 (111907); 204 specimens of Andean plants (111942); collection of archeological and human skeletal material collected in 1899 from the Porter Mounds, Ross County, Ohio (112027); 336 specimens of plants from Pacific Northwest (112144); 4 etchings by Maurice Achener and 1 lithograph by Pierre Guastalla (112381); 160 specimens of plants collected in Venezuela by W. Gehriger (112527); earthenware effigy vessel from Canyon de Chelly, Ariz. (112528); 29 bird skins from South America (112559); 1 fossil turtle specimen (112610); 1 miniature book, "Evangile Selon St. Mathieu," printed in 2½-point type (112831); 2 complete and some parts of skeletons of a heath hen (112857); 19 skeletons and 2 skins of birds from Patagonia (112877); posterior half of a skull of a troödont dinosaur from Niobrara County, Wyo. (112978); enamel kash kool (fakir's begging bowl), Persia, about the sixteenth century (113105); coins of Austria, Ecuador, Finland, Germany, Latvia, Netherlands, Persia, Portugal, Russia, and Sweden, struck 1922-1929, secured through cooperation of the Department of State (113242); 19 ethnological specimens from the Makah, Winnebago, Chinnewa, and Menominee Indi-

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National Museum, obtained by purchase—Continued.

ans (113412); 1 large compote (113629); 160 specimens of plants from the Dominican Republic (113769); 160 specimens of Venezuelan plants, collected chiefly by W. Gehriger (114071); 75 specimens of European isopods, 3 specimens of *Tendosphaera*, 7 specimens of isopods from Palestine (114121); skull of a fossil fish from the Cretaceous chalk of Kansas (114197); 11 birds (114358); 25 specimens of mosses (114632); 292 specimens of plants from Brazil, collected by Mrs. Ynes Mexia (114720).

National Museum, made in the Museum laboratories: Cast of a fragment of an Indian figure (head) carved from quartz (109042); cast of the type humerus of a fossil bird from Kern County, Calif. (111811); 3 colored plaster casts each of a grooved and fluted stone ax and of a chert blade (112181); 2 plaster casts of a pottery vessel from Canyon de Chelly, Ariz. (112826); cast of an earthenware vessel found in a cave near Pineville, Ky., by Robert B. Elliott and forwarded to the Museum by Dr. Mason Combs (113700); 27 casts of type specimens of fossils in Colgate University, Hamilton, N. Y. (113825); plaster casts of types of Ozarkian and Canadian fossils described by Prof. E. Billings (originals in Victoria Memorial Museum), and casts of a fossil echinoid (original in Yale University Museum) (114083).

National Zoological Park: Skin and skeleton of a Murine opossum, skull of a wart hog, skin and skull of a monkey, skin and skull of a wart hog, skin and skeleton of a black lemur (111365); 95 birds (111584, 113251, 114628, 115020); 55 mammals (111707, 112883, 113565, 114076, 114828, 115195); 105 bird skins and 1 skin and skull

of a mammal (112389); 1 skin and skeleton of a musk-ox, 1 skin and skeleton of a harnessed antelope, 1 skin and skull of a genet, 1 skin and skeleton of a monkey, 1 skin and skull of a cat (112707); egg of a cinereous vulture and egg of a California condor (115193).

SNOWBERGER, D. H., Payette, Idaho: Nodules of calcium phosphate from 15 miles north of Weiser, Idaho (108408).

SNOWBERGER, Miss GARNET, Washington, D. C.: 1 red-eyed vireo in the flesh (111960).

VAN SOMEREN, Dr. V. G. L., Kenya Colony, British East Africa: 3 skins of the short-tailed lark, a genus new to the Museum (114012).

SOUTH AFRICA, UNION OF, Pretoria:

Department of Agriculture, Division of Plant Industry: 100 specimens of South African plants (114463). Exchange.

Geological Survey: 6 samples of platinum rock from Merensky Reef, 1 specimen of amosite, and 1 of asbestos, from South Africa (111015).

SOUTH CAROLINA, UNIVERSITY OF, Columbia, S. C. (through Prof. Stephen Taber): 1 fossil crab claw from Cuba, collected by Professor Taber (113805).

SOUTHERN BIOLOGICAL SUPPLY COMPANY (INC.), New Orleans, La.: 26 insects (113767).

SOUTHERN RAILWAY SYSTEM, Washington, D. C.: Original steam engine built at the shops of the U. S. Military Railroad Department, Alexandria, Va., in 1864, W. H. McCafferty, master mechanic (113602); 2 modern rail sections now used by the donor (113930).

SPANGLER, R. S. (See under Fuller Brush Company.)

SPRINGER, STEWART. (See under Caribbean Biological Laboratories, Inc., and Raymond Fournier.)

SQUIRES, Capt. K. B., Fort Humphrey, Va.: 15 specimens of land mollusks from quarantine station,

- SQUIRES, Capt. K. B.—Continued.
15 miles below Savannah, Ga., collected alive by Captain Squires in the summer of 1930 (113575).
- STAATLICHE MUSEUM FÜR TIERKUNDE UND VOLKERKUNDE, Dresden, Germany: 36 bird skins from the East India Islands (107456). Exchange.
- STADNICHENKO, Miss MARIA STANIK, Washington, D. C.: Human skull from Paradones, Peru, about 1 mile northeast of the village of Vichayal to the north of the Chira River (113247).
- STANAVO SPECIFICATION BOARD (INC.), New York, N. Y.: a model ($\frac{1}{2}$ actual size) of the Lockheed Vega airplane *Stanavo Eagle* (112671).
- STANDARD OIL COMPANY OF CALIFORNIA, Bakersfield, Calif. (through G. M. Cunningham): A fossil whale head from near Bakersfield, Calif. (110736).
- STANFORD UNIVERSITY, Stanford University, Calif.: 207 specimens of plants from Mexico (113385); (exchange); 1 fossil crustacean (115235).
- STANGER, VINCENT P., Fort Ann, N. Y.: Specimen of plant from Adirondack Mountains in New York (111371).
- STATE DEPARTMENT OF: 55 specimens of foreign coins struck in 1919–1929 (109651). (See also under Camerouns, Treasury Department of; Chinese Legation; Government of Estonia; Government of Italy; P. Knabenshue; Andreas Kuhu; Republic of Poland; and Hon. Frederick L. Washbourne.)
- STEARNS, Mrs. CHARLES F., Providence, R. I.: White woman's scalplock, Sioux workmanship, secured by Lieut. William Alexander, U. S. Army, at Fort Laramie, Wyo., about 1860; from the collection of Mrs. G. Norman Lieber, the donor's mother (113776).
- STEELE, E. S., Chevy Chase, Md.: 2,800 specimens of plants from the Eastern United States (113778).
- STELLENBOSCH, UNIVERSITEIT VAN, Stellenbosch, South Africa (through Prof. C. de Villiers): 196 lots (about 1,037 specimens) of mollusks from South Africa (111499).
- STENE, A. E. (See under Rhode Island State Department of Agriculture.)
- STENNING, WALTER, Detroit, Mich.: 16 needle box prints by George Baxter and 2 prints by LeBlond and Company (111148); material showing the method of engraving Bakelite panels with an electric engraving machine by the "Stenogravure" method (111149).
- STEPHENSEN, Dr. K. (See under Copenhagen Museum, Copenhagen, Denmark.)
- STEPHENSON, F. L., Cedar Point, Kans.: 1 collared lizard from Kansas (111713).
- STEPHENSON, Dr. L. W., Washington, D. C.: 23 species of marine bivalve shells (114 valves) from the State of Anzoategui, Venezuela (110716); 9 species, many specimens, of land and fresh-water shells from Texas (114113). (See also under W. S. Adkins.)
- STERNS, W. P., Washington, D. C.: 3 specimens of plants collected in the District of Columbia (111574).
- STETSON COMPANY, JOHN B., Philadelphia, Pa.: 109 specimens and 45 photographs illustrating the manufacture of felt hats (112055).
- STEVENSON, JOHN A., Washington, D. C.: 26 specimens of plants mainly from Porto Rico (111944). (See also under Department of Agriculture, Bureau of Plant Industry.)
- STEVENSON, Capt. R. H. R., Bulawayo, Southern Rhodesia: 38 specimens of wasps from Africa (109245); 93 specimens of wasps from Africa (112835; exchange); 141 specimens of insects (114221, 114702; exchange).
- STEWART, Rev. HERBERT W., Wooster, Ohio: 1 silver salung of Siam, coined in 1920 (111388).
- STEWART, Dr. M. A. (See under Rice Institute.)

- STEWART, Mrs. W., Port Pirie, South Australia: 275 specimens of marine mollusks from Australia (110699). Exchange.
- STINER, HARRY, New York, N. Y.: 4 specimens, 2 species, of land shells, 2 insects, 1 lizard, and 3 isopods from Smyrna, Turkey (112178).
- STIRN, L. and E., New York, N. Y.: 10 specimens of novelty velvets (111265).
- STOCKER, ALICE, Washington, D. C.: Specimen of plant from Africa (113256).
- STOCKER, RACHEL, Washington, D. C.: Set of 4 bowling woods made by Thomas Taylor, of Glasgow, Scotland, Scottish Bowling Association, and a pair of carrying nets (112836).
- STODDARD, F. T., Fort Worth, Tex.: 15 specimens of quartz pseudomorph after aragonite (113196).
- STONE, FRED. (See under Will Rogers.)
- STORK, Prof. H. E., Northfield, Minn.: 1 specimen of plant (114687).
- STOTT, Miss ALICE G., Smithfield, Va.: Specimen of plant from Virginia (112270).
- STREETER, D. D., New York, N. Y.: An alcoholic collection of reptiles and amphibians, mammals, birds, fish, marine invertebrates, crinoids, mollusks, and insects (109984).
- STURGES, DWIGHT C., Boston, Mass.: 2 etchings by the donor, "The Station Agent" and "Mother" (112973).
- STUTLER, ORIS O. (See under Prof. Ernest R. Sutton.)
- SULLOWAY MILLS, Franklin, N. H.: A package of yarn wound on a Franklin dye tube, invented by Walter Aiken Simond in 1906, one of the first full batch of such packages to be dyed on April 13, 1906 (112562).
- SUTTON, Prof. ERNEST R., and ORIS O. STUTLER, Salem, W. Va.: 3 stone implements excavated from a mound on a hill overlooking the Baltimore & Ohio station at Morgansville, W. Va. (110723).
- SVERIGES GEOLOGISKA UNDER-SOKNING, Stockholm, Sweden: A collection of fossil brachiopods (129 specimens) from Gotland (114777). Exchange.
- SWALES FUND, Smithsonian Institution: 3 bird skins from various localities, representing 3 species new to the Museum collections (110799); 1 Indian Tawny Eagle, new to the Museum (111130); 4 birds from Sardinia, new to the Museum (112518); 2 bird skins, representing species new to the Museum (112609).
- SWANTON, Dr. JOHN R., Washington, D. C.: Sifting basket made of cane by a woman of the Tunica Tribe, Louisiana (111748); small lot of potsherds from a mound near Marks-ville, La. (113252).
- SWARTZ, Capt. GEORGE W., Huntsville, Ala.: A Bernstein incandescent electric lamp of 1889, and a lamp socket key used in the first incandescent lamp installation in Florence, Ala., in 1889 (114008).
- SWIGGETT, Mrs. S. A., Washington, D. C.: An old hand-wrought-iron hoe made in Ohio (115122).
- SWINYARD, C. A., Minneapolis, Minn.: Type specimen of nematode from the Lesser Snow Goose (114593).
- TABER, Prof. STEPHEN. (See under University of South Carolina.)
- TAIHOKU IMPERIAL UNIVERSITY, Taiwan, Japan (through Prof. Tyozaburo Tanaka): 200 specimens of plants collected in Hokkaido (North Island) and in Formosa (112028). Exchange.
- TALBOT, M. W. (See under J. K. Jensen.)
- TANAKA, Prof. TYOZABURO. (See under Taihoku Imperial University, Taiwan, Japan.)
- TAYLOR, A. E. (See under Department of Agriculture, Food, Drug, and Insecticide Administration.)
- TEHON, L. R. (See under Illinois State Natural History Survey.)
- TEISSEIRE, Prof. AUGUSTE, Colonia, Uruguay: 6 specimens of recent and 61 specimens of fossil and sub-fossil, oysters from many localities in Uruguay (110827); 20 lots,

- TEISSEIRE, Prof. AUGUSTE—Contd.
about 150 specimens, of land, fresh-water, and marine mollusks, and 7 insect larvae from Uruguay (111155).
- TEXAS AGRICULTURAL EXPERIMENT STATION, Temple, Tex. (through Prof. S. E. Wolff): 812 specimens of plants from Texas (113141).
- TEXAS COMPANY, New York, N. Y.: Scale model of a Lockheed Vega airplane *Texaco-5*, and 10 aircraft photographs (109473); the glider *Texaco Eaglet*, built by Franklin Brothers, piloted by Capt. Frank M. Hawks and towed by an airplane from San Diego to New York, making the first transcontinental towed flight in 8 days, April, 1930 (110990).
- TEXAS PETROLEUM COMPANY, New York, N. Y.: A collection of invertebrate fossils from Colombia (108326).
- TEXAS, UNIVERSITY OF, Austin, Tex. (through Prof. B. C. Tharp): 14 specimens of plants from Texas (114344).
- TEYLER MUSEUM, Haarlem, Holland: Cast of the Zeuglodon skull in the Teyler Museum (110431).
- THARP, Prof. B. C. (See under University of Texas.)
- THAXTER, Prof. ROLAND, Cambridge, Mass.: 5 flies (112354).
- THOMAS, BOB, Bowie, Ariz.: 4 specimens of grasshoppers from Arizona (111781).
- THOMAS, HENRY GRANVILLE, Bethesda, Md.: 1 six-legged puppy (111717).
- THOMAS, LEN R., Sydney, New South Wales: A collection of recent Australian Bryozoa (113790). Exchange.
- THOMPSON, J. W., Seattle, Wash.: 1 specimen of plant from Washington (111347); 19 specimens of plants from Washington (112583, exchange).
- THOMPSON, R. C., Herndon, Va.: Bullet mold and bridle bit of the period of the Civil War (113254).
- TITUS, Dr. E. G., Salt Lake City, Utah: 4 named bees, all type specimens (113875).
- TOLEDO ZOOLOGICAL SOCIETY, Toledo, Ohio (through Roger Conant): 6 hog-nosed snakes, 4 box turtles, and 1 Blanding's turtle from Ohio (111339).
- TOMBLESON, FREDERICK B., Croydon, England: Approximately 500 specimens of Cretaceous bryozoans from England (112361). Exchange.
- TOMKINS, IVAN R., Savannah, Ga.: 22 marine annelids, 18 shrimps, 2 parasitic isopods, and 14 specimens of fishes (110881, 114763); 3 shrimps, 3 crabs, 1 isopod, 1 worm, 1 snake, 5 specimens, 2 species, of boring bivalve mollusks, and 1 specimen of Spanish mackerel, from coast of Georgia (111923); 6 eggs of Macgillivray's seaside sparrow and a vial of trematodes (112367).
- TONIELLI, Mrs. A. C., Washington, D. C.: 2 lots of egret plumes (112285).
- TONNOIR, A. L. (See under Australia, Commonwealth of.)
- TORREY, Miss REBECCA BRITTON, Port-au-Prince, Haiti: Stone ax found on the beach at Cote Plage, Port-au-Prince, Haiti (115158).
- TOWNLEY, D., London, England: 3 bird skins from Southern Rhodesia (108612).
- TOWNSEND, Dr. C. H. T., Sao Paulo, Brazil: 18 specimens of flies, representing 9 species, 7 of which are represented by types (112979); 28 flies and 8 Mayflies (114195).
- TOWNSEND, R. S., Washington, D. C.: Carved wooden pipe bowl and stem from Sweden (114824).
- TOZAWA, Dr. M. (See under Forest Experiment Station.)
- TRACY, JOHN M., Portland, Oreg.: 2 specimens of grossularite garnet from Oregon (113281).
- TRANSCONTINENTAL AND WESTERN AIR (INC.), New York, N. Y.: A collection of 20 photographs illustrating the transcontinental air service operated by the donors (112534).

TREASURY DEPARTMENT:

- Bureau of the Mint*: 2 United States gold quarter eagles, struck in 1926 (111129); 2 specimens of bronze medal commemorating the Centenary of Western Australia, 1829-1929 (112060); bronze copies of the gold medal awarded by Congress to Col. Charles A. Lindbergh in recognition of his services to the science of aeronautics (113253); bronze copies of the gold medal awarded by the Congress of the United States to Lincoln Ellsworth for his courage, sagacity, and perseverance in the transpolar flight in the dirigible *Norge*, May, 1926 (113387).
- Coast Guard Service*: A Farmer Dynamo-Electric Machine, made in the Newport, R. I., torpedo station about 1876, and used until recently for detonating derelict mines (111401); lot of test blocks used to determine their resistance to shipworm and other boring organism attack (113532).
- Public Health Service* (through William L. Jellison): 2 Rocky Mountain goat skulls from Ravalli County, Mont. (110096); 1 rice rat taken on the steamship *Calamares* (110645); 3 specimens of rats taken on the steamship *Halizons*, which arrived from Cape Town, Durban, Beira, and Port Elizabeth with a cargo of copper ore (112591).
- TRISTAN, J. FID. (See under Museo Nacional, San Jose, Costa Rica.)
- TROPICAL PLANT RESEARCH FOUNDATION, Washington, D. C. (through William R. Barbour): 1 specimen of plant collected in Colombia (111399).
- TROXELL, Prof. EDWARD L., Hartford, Conn.: Fragmentary tibiotarsus of a fossil bird (108356).
- TRUETT, Mrs. GEORGE E., Clarendon, Va.: A sleigh built by Gilbert Vanderwerken, father of the donor, about 1840, while he was a coach and carriage builder of Newark, N. J.; also a sewing machine made about 1861 by Ladd, Webster & Company, Boston, Mass., and subsequently owned and used by Charles G. Vanderwerken, brother of the donor (112073).
- TURKEY, GOVERNMENT OF (through Ahmet Muhtar): 21 specimens of Turkish military arms and field glasses (111366).
- TYNG FOUNDATION, STEPHEN H., London, England (through the Royal Photographic Society of Great Britain): 15 pictorial photographs, the first installment of the prints purchased through the Stephen H. Tyng Foundation (115163).
- UNITED DAUGHTERS OF THE CONFEDERACY, Germantown, Philadelphia, Pa. (through Mrs. John W. Goodwin): Decorations of the United Daughters of the Confederacy (4 specimens) (115192).
- UNITED SPANISH WAR VETERANS, Los Angeles, Calif. (through Hon. Joe Crail): Engrossed copy of a note of thanks from Los Angeles Camp No. 36, United Spanish War Veterans, to the honorable the Senate and House of Representatives of the United States, for the passage of the act of June 2, 1930, granting to the many disabled Spanish War Veterans an increase of pension (110770).
- UNITED STATES POTASH COMPANY, Carlsbad, N. Mex.: A large exhibition slab of mixed halite and sylvite, with 6-inch seam of sylvite (115157).
- UNIVERSITETETS BOTANISKE MUSEUM, Copenhagen, Denmark (through Dr. Carl Christensen): 118 specimens of plants of the Liebmann collection (112882). Exchange.
- UNIWERSYTET WARSZAWSKI, Warszawa, Poland: A collection of fossil brachiopods from Poland (114499). Exchange.
- URBAN, Dr. I. (See under Botanisches Museum, Berlin-Dahlem, Germany.)
- URPIA, ALFREDO, Bahia, Brazil: Photograph of Brazilian orchid (113837).

- UTAH COPPER COMPANY, Salt Lake City, Utah: 2 specimens of monzonite porphyry ore (110650).
- UTAH STATE AGRICULTURAL COLLEGE, Logan, Utah (through G. F. Knowlton): 79 specimens of insects; 22 specimens of flies; 8 flies (Diptera); 1 slide of mites (94787, 105445, 109244, 109619, 109739, 109919, 112053, 114337); 24 specimens of insects (109601, 113280); 6 specimens of Hymenoptera from Utah (114204).
- UTAH, UNIVERSITY OF, Salt Lake City, Utah (through J. A. Rowe): 3 flies (110081).
- VALERIO, Prof. MANUEL, San Jose, Costa Rica: Approximately 179 marine invertebrates; about 70 specimens of land and marine mollusks; egg capsules of a gastropod mollusk; 6 specimens of corals; 16 specimens of echinoderms; 10 specimens of algae; and 2 fishes (eels) from San Lucas Islands, Nicoya, Costa Rica (108902); 39 specimens of plants, and 14 specimens of mollusks from Costa Rica (109765; 113279); 12 specimens of marine shells, 26 crabs and 2 anomurans, and 4 specimens of algae from Costa Rica (114203).
- VAN ANDEN, Mrs. WILLIAM M., New York, N. Y.: "Dexter" velocipede of 1869 embodying patent No. 88238 for "free wheeling," granted to William Van Anden (112749).
- VANDUZEE, E. P. (See under California Academy of Sciences.)
- VANDUZEE, M. C., Buffalo, N. Y.: 2 flies (111200); 5 flies, 4 paratypes of 2 species (111548). Exchange.
- VAN NAME, Dr. WILLARD G. (See under American Museum of Natural History.)
- VAN SCHAICK, Jr., Dr. and Mrs. JOHN, Boston, Mass.: Nest and skeleton of phoebe (111788).
- VAUGHAN, Dr. T. WAYLAND, La Jolla, Calif.: 50 specimens of shipworms taken from a piece of wooden drain trough from the aquarium of the Scripps Institution (114224). (See also under Scripps Institution of Oceanography.)
- VILLENEUVE, Dr. J., Rambouillet, France: 10 specimens of flies (110851). Exchange.
- DE VILLIERS, Prof. C. (See under Stellenbosch, Universiteit van Stellenbosch, South Africa.)
- VINCENT, E. C., Alexandria, Va.: Navaho coffee pot made near Shiprock, N. Mex., in 1896 (115208).
- VISSCHER, J. PAUL, Cleveland, Ohio: 50 amphipods from a greenhouse in Columbus, Ohio (110415).
- VOLKMAR, FRITZ, Fargo, N. Dak.: 6 slides of helminths (111545).
- VONSEN, M., Petaluma, Calif.: Examples of the minerals rutile and lawsonite from Tiburon, Marin County, Calif. (114599). Exchange.
- WAAGE, F. O., 3d, American School, Athens, Greece: Collections of ancient Greek skeletal remains (114007). Loan.
- WADE, Mrs. CLYDE P., Bradenton, Fla.: 45 lots, 200 specimens, of marine shells mostly from Florida, also 1 specimen of coral and 1 echinoderm from Florida (111266).
- WAGNER, Mrs. DARROLD A., Noatak, Alaska: 51 specimens of plants from Alaska (112331).
- WAILES, G. H., Nanaimo, British Columbia, Canada: Approximately 20 specimens of marine annelids (110690); approximately 1,000 specimens of copepods (110833); 21 specimens of crustaceans, and 2 specimens of chitons (110836); 12 copepods from the west coast of Canada (113365).
- WAKEFIELD AND COMPANY, C. C. (LTD.), London, England: A group of 12 photographs of famous European drivers of racing automobiles, courtesy of "The Motor," London, England, collected by T. L. Chase, Washington, D. C. (111434).
- WAKELAND, Prof. CLAUDE. (See under University of Idaho.)
- WALCOTT, Mrs. CHARLES D., Washington, D. C.: Cree Indian eagle-feather headdress with a pendant of scalp locks (112392).

- WALKER, E. H., Washington, D. C.: 33 original drawings of Asiatic plants (114465).
- WALKER, FRED W., Monticello, Fla.: Gorget, made from a piece of bannerstone, found in an open field about 1½ miles south of Monticello, Fla. (114086).
- WALKER, SAM, Washington Grove, Md.: 1 barred owl in the flesh (111450).
- WALLIS, W. W., Bradenton, Fla.: 30 shrimps, 7 amphipods, approximately 25 hermit crabs, 15 porcellanid crabs, 1 crayfish, and approximately 25 other crabs (113294).
- WALTER RATHBONE BACON SCHOLARSHIP (through Dr. Paul Bartsch): A collection of 250,000 mollusks, 99 mammals, 932 birds, 11 alcoholics, 96 eggs and 1 nest, 596 reptiles and batrachians, 189 fishes, 123 insects, 90 crustaceans, and 8 plants from the West Indies (110534).
- WALTHER, Prof. KARL, Montevideo, Uruguay: A specimen of the mineral kayserite from Mount Redondo, near Minas, Uruguay (114247). Exchange.
- WALTON, CHARLES, Peterhead, South Australia: 12 specimens of mollusks from Australia (114734).
- WAR DEPARTMENT, Washington, D. C.: 3 parachutes—a first model back type, a first model seat type, and a compound training type recently used by the U. S. Army Air Corps (109999); mounted specimen of the homing pigeon "President Wilson," which carried messages for the Signal Corps of the United States Army in France during the World War (111833, loan); coins of the Philippine Islands, struck in 1906 and 1908 (112302); aeronautical exhibits of the World War period, comprising flying suits worn by H. R. H. Prince of Wales and Gen. William Mitchell in France; photograph of General Mitchell in France; a group of lighting apparatus and a Handley - Page airplane strut (112829); 40 photographs of Wright Brothers' aircraft, including gliders, airplanes, seaplanes, detail views, and related incidents (113202).
- WARD, MELBOURNE, Sydney, New South Wales: 11 lots, 30 specimens, of Crustacea from northern Australia and New Zealand (112884).
- WARD'S NATURAL SCIENCE ESTABLISHMENT, Rochester, N. Y.: 1,700 casts of type specimens of invertebrate fossils in the National Museum at Prague, Czechoslovakia (110445); a specimen of hematite (kidney ore) (110771); specimen of the mineral dufrenoyite (110859); 52 specimens of silver minerals from Guanajuato, Mexico (110899); slab of the meteoric iron from Nativitas Tlaxcala, Mexico, weighing 2,305 grams, and 1 specimen of the mineral manganhedenbergite (113248); a slab of jasper from Western Australia (113274); an Ordovician cystid from Natural Tunnel, Scott County, Va. (114717). Exchange.
- WASHBOURNE, Hon. FREDERICK L., Luxemburg, Luxemburg (through Department of State): Silver 5-franc and 10-franc pieces of Luxemburg, struck in 1929 (112608).
- WASHBURN, Dr. E. W., Washington, D. C.: 181 specimens of plants from Nebraska (112862).
- WASHINGTON, UNIVERSITY OF, Seattle, Wash. (through Leonard P. Schultz); 3 specimens of cottoid fishes from Washington (113833).
- WATERS, F. BOYD., Le Cannet, France: (Through Earle W. Huckel) miniature of Gertrude A. Bugler in the rôle of Eustacia Vye in Thomas Hardy's "The Return of the Native" (110778).
- WATSON, Mrs. JANE, Washington, D. C.: 1 daguerreotype in case (112066).
- WEBB, WALTER F., Rochester, N. Y.: 2 specimens of Philippine land shells, representing forms not contained in our collection previously (112980).
- WEBER, FREDERICK T., New York, N. Y.: 1 etching (110852); 50 etchings for special exhibition from Novem-

- WEBER, FREDERICK T.—Continued.
ber 3 to November 30, 1930 (112012, loan).
- WEBSTER, Mrs. G. D., Washington, D. C.: Child's Lowestoft china pitcher (112255).
- WEBSTER, HERMAN A., Paris, France: 52 etchings and lithographs for special exhibition from February 2 to March 1, 1931 (113107, loan).
- WEBSTER, Mrs. MARY P., Washington, D. C.: 1 specimen of freshwater mussel from Kentucky (112602).
- WELLS, Miss FANNIE, Washington, D. C.: An Ashanti leather purse (115207).
- WELLSTEL, T. A., Nagpur, Central Provinces, India (through F. L. Hess): A collection of manganese ores and associations from India (111817).
- WENDLER, C., Geneva, Switzerland: A specimen of meteoric stone from Olmedilla de Alarcon, Province of Cuenca, Spain (111787). Exchange.
- WESLEYAN UNIVERSITY, Middletown, Conn.: 1 specimen of an eared grebe (112622). Exchange.
- WEST, W. D., Punta Gorda, Fla.: 1 specimen of land shell from Florida (114223).
- WETMORE, Dr. A., Takoma Park, Md.: 9 birds from Maryland (110772, 111771, 111959, 113586, 115118); 2 domestic pigeons in the flesh (111389).
- WETMORE, Mrs. A., Takoma Park, Md.: 1 egg of parrot (114515).
- WETTERSTROEM, WALTER, Cincinnati, Ohio (through Dr. J. T. Lloyd): Handmade, brass, pharmaceutical mortar (113788); 1 mouth-blown glass show globe of the type used in American drug stores about 70 years ago (113879).
- WEYMOUTH, Dr. WALTER. (See under Department of Commerce, Bureau of Fisheries.)
- WHEELER, Prof. G. C. (See under University of North Dakota.)
- WHEELER, HAZARD, Washington, D. C.: Percussion pistol of the period of 1850 (113378).
- WHERRY, Dr. EDGAR T., Washington, D. C.: A stalactite from Lurich, Va. (111446); 77 specimens of plants from United States (111560, 112533).
- WHITALL TATUM COMPANY, Philadelphia, Pa.: 12 specimens of pharmaceutical equipment (113583).
- WHITE, Dr. DAVID, Washington, D. C.: 35 specimens, 2 species, of land shells from Colorado (111582); 16 specimens, 2 species, of land shells from Colorado (113593).
- WHITE, Dr. G. F. (See under Department of Agriculture, Bureau of Entomology.)
- WHITE, JOHN, and C. M. KENEDY, Port Isobel, Tex.: Tooth of a fossil elephant (112634).
- WHITEFIELD, J. P., Hawick, Scotland (through Dr. Paul Bartsch): 1 sperm-whale tooth from Castle Island, Bahama Islands (112160).
- WHITNALL, H. O. (See under Colgate University.)
- WICKS, WILLIAM F., Washington, D. C.: 1 barred owl from Virginia, in the flesh (113380).
- WIEBUSCH, ESTATE OF CHARLES F., New York, N. Y. (through Dunn, Daly and Bain): A collection of cutlery, including daggers, knives and forks, pen knives, and razors, also a group of technical books, mainly on the subject of cutlery, and 9 candle snuffers, and a "Necessary" made of bone (111627).
- WILCOX, Miss FLORENCE E., Washington, D. C.: 2 costumed Chinese figurines (bride and groom) (112030).
- WILCOX, Gen. T. E., U. S. Army, Retired, Washington, D. C.: Collection of 15 items of Indian ethnological specimens (112196).
- WILD, GEORGE O., New York, N. Y.: A geode of agate with interior coating of quartz crystals from Rio Grande do Sul, Brazil (113595). Exchange.
- WILKINS, BERKLEY G., Greenville, S. C.: Mounted photograph of a telescope, made by Dolland, London, about 1800 (112989).

- WILKINSON, CHILDREN OF DR. A. L., Orange Court House, Va. (through Kate E. Wilkinson): Set of pearl-handled dental instruments, made in England about 1780 and used by Doctor Wilkinson until his death in 1894 (111364).
- WILKINSON, Miss KATE E. (See under children of Dr. A. L. Wilkinson.)
- WILLIAMS, B. H., Washington, D. C.: 30 specimens of stone implements and a fragment of pottery from Alabama and West Virginia (113230).
- WILLIAMS, ROBERT W., Tallahassee, Fla.: Embryo of black vulture from Florida (111693).
- WILLIAMSON, E. B., Ann Arbor, Mich.: 33 specimens of insects, all dragonflies but one; 5 of the specimens represent 4 species by paratypes (112163).
- WILLIAMSON, GEORGE, Natchitoches, La.: A fossil tree stump from near Natchitoches, La. (113515).
- WILSON, CHARLES, Clarno, Oreg.: A small collection of fossil nuts, leaf imprints, and wood, from the John Day River, Clarno Basin, Wheeler County, Oreg. (112078).
- WILSON, Dr. C. B., Westfield, Mass.: 5 parasitic copepods (112252).
- WIMSATT, S. C., Washington, D. C.: 2 old razors, one a French magazine razor about 100 years old, and the other an English razor about 80 years old (111777).
- WITTEMANN, CHARLES R., Brooklyn, N. Y.: 2 aircraft engines—one a Curtiss airship engine used in the Baldwin Dirigible, Signal Corps No. 1, 1908; the other a Hall-Scott Type A-3, 80 horsepower, used in a Baldwin *Red Devil* airplane, which flew in this country and in the Orient about 1912 (113998).
- WITTNAUER COMPANY, A., New York, N. Y.: Scientific timing equipment used by the Byrd Antarctic Expedition, loaned for special exhibition from September 14 to October 7, 1930 (111463). Loan.
- WOLFF, Prof. S. C. (See under Texas Agricultural Experiment Station.)
- WOLFLEY, Mrs. ELIZABETH F., Mrs. ELEANOR WOLFLEY BISELL, Mrs. CAROLINE WOLFLEY SHANNON, and Mrs. ELIZABETH WOLFLEY HARMAN, Washington, D. C. (through Thomas J. Shannon): 1 set of surgical instruments used during the Civil War by Lieut. Col. William Irvin Wolfley, 62d Ohio Infantry, U. S. V., husband and father of the donors (112986).
- WOMACK, HENRY B., Birmingham, Ala.: A partially completed modern razor with steel billet attached (112863).
- WOOD, Mrs. LEONARD, New York, N. Y. (through Herman Hagedorn): Uniform hat, coat, and breeches, worn during the Spanish-American War by Maj. Gen. Leonard Wood, U. S. Army, when major general, U. S. Volunteers (114823).
- WOOD, Hon. W. R., Washington, D. C.: Mounted specimen of sailfish taken by the donor near the Island of Senora, Pearl Island Group, Pacific, off Panama (111358).
- WOOLF, D. O., Washington, D. C.: 8 specimens of quartz pseudomorph after aragonite, from Texas (112158).
- WOOTON, E. O., Washington, D. C.: 31 specimens, 3 species, of land shells from Colorado (113017). (See also under Department of Agriculture, Bureau of Plant Industry.)
- WORDEN, HAROLD, Luna Park, Va.: Double egg of domestic fowl (111936).
- WORTHEN, EDWIN B., Lexington, Mass.: Bronze medal commemorating the one hundred and fiftieth anniversary of the Battle of Lexington (111549).
- WRIGHT, BLANCHE LOWE. (See under heirs of Thaddeus S. C. Lowe.)
- WRIGHT, EDNA LOWE. (See under heirs of Thaddeus S. C. Lowe.)
- YALE UNIVERSITY, SCHOOL OF FORESTRY, New Haven, Conn.: 5 fragmentary specimens of Cuban plants (112723); specimen of plant from British Honduras (113111). Exchange.

- YARWOOD, CHARLES W., Elgin, Ill.: Bronze plaque representing the award of a silver medal by the board of managers of the Louisiana Purchase Exposition, St. Louis, Mo. (112977).
- YOCHUM, JAMES, Washington, D. C.: Pharyngeal bone of a drumfish (111267).
- YOTHERS, W. W. (See under Department of Agriculture, Bureau of Entomology.)
- YOUNG, C. JAC, Weehawken Heights, N. J.: 49 etchings for special exhibition from April 27 to May 26, 1931 (114359). Loan.
- ZAGRODZKI, M. (See under Republic of Poland.)
- ZEHRUNG, W. S., Meadville, Pa.; Pair of slippers made in 1867 of the skin of a rattlesnake killed in 1863 in western Tennessee, worn by the donor's mother and exhibited at the Centennial Exhibition, 1876 (113793).
- ZOOLOGICAL MUSEUM, Academy of Sciences, Leningrad, U. S. S. R. (through Dr. A. B. Martynov): 103 specimens of insects of the order Trichoptera, from Siberia and other parts of the Old World (103485). Exchange.
- ZOOLOGICAL MUSEUM, UNIVERSITY OF MOSCOW, Moscow, U. S. S. R. (through Prof. B. B. Rohdendorf): 70 specimens of flies from Russia (112744). Exchange.
- ZOOLOGICAL SOCIETY OF SAN DIEGO, San Diego, Calif.: 1 northern elephant seal from Guadalupe Island (108784).
- ZOOLOGICAL SURVEY OF INDIA, Calcutta, India (through Dr. B. N. Chopra): 1 bopyrid and 1 shrimp (91232). Exchange.
- ZOOLOGISCHE STAATSINSTITUT UND ZOOLOGISCHE MUSEUM, Hamburg, Germany (through Dr. A. Panning): 2 crabs from Unguru Mwadje, East Africa (113818). Exchange.

LIST OF PUBLICATIONS ISSUED BY THE UNITED STATES NATIONAL MUSEUM DURING THE FISCAL YEAR 1930-31

REPORT

Report on the progress and condition of the United States National Museum for the year ended June 30, 1930.

8vo., pp. i-ix, 1-219, pls. 1, 2.

PROCEEDINGS

Proceedings of the United States National Museum. Volume 76.

8vo., pp. i-xiv, 1-577, arts. 1-26, pls. 1-69, 45 figs.

BULLETINS

No. 82. A monograph of the existing crinoids. Volume 1—The comatulids. Part 3. Superfamily Comasterida. By Austin Hobart Clark.

4vo., pp. i-vii, 1-816, pls. 1-82.

No. 100, vol. 11. Contributions to the biology of the Philippine Archipelago and adjacent regions. The fishes of the families Pseudochromidae, Lobotidae, Pempheridae, Priacanthidae, Lutjanidae, Pomadasyidae, and Teraponidae, collected by the United States Bureau of Fisheries steamer "Albatross," chiefly in Philippine seas and adjacent waters. By Henry W. Fowler.

8vo., pp. i-xi, 1-388, 29 figs.

No. 154. A study of the teiid lizards of the genus *Cnemidophorus*, with special reference to their phylogenetic relationships. By Charles E. Burt.

8vo., pp. i-viii, 1-286, 38 figs.

No. 155. The birds of Haiti and the Dominican Republic. By Alexander Wetmore and Bradshaw H. Swales.

8vo., pp. i-iv, 1-483, pls. 1-26.

CONTRIBUTIONS FROM THE UNITED STATES NATIONAL HERBARIUM

Vol. 24. Plant studies—chiefly tropical American.

8vo., pp. i-cvi, 1-802, pls. 1-52, 4 figs.

PAPERS PUBLISHED IN SEPARATE FORM

FROM THE BULLETINS

From Volume 26. Contributions from the United States National Herbarium. Part 6, Asiatic Pteridophyta collected by Joseph F. Rock, 1920-1924. By Carl Christensen.

8vo., pp. i-xii, 265-337, pls. 13-29.

FROM VOLUME 77 OF THE PROCEEDINGS

- No. 2828. The excavation and repair of Betatakin. By Neil Merton Judd.
Art. 5, pp. 1-77, pls. 1-46, figs. 1-28.
- No. 2829. A monograph of the foraminiferal family Polymorphinidae, recent and fossil. By Joseph A. Cushman and Yoshiaki Ozawa.
Art. 6, pp. 1-195, pls. 1-40, figs. 1, 2.
- No. 2835. Birds from the small islands off the northeast coast of Dutch Borneo. By J. H. Riley.
Art. 12, pp. 1-23, pl. 1.
- No. 2836. Some peculiar spiral fossil forms from California and Mexico. By Wendell C. Mansfield.
Art. 13, pp. 1-3, pls. 1, 2.
- No. 2837. New forms of sphecoid wasps of the genus *Didineis* Wesmæl. By J. R. Malloch and S. A. Rohwer.
Art. 14, pp. 1-7, figs. 1-8.
- No. 2838. Birds collected in Inner Mongolia, Kansu, and Chihli by the National Geographic Society's Central-China Expedition under the direction of F. R. Wulsin. By J. H. Riley.
Art. 15, pp. 1-39.
- No. 2839. On dinosaurian reptiles from the Two Medicine formation of Montana. By Charles W. Gilmore.
Art. 16, pp. 1-39, pls. 1-10, figs. 1-18.
- No. 2840. Studies of the North American weevils belonging to the superfamily Platystomoidea. By W. Dwight Pierce.
Art. 17, pp. 1-34, pls. 1-5.
- No. 2841. New species of North American weevils of the genus *Lixus*. By F. H. Chittenden.
Art. 18, pp. 1-26, pl. 1.
- No. 2842. Notes on the rhinotragine beetles of the family of Cerambycidae, with descriptions of new species. By W. S. Fisher.
Art. 19, pp. 1-20.
- No. 2843. The taxonomy and host relationships of the biting lice of the genera *Dennyus* and *Eureum*, including the descriptions of a new genus, subgenus, and four new species. By H. E. Ewing.
Art. 20, pp. 1-16, figs. 1-7.

FROM VOLUME 78 OF THE PROCEEDINGS

- No. 2844. New two-winged flies of the family Calliphoridae from China. By J. M. Aldrich.
Art. 1, pp. 1-5, figs. 1-3.
- No. 2845. Catalogue of human crania in the United States National Museum collections. Pueblos, southern Utah basket makers, Navaho. By Aleš Hrdlička.
Art. 2, pp. 1-95.
- No. 2846. A new species of trematode worm of the genus *Ornithobilharzia* from a Canadian goose. By Rudolf Wetzel.
Art. 3, pp. 1-4, pl. 1.

- No. 2847. Cambrian bivalved Crustacea of the order Conchostraca. By E. O. Ulrich and R. S. Bassler.
Art. 4, pp. 1-130, pls. 1-10.
- No. 2848. New and old land shells from the island of Luzon, Philippines. By Paul Bartsch.
Art. 5, pp. 1-20, pls. 1-9.
- No. 2849. The South American lizards in the collection of the United States National Museum. By Charles E. Burt and May Danheim Burt.
Art. 6, pp. 1-52.
- No. 2850. A revision of the species of *Coccophagus*, a genus of hymenopterous, coccid-inhabiting parasites. By Harold Compere.
Art. 7, pp. 1-132, pls. 1-14.
- No. 2851. Fossil decapod crustaceans from Mexico. By Mary J. Rathbun.
Art. 8, pp. 1-10, pls. 1-6.
- No. 2852. American two-winged flies of the genus *Stylogaster* Macquart. By J. M. Aldrich.
Art. 9, pp. 1-27.
- No. 2853. A revision of the North American tachinid flies of the genus *Achaetoneura*. By R. T. Webber.
Art. 10, pp. 1-37, figs. 1-14.
- No. 2854. Restudy of some Burgess Shale fossils. By George Evelyn Hutchinson.
Art. 11, pp. 1-24, pl. 1, figs. 1-5.
- No. 2855. Notes on the types of American two-winged flies of the genus *Sarcophaga* and a few related forms, described by the early authors. By J. M. Aldrich.
Art. 12, pp. 1-39, pls. 1-3.
- No. 2856. Exploration of ruins in the White Mountain Apache Indian Reservation, Arizona. By Walter Hough.
Art. 13, pp. 1-21, pls. 1-10, figs. 1-9.
- No. 2857. Notes on ichneumon-flies of the genus *Polycyrtus* with descriptions of new species. By R. A. Cushman.
Art. 14, pp. 1-62, figs. 1-8.
- No. 2858. Notes on some acalyptate flies in the United States National Museum. By John R. Malloch.
Art. 15, pp. 1-32, figs. 1-10.
- No. 2859. Report on the South American sea stars collected by Waldo L. Schmitt. By W. K. Fisher.
Art. 16, pp. 1-10, pls. 1-8, figs. 1, 2.
- No. 2860. Mollusks from the Aspen Shale (Cretaceous) of southwestern Wyoming. By John B. Reeside, jr., and A. Allen Weymouth.
Art. 17, pp. 1-24, pls. 1-4.
- No. 2861. A new species of amphipod crustacean (Acanthonotozomatidae) from California, and notes on *Eurystheus tenuicornis*. By Clarence R. Shoemaker.
Art. 18, pp. 1-8, figs. 1-4.

- No. 2862. Notes on the American bats of the genus *Tadarida*. By H. Harold Shamel.
Art. 19, pp. 1-27.
- No. 2863. A new parasitic fly of the genus *Chaetophlepsis*. By R. T. Webber.
Art. 20, pp. 1-4.
- No. 2864. Description of a new species of amidostomine worm of the genus *Epomidiostomum* from the gizzard of anserine birds. By Rudolf Wetzel.
Art. 21, pp. 1-10, pls. 1, 2.
- No. 2865. Redescription of two species of trematode worms from the MacCallum collection, with a note on the family Pronocephalidae. By Emmett W. Price.
Art. 22, pp. 1-10, figs. 1, 2.
- No. 2866. New genera and species of nematode worms. By Asa C. Chandler.
Art. 23, pp. 1-11, pls. 1, 2.

FROM VOLUME 79 OF THE PROCEEDINGS

- No. 2869. A new species of nematode worm from the sage grouse. By Everett E. Wehr.
Art. 3, pp. 1-3, figs. 1-3.
- No. 2871. Description of a new genus and species of nematode worm occurring in the northwestern belted kingfisher, with a key to the genera of the subfamily Acuariinae. By Everett E. Wehr.
Art. 5, pp. 1-4, figs. 1-5.
- No. 2873. Descriptions of new genera and species of Siamese fishes. By Hugh M. Smith.
Art. 7, pp. 1-48, pl. 1, figs. 1-22.
- No. 2874. A new shipworm from Venezuela. By Paul Bartsch.
Art. 8, pp. 1-3, pl. 1.
- No. 2875. A new species of troödont dinosaur from the Lance formation of Wyoming. By Charles W. Gilmore.
Art. 9, pp. 1-6, pls. 1-5.
- No. 2878. A new pearl oyster from the Hawaiian Islands. By Paul Bartsch.
Art. 12, pp. 1, 2, pls. 1, 2.

LIST OF PAPERS BASED WHOLLY OR IN PART ON THE
COLLECTIONS IN THE UNITED STATES NATIONAL
MUSEUM, PUBLISHED BY THE MUSEUM AND ELSE-
WHERE DURING THE FISCAL YEAR 1930-31

Abbot, C. G.

Brief guide to the Smithsonian Institution, 80 pp., illus.

Aldrich, J. M.

New two-winged flies of the family Calliphoridae from China: Proc. U. S. Nat. Mus., vol. 78, art. 1, no. 2844, Sept. 25, 1930, pp. 1-5, figs. 1-3.

American two-winged flies of the genus *Stylogaster* Macquart: Proc. U. S. Nat. Mus., vol. 78, art. 9, no. 2852, Oct. 15, 1930, pp. 1-27.

Notes on the types of American two-winged flies of the genus *Sarcophaga* and a few related forms, described by the early authors: Proc. U. S. Nat. Mus., vol. 78, art. 12, no. 2855, Nov. 5, 1930, pp. 1-31, pls. 1-3.

Collecting flies in the West: Expl. and Field-Work of the Smithsonian Inst. in 1930, Publ. No. 3111, 1931, pp. 107-112, figs. 91-95.

Notes on *Hippelates* (Diptera: Chloropidae), with a new Brazilian species: Proc. Ent. Soc. Washington, vol. 33, no. 4, Apr., 1931, pp. 69-72.

New acalyprate Diptera from the Pacific and Oriental regions: Proc. Hawaiian Ent. Soc., vol. 7, no. 3, Apr., 1931, pp. 395-399.

Notes on Diptera no. 5: Proc. Ent. Soc. Washington, vol. 33, no. 5, May, 1931, pp. 116-121.

Alicata, J. E. (See under Benjamin Schwartz.)

Allen, Ena A. (See under Eloise B. Cram.)

Bailey, Alfred M.

The pintails of northwestern Alaska: Condor, vol. 32, no. 5, Sept., 1930, pp. 264, 265.

Bailey, L. H.

South American novelties: Gentes Herb., vol. 2, fasc. 4, Oct. 8, 1930, pp. 200-206, figs. 103-107.

The cultivated brassicas. Second paper: Gentes Herb., vol. 2, fasc. 5, Dec. 6, 1930, pp. 211-267, figs. 108-146.

Baker, E. G.

Eriosema polystachyum Baker var. nov. *fulvum* Bak. fil.: Journ. Bot. Brit. and For., vol. 68, no. 810, June, 1930, p. 182.

Ball, William Howard.

The snowy egret (*Egretta thula thula*) near Washington, D. C.: Auk, vol. 47, no. 4, Oct., 1930, p. 558.

Leach's petrel (*Oceanodroma leucorhoa*) in the District of Columbia: Auk, vol. 48, no. 1, Jan., 1931, p. 106.

Baird's Sandpiper (*Pisobia bairdi*) at Washington, D. C.: Auk, vol. 48, no. 2, Apr., 1931, p. 260.

Bangs, Outram, and Josselyn Van Tyne.

Birds of the Kelley-Roosevelt Expedition to French Indo-China: Field Mus. Nat. Hist. Publ. 290, Zool. Ser., vol. 18, no. 3, June 10, 1931, pp. 33-119, 2 col. pls., 1 map.

Barber, H. G.

Essay on the subfamily Stenopodinae of the New World: Ent. Amer., vol. 10, new ser., nos. 3, 4, Oct. 11, 1930, pp. 149-238, pl. 11.

Barbour, T., and A. Loveridge.

Reptiles and amphibians from Liberia. Report of the Harvard-African Expedition upon the African Republic of Liberia and the Belgian Congo, 1930, pp. 769-786, 3 pls.

Bare, Clarence O.

A *Buenoa* of Southwest United States and Mexico (Hemiptera): Pan-Pacific Ent., vol. 7, no. 3, Jan., 1931, pp. 115-118, figs. 1-7.

Bartsch, Paul.

New and old land shells from the island of Luzon, Philippines: Proc. U. S. Nat. Mus., vol. 78, art. 5, no. 2848, Nov. 25, 1930, pp. 1-20, pls. 1-9.

Further explorations for mollusks in the West Indies: Expl. and Field-Work of the Smithsonian Inst. in 1930, Publ. 3111, 1931, pp. 91-102, pls. 81-86.

A new shipworm from Venezuela: Proc. U. S. Nat. Mus., vol. 79, art. 8, no. 2874, Apr. 7, 1931, pp. 1-3, pl. 1.

More about shipworms: Science, vol. 73, new ser., no. 1894, Apr. 17, 1931, pp. 418-420.

A new pearl oyster from the Hawaiian Islands: Proc. U. S. Nat. Mus., vol. 79, art. 12, no. 2878, June 2, 1931, pp. 1, 2, pls. 1, 2.

Bassler, R. S.

Report on the Department of Geology: Ann. Rep. U. S. Nat. Mus. for 1930, Dec. 11, 1930, pp. 91-102, pl. 2.

Pursuing microfossils: Expl. and Field-Work of the Smithsonian Inst. in 1930, Publ. 3111, 1931, pp. 7-12, figs. 7-10.

(See also under F. Canu and E. O. Ulrich.)

Beamer, R. H.

Some *Erythroneura* of the *obliqua* group (Homoptera, Cicadellidae): Ann. Ent. Soc. America, vol. 23, no. 3, Sept., 1930, pp. 417-453, pls. 1-3.

Bean, Barton A., and Earl D. Reid.

On a new species of brook silverside, *Labidesthes vanhyningi*, from Florida: Proc. Biol. Soc. Washington, vol. 43, Nov. 9, 1930, pp. 193, 194.

Bere, Ruby.

Copepods parasitic on fish of the Trout Lake region, with descriptions of two new species: Trans. Wisconsin Acad. Sci., Arts and Letters, vol. 26, May, 1931, pp. 427-436, pls. 9, 10.

Bishop, Sherman C., and F. J. W. Schmidt.

The painted turtles of the genus *Chrysemys*: Field Mus. Hist. Publ. 293, Zool. Ser., vol. 18, no. 4, June 18, 1931, pp. 123-139.

Blake, Doris H.

Synonymies of Antillean Chrysomelidae, with descriptions of new species: Bull. Brooklyn Ent. Soc., vol. 25, no. 4, Oct., 1930, pp. 209-223.

Blake, S. F.

The names of *Aster ericoides* and *A. multiflorus*: Rhodora, vol. 32, no. 379, June 28, 1930, pp. 136-140.

A glabrous variety of *Aster concolor*: Rhodora, vol. 32, no. 380, July 28, 1930, pp. 144, 145.

The typification of *Scirpus capitatus* L.: Rhodora, vol. 32, no. 381, Sept. 4, 1930, pp. 182-185.

Two new Asteraceae from Mexico collected by Georges Woronow: Proc. Biol. Soc. Washington, vol. 43, Sept. 26, 1930, pp. 163-165.

A new *Polygala* from Bermuda: Proc. Biol. Soc. Washington, vol. 43, Sept. 26, 1930, pp. 161, 162.

A new *Limonium* from Haiti: Journ. Washington Acad. Sci., vol. 21, no. 1, Jan. 4, 1931, pp. 12, 13.

Carex bebbii in eastern Massachusetts: Rhodora, vol. 33, no. 386, Jan. 30, 1931, pp. 63, 64.

Six new South American species of *Verbesina*: Proc. Biol. Soc. Washington, vol. 44, June 29, 1931, pp. 79-85.

Blanchard, Frank N.

The white-spotted phase of the racer (*Coluber constrictor flaviventris* (Say)) in Louisiana: Copeia, 1930, no. 3, Sept. 30, pp. 85, 86, 1 fig.

Bowen, W. Wedgwood.

A new woodpecker from Angola: Fourth preliminary paper on the birds collected during the Gray African Expedition—1929: Proc. Acad. Nat. Sci. Philadelphia, vol. 82, 1930, pp. 89, 90; published April 17.¹

A new race of *Heterotrogon vittatum* from Mount Kenya: Eighth preliminary paper on the birds collected during the Gray African Expedition—1929: Proc. Acad. Nat. Sci. Philadelphia, vol. 82, Oct. 1, 1930, pp. 265, 266.

Geographical variation in *Poicephalus fuscicapillus*: Proc. Acad. Nat. Sci. Philadelphia, vol. 72, Oct. 6, 1930, pp. 267, 268.

The South African forms of *Saxicola torquata*: Ninth preliminary paper on the birds collected during the Gray African Expedition—1929: Proc. Acad. Nat. Sci. Philadelphia, vol. 83, 1931, pp. 7-9; published February 7.

East African birds collected during the Gray African Expedition—1929: Proc. Acad. Nat. Sci. Philadelphia, vol. 83, Mar. 27, 1931, pp. 11-79, 12 pls. (1 col.), map.

Angolan birds collected during the Gray African Expedition—1929: Proc. Acad. Nat. Sci. Philadelphia, vol. 83, June 9, 1931, pp. 263-299, 10 pls., 1 map.

Bridwell, John Colburn.

Bruchidae infesting seeds of Compositae, with descriptions of new genera and species (Coleoptera): Proc. Ent. Soc. Washington, vol. 33, no. 2, Feb., 1931, pp. 37-42.

Britton, N. L.

Krameriaceae: North Amer. Flora, vol. 23, pt. 4, Nov. 18, 1930, pp. 195-200.

Britton, N. L., and J. N. Rose.

Caesalpiniaceae (pars): North Amer. Flora, vol. 23, part 4, Nov. 18, 1930, pp. 201-268.

Caesalpiniaceae (conclusio): North Amer. Flora, vol. 23, part 5, Dec. 6, 1930, pp. 269-349.

¹ Omitted from previous report.

Brodkorb, Pierce.

Description of a new warbler from Guadeloupe, West Indies: Proc. Biol. Soc. Washington, vol. 44, Feb. 21, 1931, pp. 3, 4.

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