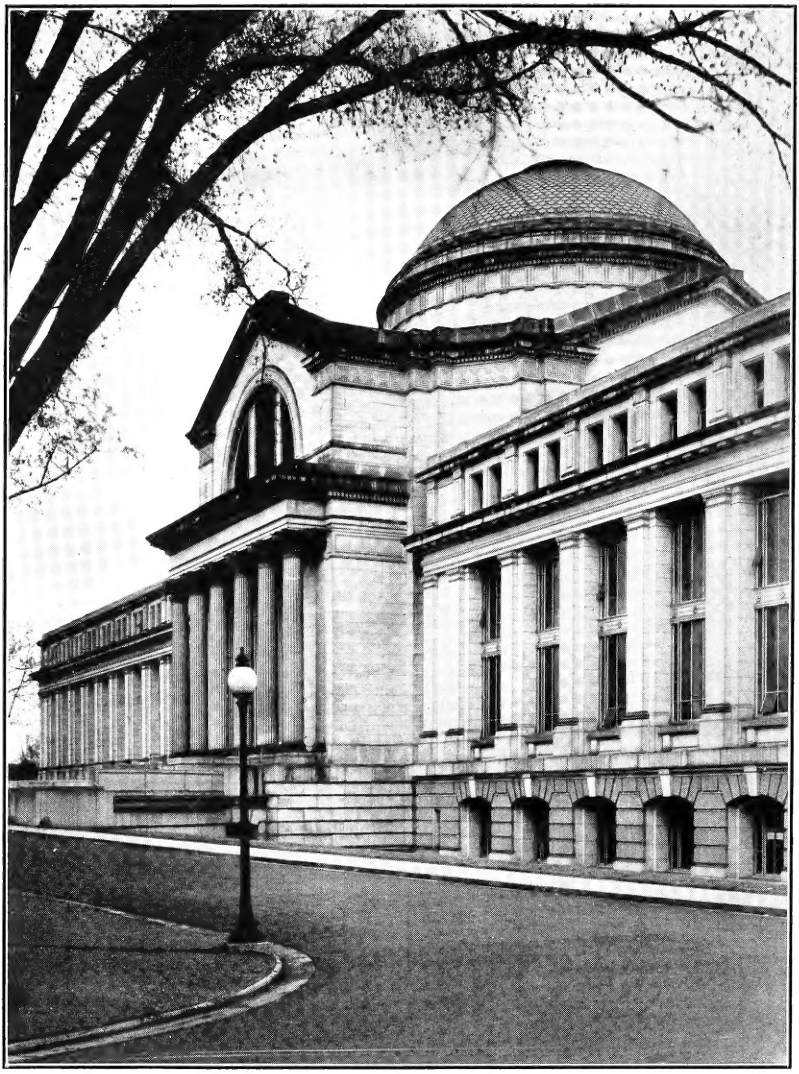

MAIN ENTRANCE, NATURAL HISTORY BUILDING, UNITED STATES NATIONAL MUSEUM

SMITHSONIAN INSTITUTION
UNITED STATES NATIONAL MUSEUM

REPORT ON THE PROGRESS AND CONDITION OF THE UNITED STATES NATIONAL MUSEUM FOR THE YEAR ENDED JUNE 30, 1924

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1924

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UNITED STATES NATIONAL MUSEUM,
UNDER DIRECTION OF THE SMITHSONIAN INSTITUTION,
Washington, D. C., September 30, 1924.

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, 1924.

Very respectfully,

WILLIAM DEC. RAVENEL,
Administrative Assistant to the Secretary,
In charge of the United States National Museum.

DR. CHARLES D. WALCOTT,
Secretary, Smithsonian Institution.

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STAFF OF THE UNITED STATES NATIONAL MUSEUM

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WILLIAM DEC. RAVENEL, Administrative assistant to the Secretary, in charge of the United States National Museum.

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Assistant librarian, N. P. Scudder.

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REPORT ON THE PROGRESS AND CONDITION OF THE UNITED STATES NATIONAL MUSEUM FOR THE YEAR ENDED JUNE 30, 1924

By William deC. Ravenel,
Administrative Assistant to the Secretary,
In charge of the United States National Museum

INTRODUCTION

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 the Museum 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 years' discussion in the Congress and the advice of the most distinguished scientific men, educators, and intellectual leaders of the Nation during the years 1834–46. 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 were still to a large extent without a developed plan, although containing many rich collections.

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 one of the widest range and at the same time as the Museum of the United States. It was also appreciated that additions would be necessary to

the collections 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 Institution taking upon itself only so much of the necessary responsibility for the administration of this and subsequent additions to its activities as would weld them into a compact whole, which together form a unique agency for the increase and diffusion of knowledge, for the direction of research, for cooperation with departments of the Government and with universities and scientific societies in America, and likewise afford a definite correspondent to 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, the lives of distinguished personages, important events, and the domestic life of the country from the colonial period to the present time, 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—supplemented by many collections from other countries. The opportunities for acquisition in these directions have been mainly brought about through the activities of the scientific and economic surveys of the Government, many of which are the direct outgrowths of earlier explorations, stimulated or directed by the Smithsonian Institution. The Centennial Exhibition of 1876 afforded the first great opportunity for establishing a department of the industrial arts, of which the fullest advantage was taken. The historical and the aircraft series have been greatly augmented since 1918 by large collections illustrative of the World War.

OPERATIONS OF THE YEAR

APPROPRIATIONS

The maintenance of the National Museum for the fiscal year ended June 30, 1924, was provided for in the following regular items of appropriation carried in the executive and independent offices act approved February 13, 1923:

Preservation of collections	$312,500
Furniture and fixtures	20,000
Heating and lighting	70,000
Building repairs	10,000
Books	2,000
Postage	500
Printing and binding	37,500
	452,500

In addition a special item of $79,896 for increase of compensation of employees, or bonus, makes available a total appropriation of $532,396.

In 1916 the appropriation of the Museum for all purposes was $426,000. Since 1916 the Museum has increased its exhibition space by the acquisition of the Aircraft Building, has materially enlarged the scope of its collections in arts and industries and in history, and has received over two and a quarter million additional specimens, besides assuming certain definite responsibilities for the guarding and upkeep of the Freer Building. As can be readily seen the difference in the appropriations of 1916 and 1924 hardly covers the added cost of maintaining the buildings and guarding the collections, leaving little or nothing toward providing expert assistance needed in carrying out the fundamental requirement of the classification of the added collections. The growth of the Museum in all directions continues to be increasingly restricted by its limited finances. Economies of all kinds are resorted to in making the appropriation provide first for the safe-keeping of the collections and then for their classification and exhibition.

In addition to the Government appropriations, the Museum has profited this year, as heretofore, by the income from the Frances Lea Chamberlain fund available for building up the Isaac Lea collection of gems and gem material and the Isaac Lea collection of mollusks, and by the income from the Morris Loeb fund in further-

ance of the Loeb collection of chemical types. The value of a definite sum annually available to systematically fill the more glaring gaps in the series is more fully appreciated when it is recalled that the Museum collections in all lines have been dependent almost wholly upon gifts and upon Government and other explorations for their growth.

COLLECTIONS

The total number of specimens received by the Museum during the year was 362,942. This was considerably over the average during the past 15 years (332,429), and exceeded numerically by over 70 per cent the receipts of the year 1923. Received in 1,736 separate accessions, the specimens added during the year were classified and assigned as follows: To anthropology, 2,359; zoology, 128,248; botany, 62,229; geology and mineralogy, 5,042; paleontology, 154,879; mineral and mechanical technology, 638; textiles, wood technology, organic chemistry, foods, and medicine, 3,375; graphic arts, 771; Loeb collection of chemical types, 27; and history, 5,374. Additional material to the extent of 1,187 lots, chiefly geological, was received for special examination and report.

The distribution of duplicates aggregated 27,992 specimens besides 92 pounds of material in bulk for blowpipe analyses. Of these, 19,464 specimens and the blowpipe material were sent out as exchanges for which the Museum has or will receive a return, and the remaining 8,528 specimens were distributed as gifts for educational purposes. The latter included 10 regular or previously prepared sets illustrating rock weathering and soil formation aggregating 210 specimens, 19 sets of ores and minerals aggregating 1,615 specimens, and 14 sets of mollusks aggregating 2,086 specimens, a total of 3,911. The other donations comprised sets and individual specimens to meet special needs. Nearly 17,000 specimens and some 24 pounds of material in bulk were lent during the year to specialists elsewhere for examination and study.

The increment this year is notable not only because of the increase in numbers, but also because of its scientific value. It is particularly rich in type specimens and in other specially desired material, filling gaps and otherwise strengthening the collections in many lines. For instance, B. H. Swales by his generous gift of 201 bird skins added 183 species and 4 genera previously unrepresented in the Museum. Such acquisitions immensely increase the scientific value of the collections.

An unusual number of explorations and expeditions, undertaken by other governmental agencies and by private institutions and individuals, benefitted the Museum this year. Biological and botani-

cal explorations in North America, Central America, South America, Asia, and the islands of the sea have added much desired material representing the fauna and flora of those regions, while productive geological field work was carried on within the borders of our own continent.

The biological accessions greatly surpass those of the years immediately preceding, both in numbers and in scientific importance. The outstanding biological acquisition was the donation by Dr. J. M. Aldrich, associate curator of insects, of his private collection of nearly 45,000 specimens of dipterous flies, representing 4,145 named species and many unnamed, with type material in 534 species. All the insect types in the custody of the Pennsylvania Department of Agriculture were given to the National Museum, and it is hoped other States will likewise more and more assist in the building up of the National Collections. Similar cooperation from a number of State institutions and scientific establishments has hitherto advanced the geological collections, but the action of Pennsylvania constitutes a precedent in the biological field. Types deposited in the National Museum are more accessible to specialists than when housed in State and private institutions, and are much safer, as there is less likelihood of change of policy.

Activities in China resulted in comprehensive biological collections received through the liberality of Dr. W. L. Abbott and Col. R. S. Clark, comprising mammals, birds, reptiles, etc., collected by Charles M. Hoy and Arthur de C. Sowerby, respectively; through the generosity of Rev. D. C. Graham, whose collections from Szechwan included many topotypes; and through the gift of the National Geographic Society from expeditions under F. R. Wulsin and under Dr. J. F. Rock. Mr. Wulsin during 1923 reached the famous Tibetan Lake Kokoran, but the collections from that locality have not yet arrived at the Museum. An interesting biological collection from Siam, made and contributed by Dr. Hugh M. Smith, is particularly important as linking up collections already in the Museum from the Malay Archipelago and Peninsula with those of the countries farther north.

Dr. W. L. Abbott during his expedition to the island of Santo Domingo procured for the Museum a series of skins, skeletons, and embryos representing a genus of rodents which had not been found alive for nearly 100 years, also large numbers of plants, reptiles, and amphibians. Dr. C. D. Walcott's Canadian expedition, Dr. Casey A. Wood's visit to the Fiji Islands, Dr. T. D. A. Cockerell's expedition to eastern Siberia, Dr. Paul Bartsch's trip to the Bahames, and Gerrit S. Miller's visit to the Lesser Antilles also added materially to the collections. The National Herbarium was greatly

enriched from tropical America by the explorations of Dr. A. S. Hitchcock in Panama, Ecuador, Peru, and Bolivia, of Paul C. Standley in the Canal Zone and Costa Rica, and of Dr. William R. Maxon in Panama, Costa Rica, and Nicaragua.

The geological additions were unusual in number and in value for both exhibition and study. The paleontological collections were the chief beneficiaries, the most noteworthy of the accessions being the material for a skeletal mount of a large dinosaur from the Dinosaur National Monument, Utah—exceeding in exhibition value any geological acquisition of recent years—and the Edgar E. Teller and the George M. Austin collections of fossils. The former collection, comprising over 100,000 Paleozoic fossils, was the gift of Mrs. Teller in memory of her husband; the latter collection of over 25,000 early Silurian invertebrate fossils from Clinton County, Ohio, represented the life work in that field of Dr. George M. Austin, the donor. The economic collections were increased by Canadian nickel and silver ores acquired through Frank L. Hess, custodian of rare metals and rare earths, and by copper-nickel-silver ores donated by the Royal Ontario Museum of Mineralogy. Diamond-bearing rocks received through the assistance of H. D. Miser made possible a more comprehensive exhibit of the occurrence of the diamond than heretofore shown. Good exhibition material, both economic and mineral, resulted from the continued activities of Victor C. Heikes.

An unusual meteoric iron from San Juan County, N. Mex., formed the most interesting accession to the meteorite collection, although an iron from Chile, a stone from Kansas, and small quantities of other individuals from Spain and Australia added new falls and finds.

Col. Washington A. Roebling was the chief contributor to the mineral collections; besides donating material, he supplied funds for the purchase of new minerals. Radium-bearing minerals from the Belgian Congo and a number of rare species new to the collections, received as gifts and exchanges, are also worthy of note. A number of cut gems were added to the Isaac Lea collection through purchases from the Frances Lea Chamberlain fund. The study collection in mineralogy is reported now as over 80 per cent complete as to species represented.

A petrographic reference series of rocks numbering some 2,000 specimens, thought to be without doubt the most important collection from a scientific standpoint now in existence, was transferred to the Museum by the United States Geological Survey.

Collections of Cambrian, Ordovician, and Silurian invertebrates were made by Secretary Walcott and members of the staff of the

Museum, and a quantity of foreign material was acquired through gifts and exchanges. A slab of fossil footprints from the Triassic shales of Virginia, received through the courtesy of F. C. Littleton, was added to the exhibition series.

Ethnological material collected in the Philippines by the late Capt. E. Y. Miller was donated by Mrs. Florence G. Miller, and South American Indian relics were contributed by D. S. Bullock. In American archeology should be mentioned an especially valuable collection of ancient decorated earthenware bowls from Mimbres Valley, N. Mex., transferred from the Bureau of American Ethnology, and a loan by Victor J. Evans of excellent ancient Casas Grandes pottery. Prehistoric antiquities from ancient sites in France, Belgium, and Germany, collected by Dr. Aleš Hrdlička, enriched the Old World archeological series. To the large series illustrating the development of the pianoforte which he is building up in the Museum, Hugo Worch added three rare instruments. In physical anthropology the most notable receipt was a large number of skeletal remains from early historic Arikara Indian village sites near Mobridge, S. Dak. An exhibit illustrating the most important relics of ancient man and showing in part the field of man's physical variations was installed in the west north range, first floor, of the Natural History Building. The subject of physical anthropology had before been but inconspicuously illustrated in the exhibition halls.

The glass industry exhibit was brought considerably closer to completion through the generosity of the Corning Glass Works in supplying two models of recent types of melting furnaces and typical examples of glassware. A complete working unit of the Strowger automatic telephone system, contributed by the Automatic Electric Co., enabled the Museum to equip an exhibition case with three telephone instruments which the visitor may operate and at the same time observe the functioning of the various parts. The advance in motor construction was illustrated by the donation by the Cadillac Motor Co. of one of its first automobiles, made in 1903, and a chassis of its 1923 model, the latter being so sectioned as to display parts ordinarily hidden from view.

The monoplane, Fokker *T–2*, which flew in May, 1923, from New York to San Francisco in a nonstop flight of less than 27 hours, was added to the aircraft exhibit, as was also a heliocopter type of airplane successfully used in 1923 by Emile Berliner and his son at College Park, Md. The watercraft collections were materially enhanced by models of the steamships *Leviathan* and *Empress of Russia*, the latter one of the vessels of the Canadian Pacific Railway Co. plying between Vancouver and the Orient.

Through cooperation of national trade associations, large series of industrial specimens were added illustrating every branch of rubber manufacture, the manufacture of leather and shoes, and the preparation and dyeing of seal, muskrat, and rabbit skins. New chemical compounds to enrich the Loeb collection of chemical types came from Government bureaus and from private chemists. Other exhibits donated show the manufacture and use of new material from the field of industrial chemistry and include synthetic plastics and hot-molded and cold-molded compositions having high dielectric properties. Further chemical accessions include glues, coal-tar dyes, and artificial silk. The textile collections were augmented by fibers, silk and cotton dress and drapery fabrics, hand-woven textiles, hand looms, and a commercial braiding machine. To the collections showing the importance of wood and the industries based thereon, were added products of the hardwood distillation industry, veneered doors, sporting goods made of wood, and paper-pulp products. The collections in the division of medicine were enlarged by 25 models showing advances in sanitary science, specimens of materia medica, and objects associated with the history of medicine in America.

In the graphic arts collection no entirely complete new exhibit was received, but important additions to existing exhibits were made, especially of letterpress printing and of etching. The most important, doubtless, was Miss Beatrice S. Levy's gift of three aquatint plates for her color print, White House by the Sea, which added a new method to the technical series. Another especially desirable addition was probably the first motion-picture camera ever made, one invented by Wallace Goold Levison in 1887.

An important innovation this year was the receipt of material for a period room. Mrs. Gertrude D. Ritter, who is interested in the preservation of the atmosphere of the early settlers of our country, contributed an American colonial room, including not only the furniture and furnishings but even the pine woodwork brought in its entirety from an old New England home. This is the beginning, it is expected, of Mrs. Ritter's plan for the assembling of the furnishings of an entire colonial home, to be displayed in a house of colonial style to be erected for the purpose in proximity to the present Museum buildings. In the meantime this unit has been provided for in the Natural History Building—in one of the foyer rooms, which has been entirely transformed. It is the first period room to be permanently installed in the Museum and is attracting favorable notice.

The collection of costumes of the ladies of the White House, which has proved so attractive, was increased this year by an evening gown worn in the White House by Mrs. Warren G. Harding and the dress

worn by Mrs. Benjamin Harrison at the inaugural ball in 1889. Pistols belonging to Maj. Gen. Charles Lee, of the Continental Army, and to Maj. Jacob Morris; the camp cups of Gen. Wayne Anthony; a lock of hair of Napoleon I; and a silver tureen and platter presented to Hon. James R. Mann by Members of the United States House of Representatives, Sixty-fifth Congress, were among the additions to the biographical series.

The historical objects in the west north range of the Arts and Industries Building were early in the year moved elsewhere, and the hall was installed with the numismatic collections of the Museum, including the large numismatic collection received in 1923 from the Philadelphia Mint. This necessitated the rearrangement of a large part of the exhibition collections in the division of history, but the results obtained are very satisfactory.

Special loan exhibitions.—Eleven special loan exhibitions in connection with the work of the division of graphic arts are enumerated in the report of the assistant curator in charge of that division. Two other temporary loan exhibitions deserve mention.

An exhibit of industrial work done by Washington children on the municipal playgrounds during the summer of 1923 was installed on the east side of the south gallery in the Arts and Industries Building on October 25, 1923, and remained on exhibition for five weeks. More than 1,500 objects made on the playgrounds by children from 4 to 15 years of age were shown, the exhibit comprising drawings, modeling, woodwork, basketry, sewing, knitting, crocheting, embroidery, toys, and paper work.

A similar exhibition of the work done on a few playgrounds was held in the National Museum in 1915, since which time the movement has grown, so that by 1923 more than 60 municipal playgrounds were open to give facilities for supervised play and instruction to the children of Washington. Each playground is under the supervision of a trained director who is assisted by experts in certain lines. When tired of games the children are encouraged to create something with their hands, and the industrial work shown in the Museum gave evidence that substantial results are obtained.

An exhibition of the work of Viennese school children of drawings, wood cuts, textile work, and sculpture, was held in the lobby of the Natural History Building from May 5 to May 19, 1924, under the joint auspices of the National Gallery of Art and the American Federation of Arts. These children of Vienna, who are chiefly of the poorer classes, are taught by Professor Čižek, an innovator in educational methods. The children from the ages of 7 to 15 years go to him for three hours on Saturday and two hours on Sunday, but the

class is not compulsory. There is no charge made; it is free to rich and poor. Professor Čižek claims the difference in his method and that of others is that he does not teach too much; that he gives the children opportunity for self-expression. He places materials at their disposal and skillfully directs their thoughts and effort. The results are magical, and as one looks over the drawings in black and white and the paintings in color that have come from these youngsters, one would almost wish that they might continue ever children; for, according to Professor Čižek when the pupils get past 15 and develop self-consciousness, all save the very talented lose their skill—the fairy gift is withdrawn. The exhibition was of extraordinary quality and interest and demonstrated what an inspired teacher can do under given circumstances.

The reports of the head curators in the natural history departments and of the curators in the other branches of the Museum, beginning on page 35, give in more detail the additions to and the work upon the collections during the year.

SERVICE TO THE PUBLIC

The National Museum as the depository of the collections belonging to the Nation holds a special place among museums and kindred institutions of the country and is specially responsible for service to all the people. Every citizen of the Nation shares the burden of the Museum and each should be benefitted by its work.

The Museum serves the people in many and varied ways. Primarily it receives, classifies, and exhibits collections of objects in all lines of natural history and the arts and industries; but that is not all. The importance of public collections rests not upon the mere basis of custodianship, nor upon the number of specimens assembled and their money value, but upon the use to which they are put; and the National Museum endeavors at all times to serve all the people in every way that it can.

The Museum by its collections on exhibition conveys a message to those citizens from various parts of the country who visit their capital; by its collections in the reserve series it affords assistance to workers in all lines represented; by its system of distribution of duplicate specimens for educational purposes it aids the coming generations all over the land; by its correspondence it conveys desired information in reference to specific problems in many lines; by its publications it extends the boundaries of learning; and more recently by the radio it has immeasurably extended its field of service.

To the residents and schools of the city of Washington the Museum serves also as a local establishment, though without direct local financial aid. To those who live in the District of Columbia, opportunity is afforded for participation in the many conventions, meetings, lectures, addresses, and special exhibitions given in the Museum buildings, besides the advantages of the permanent exhibits. While the Museum has no docent service, its scientific staff is ever ready and freely gives of its time to explain the collections to visitors —those from Washington or strangers within its gates. Several of the curators who have connections with local colleges and universities make it a practice to bring students from such institutions at regular intervals to study the collections. Likewise members prominent in the Boy Scout movement are active in arranging that the Boy Scouts make good use of the facilities here afforded.

While comparatively few staff members have been in direct contact during the year with the elementary schools and the private organizations for the popularization of natural history and the industrial arts, yet every division of the Museum has been constantly called upon to answer questions relating to its specialties. These answers often require considerable work involving correspondence or telephonic communications with newspaper information bureaus, or interviews with persons sufficiently interested to call at the offices and laboratories, and they consume a considerable part of the time of some of its members. They are probably, however, of more educational value than many a lecture. Newspaper men are in the habit of looking for and obtaining material for their popular articles from the Museum. Even writers of books, particularly those on popular natural history, do not hesitate to first gather and store up material during interviews with the curators, and then submit the chapters of their publications to the curator for revision and approval. Editors of popular magazines similarly send manuscripts or proof for amplification or correction, or to make sure that the authors have kept within the boundaries of known facts. All these activities are distinct from the higher work represented by the scientific research constantly going on in the divisions and revealed in papers read before scientific societies or published in technical journals.

Specimens received by mail and material sent from other museums for identification also occupy much attention. The members of the staff spend considerable time and labor in identifying material for persons and institutions in various parts of the country.

The collections of the Museum in the field of the arts and industries are more and more becoming recognized as a vast reference

book of authentic information. Various governmental agencies rely upon the Museum's specimens for the identification and comparison of new material. Manufacturers are beginning to realize that the depositing of their products in the collections of the National Museum acts as an additional protection against suits for infringement and against those who may have been accidentally granted a patent on an art that is not new. Several examples of the value of this protection have recently been brought to the attention of the Museum by patent examiners and attorneys for patentees. In one case a suit for infringement involving large damages was settled out of court upon the evidence of a Museum specimen. In two other cases the denial by the United States Patent Office of a patent on a product, constructed upon what was claimed to be entirely new principles, was found warranted after examinations of specimens in the National Museum. The old adage, "There is nothing new under the sun," is often shown to be true when an examination is made of the Museum's collections. That feature of the American patent system which denies a patent to an art or invention that has been shown to the public for two years or more, increases the importance of a great collection in the Museum illustrating industrial processes and products and makes it an important reference book to the United States Patent Office, as well as to manufacturers, inventors, and the investing public. With the continued cooperation of American industries these industrial collections will grow in importance and scope which will enable the National Museum to render more efficient service in this direction.

In the lecture field mention should be made of the work this year of Samuel S. Wyer, associate in mineral technology, who, through cooperation with the State of Pennsylvania, delivered 89 lectures bearing on natural resource problems, more particularly those of fuel and power. These lectures, without expense to the Museum, were delivered chiefly within the State of Pennsylvania to high-school students, to students of every normal school of the State and of several of the colleges and universities; also to students of Iowa State College, Ames, Iowa; of Western Reserve University, Cleveland, Ohio; of Ohio State University, Columbus, Ohio; and at the annual meeting of the American Home Economics Association in Chicago. In addition, Mr. Wyer wrote and arranged for the publication of the following timely articles: Correct use of fuel in the home, of which 60,000 copies were distributed throughout the United States; Power situation in the United States, originally sent to 45,000 Pennsylvania school-teachers, and since then 30,000 copies of which have been printed; Analysis of electric service for rural homes, with introduction by Dr. Charles D. Walcott, of which

25,000 copies were printed; Limitations of superpower and giant power, of which 65,000 copies were printed; and Inspirational aspects of science, issued in an edition of 5,000 copies.

The lecture work of the Museum extends into the mercantile field. Lectures on textile fibers, cloth construction, and ornamentation were given by F. L. Lewton, curator of textiles, before groups of employees who buy and sell textiles in two large department stores, one in Washington and one in Baltimore. The employees thus trained will have opportunity to assist in raising the standards in such matters.

The collections have served also art schools and manufacturers as sources of original designs for decorations. Particularly is this true of specimens in the division of ethnology.

As an extension of the activities of the Museum a collection of Pueblo Indian pottery, village groups, and groups showing native industries were sent in the spring of 1924 to the H. J. Heinz Co. for exhibition during the season at the Heinz Pier, Atlantic City, N. J., where it will attract the attention of many thousands of visitors.

The two traveling exhibits illustrating the principal processes of the graphic arts, which were mentioned in the last report, were in almost constant demand. They were exhibited in 13 cities in 9 different States during the year. These exhibits continue available for exhibition upon payment of transportation charges.

The Museum has also served in the diffusion of knowledge by assisting the Smithsonian Institution in its broadcasting program under Austin H. Clark, the curator of echinoderms in the Museum, in whose charge the entire subject was placed by Secretary Walcott. Arrangements were made in the autumn of 1923 for broadcasting from Station WRC, Radio Corporation of America at Washington, D. C., a talk on the Smithsonian Institution, historical in nature, followed by similar supplemental talks on its various branches by staff members.

The conclusion was reached in the spring, after careful study of radio programs, that the Smithsonian and Station WRC could to their mutual advantage give a series of informative talks on special scientific topics, and a regular Smithsonian period was established—every Wednesday at 6.15 p. m. The Carnegie Institution of Washington and various scientific bureaus of the Government cooperated in making possible so ambitious a project. The Smithsonian was by these talks brought to the notice of thousands to whom it previously was but a name.

Altogether 18 items were broadcasted by the Smithsonian Institution during the year, 18 different individuals participating, of whom 7 appeared under the auspices of or in cooperation with the

Smithsonian and the remaining 11 as members of the staff, 7 being from the Museum. Those who participated in this program were few in number, however, as compared with those who contributed toward making it a success by furnishing information, suggestions, and encouragement. The series will be resumed in the early autumn.

The Smithsonian radio program was as follows:

October 19, 1923, "The Smithsonian Institution—Its origin and functions," by Austin H. Clark, curator of echinoderms in the Museum; October 22, "The Bureau of American Ethnology," by Dr. J. Walter Fewkes, chief; October 29, "The Arts and Industries Museum," by Carl W. Mitman, curator of mineral and mechanical technology in the Museum; October 31, "The historical collections," by Theodore T. Belote, curator of history in the Museum; November 5, "The National Gallery of Art," by Prof. W. H. Holmes, director (read by Mr. Clark); November 9, "The National Herbarium," by Dr. F. V. Coville, honorary curator of plants in the Museum; November 16, "The Astrophysical Observatory," by Dr. C. G. Abbot, director; April 9, 1924, "The giants of the animal world," by Mr. Clark; April 16, "Little folks in Greenland," by Miss Elisabeth Deichmann of the University of Copenhagen, Denmark, given under the auspieces of the Smithsonian Institution; April 23, "The National Zoological Park," by Ned Hollister, superintendent; April 30, "Useful plants of American origin," by F. L. Lewton, curator of textiles in the Museum; May 7, "Shooting stars and what they are," by Dr. George P. Merrill, head curator of geology in the Museum; May 14, "Animal terrors of past ages—dinosaurs," by Charles W. Gilmore, curator of vertebrate paleontology in the Museum; May 21, "The nonmagnetic ship *Carnegie* and her work," by Capt. James Percy Ault of the Carnegie Institution of Washington, given in cooperation with the Smithsonian Institution; May 26, "Assiniboine Indian music—songs of the Strong Heart Society," grass dance and war dance songs, accompanied by a native drum, by Spotted Eagle (George Connor) and Black Owl (James Archdale), arranged by Miss Frances Densmore and given under the auspices of the Smithsonian Institution; May 28, "Large game animals of North America," by Dr. E. W. Nelson, chief of the Bureau of Biological Survey of the United States Department of Agriculture, given in cooperation with the Smithsonian Institution; June 4, "Flying animals," by Mr. Clark; June 18, "Atmospheric electricity," by Dr. S. J. Mauchly of the Carnegie Institution of Washington, given in cooperation with the Smithsonian Institution.

In addition to the Smithsonian series, a talk by Carl W. Mitman on the early days of the automobile industry, prepared at the

request of the American Automobile Association, was broadcasted on April 3, 1924, from the studio of the Radio Corporation of America.

VISITORS

The Museum exhibition halls—in the Smithsonian Building and in the three buildings belonging exclusively to the Museum—are open free to the public on week days and holidays, and those in the Natural History Building are open also on Sunday afternoons. As a mark of respect to President Warren G. Harding all the exhibition halls, as well as the offices, were closed at noon on August 3, 1923, for the remainder of the day and again from 1 p. m. on August 7 until after the funeral in Marion, Ohio, on August 10. The Aircraft Building was temporarily closed from January 11 to February 4, 1924, to permit of the installation of the Fokker airplane T–2. The flags on the several buildings were flown at half-mast on the following days: August 3 to September 3, 1923, out of respect to President Harding; from February 4 to March 4, 1924, on account of the death of former President Woodrow Wilson, and on May 30, Decoration Day, as customary, from 8.30 a. m. till noon.

The number of visitors to the Natural History Building during the year aggregated 432,754 for week days and 108,022 for Sundays, being a daily average of 1,400 for the former and 2,038 for the latter. At the Arts and Industries Building, the Smithsonian Building, and the Aircraft Building the total attendance was 290,012, 104,601, and 43,534, respectively, with daily averages of 938, 338, and 150.

The following tables 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 the arts and industries was first opened to the public.

Number of visitors during the year ended June 30, 1924

Year and month	Museum buildings			Smithsonian Building	Year and month	Museum buildings			Smithsonian Building
	Arts and Industries	Natural History	Aircraft			Arts and Industries	Natural History	Aircraft	
1923					1924				
July	32,041	47,851	4,942	11,853	January	11,682	31,216	761	4,724
August	38,246	62,800	6,034	14,949	February	11,906	27,471	2,116	4,016
September	29,589	56,425	5,072	10,376	March	17,156	38,039	2,327	5,407
October	22,801	45,025	3,166	8,799	April	37,023	58,954	4,651	14,705
November	16,644	36,926	2,634	5,786	May	27,349	54,938	4,000	8,626
December	13,983	29,920	2,941	5,062	June	31,592	51,211	4,890	10,298
					Total	290,012	540,776	43,534	104,601

Number of visitors to the Museum and Smithsonian Buildings since 1881

Year	Museum buildings			Smithsonian Building	Year	Museum buildings			Smithsonian Building
	Arts and Industries	Natural History	Aircraft			Arts and Industries	Natural History	Aircraft	
1881	150,000			100,000	1902-3	315,307			181,174
1882	167,455			152,744	1903-4	220,778			143,988
1883	202,188			104,823	1904-5	235,921			149,380
1884 (half year)	97,661			45,565	1905-6	210,886			149,661
					1906-7	210,107			153,591
1884-85 (fiscal year)	205,026			105,993	1907-8	299,659			237,182
					1908-9	245,187			198,054
1885-86	174,225			88,960	1909-10	228,804	50,403		179,163
1886-87	216,562			98,552	1910-11	207,010	151,112		167,085
1887-88	249,665			102,863	1911-12	172,182	281,887		143,134
1888-89	374,843			149,618	1912-13	173,858	319,806		142,420
1889-90	274,324			120,894	1913-14	146,533	329,381		102,645
1890-91	286,426			111,669	1914-15	133,202	321,712		40,324
1891-92	269,825			114,817	1915-16	146,956	381,228		48,517
1892-93	319,930			174,188	1916-17	161,700	407,025		86,335
1893-94	195,748			103,910	1917-18	161,298	401,100		67,224
1894-95	201,744			105,658	1918-19	266,532	[1]132,859		101,504
1895-96	180,505			103,650	1919-20	250,982	422,984		86,013
1896-97	229,606			115,709	1920-21	286,397	467,299	31,235	90,235
1897-98	177,254			99,273	1921-22	262,151	441,604	46,380	83,384
1898-99	192,471			116,912	1922-23	259,542	508,518	42,904	95,168
1899-1900	225,440			133,147	1923-24	290,012	540,776	43,534	104,601
1900-01	216,556			151,563					
1901-2	173,888			144,107	Total	9,666,346	5,157,694	164,053	5,295,397

[1] Building open only three months of the year.

PUBLICATIONS

The publications issued by the Museum during the year consisted of eight volumes (one Annual Report, one Proceedings, and six in Bulletin series) and 44 separate papers. The volumes were: the Annual Report of the Museum for 1923; volume 62 of the Proceedings; Bulletin No. 99, Part III, "East African mammals in the United States National Museum—Primates, Artiodactyla, Perisodactyla, Proboscidea, and Hydracoidea," by N. Hollister; two volumes of Bulletin No. 104, "The foraminifera of the Atlantic Ocean," by Joseph Augustine Cushman, being Part 4, "Lagenidae," and Part 5, "Chilostomellidae and Globigerinidae;" Bulletin No. 125, "North American later Tertiary and Quaternary bryozoa," by Ferdinand Canu and Ray S. Bassler; Bulletin No. 127, "Catalogue of the watercraft collection in the United States National Museum," by Carl W. Mitman; and Bulletin No. 128, "List of North American recent mammals, 1923," by Gerrit S. Miller, jr. The separate papers comprised one part from the Bulletin series, four parts of three volumes in the series Contributions from the United State National Herbarium, and 11 papers from volume 63, 19 papers from volume 64, and 9 papers from volume 65 of the Proceedings series. Bulletin 102, Part 8, an earlier publication on "The mineral industries of the United States—Manufactured gas in the home," by Samuel

S. Wyer, was reprinted. This second reprint, like the first, was rendered possible through financial assistance obtained by the author.

Several publications, while published from the private funds of the Smithsonian Institution, have direct bearing on the Museum, namely, the "Report on cooperative educational and research work carried on by the Smithsonian Institution and its branches," by George P. Merrill (Smithsonian Miscellaneous Collections, vol. 76, No. 4); "Explorations and field-work of the Smithsonian Institution in 1923" (Smithsonian Miscellaneous Collections, vol. 76, No. 10); and "The department of geology of the United States National Museum—Illustrated handbook," by George P. Merrill. The last was originally prepared and printed under the first part of the title in the Smithsonian Annual Report for 1921. It was reprinted this year with the added title of "Illustrated handbook" and is sold by the Institution in the geological exhibition halls of the Museum. The sale in the Museum Building of a guide book to the collections is an innovation, but one which has proved well worth while. Researches based wholly or in part on National Museum collections also resulted in publications issued by other bureaus of the Government and by outside concerns, all of which are cited in the list on page 187 of this report.

The distribution of the Museum volumes and separates to libraries and individuals on the regular mailing lists, aggregated 55,084 copies, and in addition 23,650 copies were sent out in response to special requests. Among the latter were 10,000 copies of the reprint of Mr. Wyer's paper sent to teachers of home economics throughout the country. The reserve stock of the older Museum publications is gradually being placed where it can be of greater service. The number of papers distributed by the Museum during the year exceeded the number printed during that period by nearly 1,000; such is the present economy of Museum printing.

The editorial office, besides supervising the printing of the Museum publications, has charge also of all miscellaneous printing and binding. The making of descriptive labels for the various halls, cases, groups, and individual specimens, is no small part of the work. Over 250,000 labels, representing nearly 1,100 forms, were printed during the year.

LIBRARY

The number of books that the Museum can purchase with its small book appropriation is dwindling each year, with the ever-increasing cost of paper, printing, and other items entering into book making. The Museum is correspondingly more and more dependent upon donations and exchanges in building up its library, so

essential to the classification of the collections. The additions to the library this year comprised 1,521 volumes and 2,667 pamphlets, bringing the total in the library up to 164,748 titles. The facilities this year were also increased by 1,929 books procured for temporary use through the cooperation of the Library of Congress and 130 books borrowed from other libraries. The usefulness of this library is likewise not confined to the Museum. It is frequently availed of by other governmental and private establishments and their workers. Aside from books consulted in the reading rooms, some 4,438 books were lent for use elsewhere and 6,139 books were assigned to the sectional libraries maintained in connection with the various Museum collections.

The binding of books for the library was limited by the funds available, as has been the case in recent years. Only 163 books were bound this year.

PHOTOGRAPHIC LABORATORY

The photographic laboratory of the Museum made this year 1,472 negatives, 10,302 black and white prints, 160 sixteen-inch panoram prints, 126 cirkut prints, 315 lantern slides, 97 enlargements, 8 transparencies, besides developing 624 field negatives and mounting 12 prints. These were required in illustrating National Museum and National Gallery objects for reproduction in publications and for record purposes and in copying plans, diagrams, etc.

The accommodations of the photographic laboratory were improved, as mentioned elsewhere. By remodeling a third-story room special facilities were provided for the preparation of lantern slides, a provision long desired.

BUILDINGS AND EQUIPMENT

Steps were taken this year toward additional housing facilities for the National Collections. The executive and independent offices act for 1924, approved February 13, 1923, authorizes the Regents of the Smithsonian Institution to prepare preliminary plans for a suitable fireproof building with granite fronts for the National Gallery of Art (including the National Portrait Gallery) and for the history collections of the United States National Museum, to be erected when funds from gifts or bequests are in the possession of the Regents. A site for the building is designated in the Mall immediately east of the Natural History Building.

The National Gallery of Art Commission, which has had under consideration for some time the adequate housing of the art collections, decided at a meeting on December 11, 1923, to raise by private subscriptions $10,000 toward preliminary plans for this art and his-

tory building, and that amount was soon subscribed. The Board of Regents of the Institution accordingly on February 14, 1924, selected Charles A. Platt, of New York City, who had been recommended by the Commission, as the architect to prepare preliminary plans for the proposed building. It will be recalled that Mr. Platt was the architect of the Freer Gallery of Art. Senator H. C. Lodge proposed an amendment to the second deficiency bill on April 17, 1924, appropriating $2,500,000 to begin the construction of the building the total cost of which was limited to $7,000,000. While this failed to become the law, it is hoped that favorable action will be had at the next session of Congress. A building for the art and history collections would release space in the older buildings that should provide for the growth of the collections for years to come.

Building repairs and alterations.—In the Natural History Building a 40-foot square gallery was constructed in the west end of the east north range, second floor, for the use of the National Gallery of Art. The partitioning off of the south end of the platform at the west entrance to the building provided an additional storeroom for the property clerk. The minor repairs include the resetting of a considerable number of loose marble floor tiles in the exhibition halls; the repainting of a number of rooms in the northwest and west range, ground floor, and in the east range, third floor; washing with a patented solution the painted plaster walls in the auditorium; installing picture molding in one of the geological exhibition halls; removing from a number of third-floor office rooms the old radiators and substituting others that were more efficient; and repairing the two freight elevators. The wooden frames of all the windows on the ground floor were painted on the exterior, as were also the sills of all third-floor windows. A skylight was constructed over the north end of the taxidermist shop in the east court, similar to the one over the south side. Temporary repairs were also made to several bad sections of the adjoining east roadway.

The keystones in the four arches supporting the walls under the dome of the Natural History Building have been subject to periodical inspection, and recent measurements of the east arch indicate a further lessening of the downward movement.

The Arts and Industries Building required more repairs. The spaces immediately to the right and left of the main entrance to the building were remodeled and better accommodations were afforded for the checking of umbrellas, cameras, etc.; also the installation of a public pay-station telephone booth and quarters for the watch service. By this rearrangement two adjacent small rooms previously occupied by the watch force became available for office use and were assigned to the Loeb collection of chemical types. The

inefficient electric light fixtures under the galleries in the exhibition halls were remodeled, increasing the amount of illumination by 50 per cent with a saving of 40 watts for each fixture in current consumption. The art textile exhibition hall in the east north range was repaired and painted, as were also the hallways on the first and second floors of the northwest pavilion, several offices in the west and the south towers, and the mezzanine room in the southwest pavilion. New wooden floors were laid in two rooms, one in the west tower and one in the northeast pavilion. The café was closed from May 15 to the end of the month, during which time it was thoroughly overhauled and renovated, the skylight repaired, and new awning over it provided.

The flat tin roofs over the eight ranges and the café, and the sides and ends of all lanterns on the roofs over the four main halls, four courts, and four pavilions of the building, were painted. The old worn-out asphalt water table on the outside of the northeast range was removed and a heavy reinforced-concrete pavement of greater width substituted. This was constructed with special view to the display there of heavy specimens which heretofore were of necessity placed alongside the roadway.

In the Smithsonian Building a concrete floor was substituted for an old brick floor in a basement room, and besides other minor repairs, the roofs of three towers and a portion of valley gutter over the main section of the building were painted. The exterior walls of the Aircraft Building, which are of corrugated metal, and all seams of the corrugated sheet-iron roof were likewise painted.

Heat, light, and power plant.—The power plant was operated satisfactorily with comparatively few repairs. As customary in recent years, the plant was closed down during the summer season, which extended from July 1 to September 12, 1923, and from May 29 to June 30, 1924. During this time electric current was purchased from the Government contractor.

The heating season was two weeks longer than the preceding year, due to the very late and unusually cool spring. Heat was maintained in the buildings continuously from October 5, 1923, to May 29, 1924. The total consumption of bituminous coal for heat, light, and power was 3,267.2 tons, and 15.8 tons of stove coal were used for domestic hot water purposes in the summer. The average cost of bituminous coal this year was $7.79 for each ton, against $9.06 the previous year.

The buildings were more satisfactorily heated than in past years. The 9-inch steam main in the engine room which has always given trouble has been gradually replaced, doing away with loss in steam. The installation of traps to prevent short circuiting of the steam from the supply to the return mains also improves the service. Par-

ticularly was this true in the Arts and Industries Building. It is intended to make further changes in the Smithsonian Building before the beginning of another heating season. In order to properly heat the third floor of the Natural History Building it will be necessary eventually to remove all the radiators placed against partition walls and replace them with radiators under the windows.

Other repairs to the power plant included the purchase of two Copes boiler feed-water regulators for two of the boilers, replacing unsatisfactory regulators which had been in service for 15 years. These four boilers are in excellent condition. The length of time they have been in service, however, makes it essential to provide for replacing all the tubes at any early date—too large an item to be cared for in one year from the general appropriation. Sufficient tubes and tile baffle plates are in stock to entirely retube two of the boilers and the work will be started before the beginning of another heating season.

The electric generating equipment for the first time since the installation of the power plant has carried a load approximating its maximum capacity. At times on dark days there was a steady maximum load of 1,650 amperes. The marked increase in load is due primarily to the addition of the Freer Building, and, secondarily, to the natural increase in the demand for current in all the Museum buildings. The increase in load has resulted in the more efficient operation, so that this year the cost of current generated, $0.02271 to the kilowatt hour, is less than in the last few years. The lower cost of coal was also a factor.

Changes in the electric cables leading from the Potomac Electric Power Co. lines in B Street north to the switchboard in the Natural History Building were rendered necessary by the increased demands. The main feeder, consisting of two 700,000 centimeter cables and one 250,000 centimeter cable, was increased by two cables of 750,000 centimeters each on the positive and negative sides, and the old 1,000 ampere switch was replaced by a 1,500 ampere double pole General Electric circuit breaker of a maximum capacity of 3,000 amperes. Other cables, when required, can be added to the two sides of the feeder line without the necessity of changing the circuit breaker. The service from the commercial power plant has been much more satisfactory since these changes were made.

The ice plant, in operation 4,800 hours, produced 301.1 tons of ice at a cost of $3.003 a ton, exclusive of labor. The decrease in cost this year resulted from lower cost of electric current and the more efficient operation of the compressor. The capacity of the plant was too small to supply the demands of all the buildings of the Smithsonian group during the summer of 1923. Sufficient ice has been manufactured since then to meet the requirements, with the excep-

tion of a short period in the spring when the plant was shut down for repairs which permitted of greater efficiency of operation.

Fire protection.—The Museum fire-fighting equipment was given the customary regular inspections and tests, and it is hoped that all deficiencies will be remedied shortly. The open-circuit fire alarm system in the older buildings, which was the best obtainable when installed, will be replaced as soon as means are available by a closed-circuit system similar to that installed in the Freer Gallery.

Congress has provided for additional fire protection for the Smithsonian and Museum Buildings by an item in the executive and independent offices act approved June 7, 1924, and arrangements have been made with Commissioners of the District of Columbia to install the additional modern fire hydrants in the Smithsonian Park.

Furniture.—The Museum, in connection with the transfer of the Government collection of coins and medals from the Philadelphia Mint, acquired the exhibition cases in which the collection had been displayed. There the collection occupied a skylighted, octagonal room, with four doors in opposite walls. Between the doors were four wall cases of three sections each, built to fit the angular spaces, and in the center of the room was another specially constructed case—a double-faced polygon of 14 units, access to the interior fronts of which was had through the space which would have formed a fifteenth unit had the polygonal construction been completed. The Museum had no available space corresponding in any degree to the octagonal room, but a very satisfactory installation was made in the west north range of the Arts and Industries Building. The polygonal case was set up in the center of the hall, and the four wall cases were so installed as to divide the north side of the hall into two large bays. The dismantling of these highly finished, many angled cases in Philadelphia and their reconstruction in the Museum required patience and skill and reflect great credit upon the Museum cabinetmakers and their associates in this undertaking.

Thirteen exhibition cases and bases and 119 pieces of storage and laboratory furniture were constructed in the Museum workshops during the year. In addition, 10 items of storage, laboratory, office, and other furniture were procured by contract. At the close of the year there were on hand 3,702 exhibition cases and 11,872 pieces of storage, laboratory, office, and other furniture; also 49,530 wooden unit drawers, 4,712 metal unit drawers, 1,047 wooden unit boxes, 224 wooden double-unit boxes, 12,444 standard insect drawers, 752 wing frames, 5,885 special drawers with paper bottoms, and 11,964 special drawers with compo bottoms for mammal and bird storage cases.

MEETINGS AND RECEPTIONS

The Museum is prevented by its limited maintenance funds from providing, as it would like, public lectures and addresses on the va-

rious subjects in which it is vitally interested. It is, however, ever ready to assist so far as it can other institutions and societies in thus disseminating knowledge. Its facilities afford accommodations for governmental, scientific, patriotic, and local meetings on many subjects, all of which are, of course, open free to the general public.

In response to the invitation of the President of the United States, a National Conference on Outdoor Recreation was held in Washington, from May 22 to 24. The main purpose of this meeting was to bring together Federal and State agencies engaged in promoting various phases of outdoor recreational activities with a view to eliminating wasteful duplication of effort and to develop close cooperation and coordination between the Federal and State work of this character.

The Federal Government is already involved in promoting outdoor recreation on a scale that is not generally appreciated. During 1923 more than 1,280,000 persons visited the national parks, which are administered by the Department of the Interior. About 11,000,000 people visited the national forests, administered by the Department of Agriculture. More than 5,500,000 hunters went afield in pursuit of game, the supply of which in part is being maintained through the administration of the Federal game laws and by the maintenance of large numbers of bird and game refuges on public domain. In addition the success of approximately 5,000,000 anglers depended in part on the work of the Bureau of Fisheries in restocking our waters with game fish.

The National Conference on Outdoor Recreation held all its sessions in the Natural History Building of the Museum, using the auditorium and council rooms, together with office space in various parts of the buildings for its 2 general and 17 special committees. Several hundred delegates, representing all parts of the country, were in attendance—leaders in many fields of endeavor. The President's committee, composed of Hon. John W. Weeks, Secretary of War; Hon. Hubert Work, Secretary of the Interior; Hon. Henry C. Wallace, Secretary of Agriculture; Hon. Herbert Hoover, Secretary of Commerce; Hon. James J. Davis, Secretary of Labor; and Hon. Theodore Roosevelt, Assistant Secretary of the Navy, took active part in the conference, each Cabinet member presiding as honorary chairman at one session and the Assistant Secretary of the Navy as the executive chairman at all sessions.

The program of the opening session, held on Thursday morning, May 22, consisted of an invocation by the Chaplain of the House of Representatives, Rev. Dr. James Shera Montgomery; the singing of "America" by the audience; an address by the President of the United States, Hon. Calvin Coolidge; an address by the executive chairman of the conference, Hon. Theodore Roosevelt, and the

appointment of committees. The program of the remaining sessions indicates the scope of the conference, as follows:

Thursday afternoon. General topic: Wild-life resources of the United States. Addresses: 1. Recreational, economic, and scientific values of wild life. Dr. John C. Merriam, director, Carnegie Institution of Washington. 2. Birds. Frank Chapman, American Museum of Natural History, New York City. 3. Outdoor aspects of our waterways. Will H. Dilg, president, Isaak Walton League. 4. Plants and flowers. Dr. R. A. Harper, Botanical Society of America. 5. Relation of wild life to recreation in forests and parks. Dr. Charles C. Adams, New York State College of Forestry, Syracuse, N. Y. 6. Game and fur-bearing animals. Dr. William T. Hornaday, director, New York Zoological Park. 7. Requirements of wild-life administration. W. C. Adams, director, State department, fish and game, Boston, Mass. 8. Waterway pollution and drainage. Prof. B. Shimek, Iowa State University, Iowa City, Iowa.

Thursday evening was given over to a reception to the delegates. The entire first floor of the Natural History Building was thrown open from 9 to 11 o'clock to those attending the conference, and the Navy Band furnished music during the evening.

Friday morning. General topic: Recreational resources of America. Addresses: 1. Scenic resources of the United States. Robert Sterling Yard, executive secretary, National Parks Association. 2. Outlines of a national outdoor recreational policy with special reference to work of Federal agencies. Barrington Moore, secretary, Council on National Parks, Forests, and Wild Life. 3. Relation between economic forestry and outdoor recreation. Franklin Moon, dean, New York State College of Forestry, Syracuse, N. Y. 4. National provision for the enjoyment of our scenic resources. Prof. Henry Vincent Hubbard, American Society of Landscape Architects. 5. Major possibilities of national cooperation in promotion of recreation. Will O. Doolittle, executive secretary, American Institute of Park Executives. 6. Elements of a Federal recreation policy. Joseph Hyde Pratt, North Carolina.

Friday afternoon. General topic continued from morning session. Addresses: 1. Citizenship values of outdoor recreation. Martin G. Brumbaugh, former Governor of Pennsylvania. 2. Place of State and interstate parks in a national recreational policy. Maj. William A. Welch, Palisades Interstate Park. 3. Place of municipal parks and playgrounds in a national recreational policy. Carl E. Milliken, former Governor of Maine. 4. Town forests. Harris A. Reynolds, American Forestry Association. 5. The place of organized summer camps in American education. Dr. George L. Meylan, professor of physical education, Columbia University. 6. Outdoor recreation and child welfare. Miss Ethel Perrin, American Child Health Association, New York City. 7. Recreation for the

whole family. William T. Richardson, Great Outdoor Association, Boston, Mass.

Friday evening. Addresses: 1. Need of educational efforts in conserving wild life. T. Gilbert Pearson, National Association of Audubon Societies. 2. Motion picture of birds.

Saturday morning. General topic: National cooperation of Federal, State, and private agencies. Addresses: 1. Educational value of museums in national parks, and the relation of natural history museums to outdoor life. Chauncey J. Hamlin, American Association of Museums, Buffalo, N. Y. 2. International aspects of recreation. John B. Harkin, Commissioner, Canadian National Parks, Ottawa, Canada. 3. Some safeguards in outdoor recreation. Judge John Barton Payne, American Red Cross, Washington, D. C. 4. Our school population as a factor in the present and future recreational life of America. Carl V. Schrader, State superintendent, physical education, Boston, Mass. 5. Closer correlation of work of private agencies. Lee F. Hamner, director, department of recreation, Russell Sage Foundation, New York City. 6. National highways and national parks. Dr. S. N. Johnson, National Highways Association.

The Saturday afternoon session was devoted to committee reports and resolutions. The work of the committees covered a wide range of subjects inseparable from a national outdoor recreation program—conservation, land policies, drainage, and pollution, and National, State, and municipal regulations. Two outstanding achievements were brought to fruition at the closing session. First, a permanent organization was formed, to be temporarily directed by an executive committee of prominent men and women representing every section of the country, to perpetuate the work thus inaugurated, making available to the American citizens this Nation's vast opportunities for healthful outdoor recreation. Next in importance was the unanimous adoption of a proposal that the National Government issue a call as early as possible for an international conference to formulate conventions to protect migratory fowl and insectivorous birds.

Another meeting also drawing its audience from all parts of the country was that arranged by the Militia Bureau of the War Department on the evening of May 9, when the adjutants general of the National Guard of each State were assembled to hear lectures by Brig. Gen. Harry B. Smith, presiding officer, by Brig. Gen. Clifford R. Foster of Florida, and by Brig. Gen. Frank Beary of Pennsylvania, and to view motion pictures illustrating military training.

The Public Health Service of the Treasury Department occupied the auditorium for exhibitions of motion pictures on the afternoons of March 28 and April 4, the former before school nurses of the District of Columbia with an address by Dr. J. A. Murphy, chief

medical inspector of the schools, and the latter for the District of Columbia Health Department. Through the cooperation of the Federal Board for Vocational Education one session of the National Conference on Vocational Rehabilitation of Civilian Disabled, convening in Washington from February 4 to 6, was held in the auditorium on the morning of February 6.

The Department of Agriculture was responsible for the following meetings: On November 10, 1923, a lecture on forestry by Herbert Wheeler of the Forest Service before a gathering of the employees of that bureau; December 14, a conference on the conservation of the rapidly disappearing prong-horned antelope, arranged by the Bureau of the Biological Survey; January 4, 1924, an all-day conference on the Japanese beetle and the Almeria grape, under the auspices of the Federal Horticultural Board; April 24, an illustrated address on the preservation of wood, by Dr. C. P. Winslow, before the employees of the Forest Service; April 28 to 30, a plant quarantine conference by State and Federal representatives, under the auspices of the Federal Horticultural Board; and May 16, an exhibition of a motion picture showing the various governmental departments in Washington, D. C.

The council room was used for an address by the Secretary of Agriculture, the Hon. Henry C. Wallace, before the American Committee on the International Institute of Agriculture on the morning of March 31.

Federal Post 824, Veterans of Foreign Wars of the United States, composed largely of employees of the United States Department of Agriculture, held a memorial service in the auditorium on the afternoon of May 29 for members of the Department of Agriculture who gave their lives in the military and naval services during the World War. The program included presentation of colors; salute to the colors; song, "America;" invocation; roll call of honored dead; remarks by Hon. Henry C. Wallace, Secretary of Agriculture; memorial address by Dr. John Wesley Hill, Chancellor of Lincoln University; song, "Star-Spangled Banner." The music was led by the Navy Band.

The National Association of Postmasters, composed of the postmasters of nearly all the larger cities and towns of the United States, held its twenty-third annual convention in Washington, occupying the auditorium for business meetings during October 10 to 12. The program of the first session included addresses of welcome by Hon. H. S. New, Postmaster General, and by Maj. James Franklin Bell, United States Army, Commissioner of the District of Columbia. At other sessions addresses were made by Hon. John H. Bartlett, First Assistant Postmaster General; Hon. Paul Henderson, Second Assistant Postmaster General; Hon. Warren Irving

Glover, Third Assistant Postmaster General; R. D. Simmons, chief inspector, Post Office Department; J. B. Mullan, postmaster of Rochester, N. Y.; A. L. Behymer, postmaster of Cincinnati, Ohio; Arthur C. Lueder, postmaster of Chicago, Ill., and others.

The United National Association of Post Office Clerks likewise used the auditorium for the opening session on September 3 of its twenty-fourth annual convention, which was held in Washington from September 3 to 7. The other sessions were transferred elsewhere.

The nineteenth annual meeting of the American Association of Museums from May 10 to 13, 1924, was of more than usual interest. It marked the close of the association's first year of work on the new basis and performed an important service in bringing the association prominently before the public. The convention was inaugurated by an illustrated lecture in the Museum auditorium on the evening of May 10, by Charles Colfax Long, on "Washington—Our national shrine." May 11 was devoted to an all-day boat trip on the Potomac River, which gave the delegates from museums all over the country an excellent opportunity to renew old friendships and make new contacts. In the evening the delegates were informally entertained by Mr. and Mrs. H. K. Bush-Brown in their studios. The program Monday included morning and afternoon sessions in the Museum, with luncheon at noon in the nearby Smithsonian Building as guests of the Board of Regents of the Institution, and an evening session at the American Red Cross national headquarters, closing with inspection of the Red Cross Museum. The last day of the convention included a morning session in the hall of the Corcoran Gallery of Art, an informal reception by President Coolidge at the White House at noon, when President Coolidge was photographed with the delegates; an afternoon session in the Museum, and the annual dinner that evening at the New Willard Hotel.

The topics considered and the speakers at the technical sessions on May 12 and 13 were as follows:

Address of welcome, Dr. Charles D. Walcott, secretary of the Smithsonian Institution; address, Chauncey J. Hamlin, president of the association; report of the secretary, Laurence Vail Coleman; report of the treasurer, Frederic A. Delano; European survey, Prof. Charles R. Richards, director of the association; fire hazards, Edward R. Hardy; finance and accounting, Alwin C. Ernst; museum ethics and membership campaign, Harold L. Madison; sectional meetings, Miss Delia I. Griffin; the place of the museum in the historical society's program, Dr. J. Franklin Jameson, director of the department of historical research of the Carnegie Institution of Washington; the field of the historical museum, Theodore T. Belote, curator of history in the United States National Museum; the functions of the historical museum, Miss Caroline M. McIlvaine, librarian

of the Chicago Historical Society; greetings at the American Red Cross headquarters, James L. Fieser; the function of the photograph collection for the smaller art museum, Mrs. Elizabeth M. Whitmore, of Northhampton, Mass.; modern tendencies in Europeon industrial art, Prof. Charles R. Richards; the two approaches in art museum instruction, George William Eggers, director of the Denver Art Association; greetings at the Corcoran Gallery of Art, Hon. Henry White; national park museums and National Museum parks, Stephen T. Mather, Director of the National Park Service; the place of museum education in a total scheme of educational objectives, Dr. David Snedden, professor of education at Teachers College, New York City; the museum exhibits problem, Dr. Clark Wissler, curator of anthropology at the American Museum of Natural History; the museum in university instruction, Dr. Frank C. Baker, director of the University of Illinois Museum; and hunting big game in the rocks—the story of the great dinosaurs—illustrated by motion pictures, Arthur Coggeshall, curator of education at the Carnegie Museum, Pittsburgh. The speakers at the dinner included His Excellency Jules J. Jusserand, ambassador from the French Republic; Hon. John J. Tigert, United States Commissioner of Education; Dr. John C. Merriam, president of the Carnegie Institution of Washington; and Dr. Vernon L. Kellogg, permanent secretary of the National Research Council. The National Museum was officially represented at this convention by William deC. Ravenel, F. L. Lewton, and Austin Hobart Clark.

The spring meeting of the American Chemical Society in Washington from April 21 to 25 was the occasion of an informal reception at the Museum to the members of that society and their guests on the evening of April 22. The exhibition halls on the ground and first floor of the Natural History Building were thrown open for inspection from 8.30 to 11 p. m. The delegates were entertained during the evening by music by the United States Marine Band and by motion pictures in the auditorium showing the trip of the Geological Survey engineers through the Grand Canyon in the summer of 1923. The films were run through the machine twice owing to the large attendance. In fact, this was the best attended event of the year.

On the evening of November 13 the Medical Society of the District of Columbia was sponsor for a reception to the members and friends of the Southern Medical Association, during its seventeenth annual meeting convening in Washington from November 12 to 15. Opportunity was afforded the delegates to view all the exhibits in the Natural History Building. In the receiving line, formed in the central National Gallery room, were Dr. Charles D. Walcott, secretary of the Smithsonian Institution, and Mrs. Walcott; Dr. W. S. Leathers, president of the Southern Medical Association, and Mrs. Leathers; the chairman and vice chairman of the local committee; and the president of the Medical Society of the District of Columbia.

The Archaeological Society of Washington, affiliated with the Archaeological Institute of America, was responsible for a lecture in the auditorium on the evening of January 22, 1924, by Count Byron Khun de Prorok on "Excavations at Carthage," which was illustrated by motion pictures of his archeological work at that place. This was followed by a reception in the National Gallery of Art on the floor above. The Archaeological Institute also arranged an exhibition of motion pictures for the Smithsonian staff in the auditorium on the afternoon of April 19, when Craig Biddle, of the Earle Film Corporation, of Hollywood, Calif., presented four reels of recently completed motion pictures made in Guatemala. Many of the views were of special archeological interest.

Of economic importance was the meeting of the Northern Nut Growers Association in the auditorium on September 26 to 28 with morning, afternoon, and evening sessions on the first day; morning and evening sessions on the second, and a single session on the third day. The speakers included James McGlennon, president of the association; Prof. W. R. Mattoon, of the United States Forest Service; Dr. L. O. Corbett; Prof. David Lumsden; C. A. Reed, of the United States Bureau of Plant Industry; L. P. Littlepage; Mrs. W. N. Hiett; Dr. R. T. Morris; Prof. H. H. Hume; Dr. Oswald Schreiner; and Dr. W. E. Safford.

The desire of the State of Maryland to encourage the back-to-the-land movement led to the use of the auditorium on the evening of June 20 for a lecture by Doctor Ford on "The advantages of owning a home," illustrated by motion pictures, before a group of interested Government employees. The gathering had for its purpose the organization of a garden home association, to be founded on Maryland land, and was arranged by the Southern Maryland Immigration Commission. The commission is charged by the Maryland laws with giving free and disinterested information regarding all lands in the State and with fostering organizations such as that proposed.

The Potomac Garden Club, a local organization of amateur gardeners, held its annual meeting as customary in the auditorium on the evening of January 28, 1924, concluding with a motion-picture exhibition.

The Woman's Welfare Association arranged again this year a series of eight popular lectures by eminent physicians on various phases of preventive medicine on alternate Sunday afternoons from January 13 to April 27, which were unusually well attended. The program was as follows: January 13, 1924, Dr. J. C. Bloodgood, associate professor of surgery at Johns Hopkins University Medical School, "Cancer—how to beat it"; January 27, Dr. Ethel M. Watters, United States Children's Bureau, "Government, mothers, and infants"; February 10, Dr. Royal S. Copeland, United States Senator, "Methuselah's secrets"; February 24, Dr. Eugene L. Fisk,

medical director of the Life Extension Institute, "Extending the health span and the working span of life"; March 9, Dr. Shepherd I. Franz, director of the laboratory at St. Elizabeths Hospital, Washington, D. C., "Restoration of the disabled," illustrated; March 23, Dr. Harvey W. Wiley, "Do you want to live longer"; April 6, Dr. James R. Peake, United States Public Health Service, "How to protect the community against diphtheria infection"; and April 27, Dr. Clinton T. Messner, chief dental surgeon of United States Public Health Service, "Teeth and health."

Several local scientific societies utilized the council room 42–43 as heretofore for their regular meetings of the season, including the Anthropological Society of Washington, the Entomological Society of Washington, and the American Horticultural Society.

The Washington (D. C.) Chapter of the Wild Flower Preservation Society of America held five evening meetings in the Museum, all illustrated by lantern slides—the first and last in the auditorium and the others in the smaller hall, with speakers and topics as follows: January 31, 1924, Mrs. Charles D. Walcott, "Flowers of the Canadian Rockies"; February 28, Dr. E. T. Wherry, "Wild flowers of the Southern States"; March 27, H. W. Gleason, "Views and flowers of Plymouth"; April 17, Dr. Paul Bartsch, "Bahama Islands"; and May 8, P. L. Ricker, "Preservation of the dogwood."

The Audubon Society of the District of Columbia used the auditorium on two evenings—on January 23 for the annual meeting, with an address on birds by Dr. Alexander Wetmore, illustrated by motion pictures from the United States Biological Survey; and on March 13, when Dr. John B. May lectured on "Our birds—North and South."

The Washington Society of Engineers had a meeting in the auditorium on the evening of January 2, 1924, addressed both by Col. C. H. Birdseye, chief topographic engineer, and Herman Stabler, chief of the land classification branch, both of the United States Geological Survey. Colonel Birdseye was in charge of the party that made the survey of the Colorado River through Marble and Grand Canyons in the summer of 1923, and the lecture, illustrated by slides and motion pictures, covered that trip. Members of the Geological Survey and of the local chapter of the American Association of Engineers were specially invited to the meeting.

The tercentenary (1623–1923) of the publication of the first folio of Shakespearean plays was celebrated by the Shakespeare Society of Washington in the auditorium on the evenings of November 7 and 8. The first evening was devoted to a program of music under the direction of Dr. Paul Kaufman, assisted by Fulton Lewis, as follows:

"Shakespeare's Lyrics," Doctor Kaufman; "Under the Greenwood Tree" (Thomas A. Arne), and "What Shall He Have That Killed the Deer?" (Stafford Smith) (both from "As You Like It"), by

the male quartet, R. M. O'Lone, first tenor, Charles Reagan, second tenor, Frank Duffy, first base, and Thomas E. Payne, second base; "Orpheus With His Lute Made Trees" (Charles Manney, from "Henry VIII"), Mrs. Chester J. Huhn, with Mrs. Mary E. Seidel, accompanist; "Full Fathom Five Thy Father Lies" and "Come Unto These Yellow Sands" (Henry Purcell, from "The Tempest"), Fulton Lewis, with Miss Minna Nieman, accompanist; "I Know a Bank Where the Wild Thyme Blows" (Charles E. Horn, from "A Midsummer Night's Dream"), duet, Miss Ruthellen Ward, soprano, Miss Roberta Harrison, alto, Miss Minnie Hoxsey, accompanist; "The Poor Soul Sat Sighing by a Sycamore Tree" (Gioachino Rossini, from "Othello"), "When That I Was and a Little Tiny Boy" (Robert Schumann, from "Twelfth Night"), Alden Bradford; "How the Hungry Lion Roars" (William Linley, from "A Midsummer Night's Dream"), and "Blow, Blow, Thou Winter Wind" (William A. Fisher, from "As You Like It"), Fulton Lewis; "When Daisies Pied and Violets Blue" (Thomas Arne, from "Love's Labor Lost"), and "She Never Told Her Love" (Franz Haydn, from "Twelfth Night"), Mrs. Huhn; "Hark, Hark! the Lark at Heaven's Gate Sings" (Franz Shubert, from "Cymbeline"), and "Sigh No More, Ladies, Sigh No More" (R. J. F. Stevens, from "Much Ado About Nothing"), quartet.

On the second evening a dramatic recital was given. "Much Ado about Nothing" directed by Mabel Owens Wilcox, and "King Henry VIII" under the direction of Walter W. Beck, were presented, Lieutenant MacWilliams, vice president of the society, presiding. On the evening of December 12 the Shakespeare Society presented Shakespeare's "Anthony and Cleopatra," as a benefit for the National Monticello Association.

The Boy Scouts of Washington had their attention directed to the District of Columbia faunal exhibit in the Museum by a series of six lectures, on Friday evenings—five weekly, beginning January 4, and one on March 14—so planned as to reach the various troops on the several divisions of the District of Columbia Council. At these meetings Dr. Paul Bartsch instructed the scouts how to attract birds to their homes by placing nesting boxes and feeding tables and by furnishing the birds with water, the most needed of all the bird requirements in our larger cities. The scoutmasters of the Boy Scouts of America met in room 42–43 on Wednesday evening December 5, when they had use of the stereopticon.

The Girl Scouts Association of the District of Columbia had the auditorium for two illustrated lectures. On the afternoon of February 2, 1924, Dr. Paul Bartsch spoke on "Birds of the District of Columbia," and on the afternoon of February 23, Mrs. Charles D. Walcott lectured on "Wild Flowers."

The Puerto Rico Society of Washington held an open meeting in the auditorium on March 12 for the purpose of bringing together all persons interested in Porto Rico and its inhabitants. The program included addresses by Antonio Reyes-Delgado; Hon. Louis W. Fairchild, Member of Congress from Indiana; Hon. Felix Cordova Davila, Resident Commissioner of Porto Rico; and Dr. Guillermo A. Sherwell, secretary of the United States section of the Inter American High Commission; piano selection by Miss Claire Ph. Sgueo, and song, "The Star-Spangled Banner," by the audience.

For many years the National Museum has furnished facilities for the annual gathering in April of the National Academy of Sciences. This year the academy's new building at Twenty-first and B Streets NW. was sufficiently completed to permit the meetings on April 28 to 30 to be held there. The Museum cooperated, however, to the extent of lending certain special exhibits for display in the academy's building during convocation week, including an exhibit devoted to pseudo-ancient man in America, which had a direct bearing on the academy's program, and geological specimens relating to certain features of Dr. C. D. Walcott's work. Paintings of wild flowers by Mrs. Walcott were also displayed.

CHANGES IN ORGANIZATION AND STAFF

The changes in the scientific staff this year were few, due doubtless to the approaching readjustments under the Classification Act of 1923, which becomes effective on July 1, 1924. As reported last year, tentative allocations of all positions in the Government bureaus under the Smithsonian Institution were submitted to the Personnel Classification Board by the liaison officer of the Institution. The board, after reviewing and in some cases revising, has approved with few exceptions the allocations of the Museum employees. Arrangements are being made, therefore, to put the new salary schedules into effect on July 1, 1924.

A program of greater development for the Loeb collection of chemical types was inaugurated in the spring of 1924, through the accrued interest on the Loeb fund, and includes the employment of a chemist to devote his entire time to the subject. The advisory committee on the Loeb collection was reorganized the middle of the year to provide representation of the various governmental agencies in Washington interested in chemistry. The committee is now constituted as follows:

Dr. J. E. Zanetti, chairman of the division of chemistry and chemical technology, National Research Council, *ex officio;* Dr. C. A. Browne, Chief of the Bureau of Chemistry, United States Department of Agriculture, *ex officio;* Dr. S. C. Lind, chief chemist of the Bureau of Mines, United States Department of the Interior, *ex*

officio; Dr. W. F. Hillebrand, chief of the division of chemistry, Bureau of Standards, United States Department of Commerce, *ex officio;* James K. Senior, representative of the committee in the Middle West; Dr. C. L. Alsberg, representative of the committee on the Pacific coast; and F. L. Lewton, representative from the United States National Museum. With the recommendation of the advisory committee, O. E. Roberts, jr., was appointed curator of the collection on April 1, 1924.

The organization of the paleontological collections was modified for administrative purposes, effective June 30, 1924. The division of paleontology was subdivided, the section of vertebrate paleontology being segregated to form a new division of vertebrate paleontology. The remainder of the old division becomes the division of stratigraphic paleontology and comprises the section of invertebrate paleontology and the section of paleobotany.

Other changes affecting the geological staff included the appointment of Erwin R. Pohl on March 1, 1924, as aid in the section of paleobotany; the changing of the title of Dr. James W. Gidley from assistant curator of fossil mammals to assistant curator of mammalian fossils, effective June 30, 1924; and the resignation of Dr. T. Wayland Vaughan as honorary custodian of madreporarian corals, as his work was taking him to the Pacific coast. Doctor Vaughan has continued his long association with the Museum, however, by accepting an honorary appointment as associate in marine sediments.

The resignations from the service included Matthew W. Stirling, assistant curator of ethnology, who resigned on March 15, 1924, and C. C. Anderson, aid in organic chemistry, on June 17, 1924, both positions remaining vacant at the end of the year.

Three members of the staff left the Museum through the operation of the retirement act: W. I. Adams, disbursing agent for nearly 20 years, with service in another bureau of the Institution aggregating 28 years in all; Joseph Horan, sergeant of the watch, with a service of 42 years; and A. F. Adams, classifier in the library, whose retirement granted in October, 1923, was effective from June 2, 1921, with a service of 39 years. W. I. Adams was transferred from the chief clerkship of the Bureau of International Exchanges on June 12, 1905, to the position of disbursing agent of the Institution. Mr. Adams filled the position with credit and ability and his retirement on March 31, 1924, on account of his health was greatly regretted not only by the officials of the Institution but by all who had been brought in contact with him during his long administration of his office. He was succeeded on April 1 by Nicholas W. Dorsey, who had long been his deputy.

Neil M. Judd, curator of American archeology, who was on furlough at the beginning of the fiscal year, resumed his duties on

October 1, 1923. He was again granted leave without pay on May 16, 1924, to continue for the fourth summer his archeological explorations at Pueblo Bonito, N. Mex., under the auspices of the National Geographic Society. P. C. Van Natta, aid in physical anthropology, who is studying to better fit himself for his position, was again granted a furlough for the college year from September 26, 1923, to May 31, 1924. His position was temporarily filled from October 16 to January 15 by John L. Baer, who had served as aid in the division on previous similar occasions, and from January 28 to May 31 by T. D. Stewart. Mr. Baer was relieved that he might join the Marsh Darien expedition as the representative of the Museum, and while collecting specimens in Panama succumbed to a locally acquired illness on May 28, 1924. Mr. Baer was highly regarded by his colleagues and friends for his scientific work and unfailing enthúsiasm. Another field worker, Charles M. Hoy, met a tragic death at Kuling, Kiangsi, China, on September 6, 1923, while through the generosity of Dr. W. L. Abbott he was collecting natural history specimens for the Museum.

The Museum lost from its staff by death: On July 19, 1923, Miss Elizabeth D. Tabler, clerk, one of the oldest employees in point of service, having served continuously for nearly 41 years; on November 23, 1923, John J. Dolan, who entered the Museum employ in 1891, was captain of the watch from July 1, 1902, to April 15, 1923, and was advanced to the office of Museum shipper only a few months previous to his death; and on May 2, 1924, George W. Spier, custodian of watches.

Mr. Spier was born March 28, 1854, in Bueckeburg, Germany, and was early apprenticed to a master mechanic and chronometer maker. As soon as he received his certificate as an expert watchmaker he set sail for America, arriving June 8, 1872, and early the following year he came to Washington. He served at his trade with prominent local jewelers until 1890, when he opened his own jewelry store, from which he retired in October, 1922.

Mr. Spier was given an honorary appointment on the staff of the National Museum as custodian of watches on February 13, 1920, and devoted much of his time in bringing about a better arrangement and classification of the Museum's horological collections. He was instrumental, with the aid of the National Research Council, in the establishment, in October, 1921, of the Horological Institute of America, of which he was elected the first president. Mr. Spier also advocated the establishment of horological schools throughout the country and the erection of a structure in Washington in which should be shown the development of the art and science of time keeping and for the collection and housing of objects illustrating that subject—to visualize the importance and value of correct time keeping in the economic life of our country.

DETAILED REPORTS ON THE COLLECTIONS

REPORT ON THE DEPARTMENT OF ANTHROPOLOGY

By Walter Hough, *Head Curator*

The department of anthropology in its proven field of usefulness accomplished much during the year in increasing the collections and caring for them by the best methods of museum science.

It is a gratifying sign of enlightenment when the people of a nation begin to preserve the material examples of their progress and achievement. In general this work begins late and in consequence much is lost. Especially is this true in regard to the material which forms the basis of anthropology. Much sinks into the ground and decays, and much is dispersed by contacts of higher civilization and introduction of other needs. The necessity is great, if anthropology is to become a comprehensive science, to gather into the care of museums the objects of material culture of races who have had least contact with civilized man. Upon it scientific generalizations affecting the future are to be built. The possessors of the present are in duty bound to conserve indispensable objects of the arts for the use of scientific study in the future.

COMPARISON OF INCREMENT OF SPECIMENS WITH 1922–23

The collection of ethnology is growing normally under the conditions of accession by gift, bequest, exchange, and a few purchases. Under the stimulus of field work and rational purchase the collection could be improved in many instances where it is now lacking and made to take on a healthy scientific growth. While the ethnological collection is important, covering a wide range and with much unique material, additions to it are yearly growing less and distributions of educational duplicate material to institutions almost balance the accessions.

A slight increase in the number of specimens in the division of American archeology is noted and the material added is desirable to the collection.

The division of Old World archeology registers a gain in specimens, which filled up some gaps in the French and Belgian sections of prehistoric archeology.

The receipt of specimens in the division of physical anthropology compared favorably with the increment last year.

In the sections of musical instruments, ceramics, and art textiles the number of specimens received fall below the previous year in number but are about equal in value.

ACCESSIONS DESERVING SPECIAL NOTICE

From the Philippines a considerable collection was received from Mrs. Florence G. Miller. These specimens were collected by the late Capt. E. Y. Miller while on duty in the Philippines as Governor of Palawan. The specimens were selected with the view to the requirements of the Museum and are therefore valuable additions to the collection. They consist of bark cloth, fire thongs, bamboo strike-a-lights, masks, and decorated bamboo from the natives of Palawan, decorated gongs, shields, and other articles from the Moros among others. A gratifying increase in the collections from South America was due to the public spirit of D. S. Bullock, who contributed 82 specimens of ethnologica from various tribes in Argentina, Peru, Bolivia, and other regions. The material consists of costumes of native Araucanian loom work, native silver ornaments showing the influence of ancient Peruvian decorative motives, specimens of Aymara, Lengua, and Chamacoco folk art, and various weapons and objects connected with social life. The Bureau of American Ethnology transferred to the Museum a large blanket having a design of the Yeibichi dance, which it had received from the Navaho Indian chief, Chee Dodge. Francis La Flesche, Omaha Indian, presented a copy in catlinite of a sacred pipe of his tribe, the design being the hoof of the buffalo. Hon. Hoffman Philip lent two horn cups, presents from the Emperor of Abyssinia. These horn cups are still believed to have magical powers, a belief prevalent in Europe in the Middle Ages. Mr. Philip also presented two silver-mounted ear plugs from the Choco Indians, Colombia, South America. A very good old specimen of a bifid bone snuffing tube of the Indians of Colombia was presented by Brother Ariste Joseph of Bogota. Several specimens of edible preparations were added to the collection of aboriginal American foods in the division of ethnology. These were a cake of persimmon bread from the Osage and prepared root of the water chinquapin presented by Francis La Flesche, and a piece of dried seal meat from the Makah Indians of Washington by Miss Frances Densmore. American Indian ethnologica treasured by members of the old Army who campaigned in the West are still occasionally received by the Museum. Notable in this regard is a collection formerly belonging to the late Gen. G. Norman Lieber, presented by his wife. The collection consists of beaded and feathered articles of costume, weapons, dolls, cradles, and other articles formerly used by the western Indians.

Accessions of especial importance received in the division of American archeology were 95 ancient earthenware bowls with figures of animals and men and of group compositions, from the Mimbres Valley, N. Mex., received from the Bureau of American Ethnology. This pottery is unique and peculiar to the locality. It has been the subject of two publications by Dr. J. Walter Fewkes. From an adjoining locality, at Casas Grandes, Mexico, 88 pieces of excellent pottery were received as a loan from Victor J. Evans. An important series of objects, 218 in number, were collected by M. W. Stirling in South Dakota. The National Geographic Society, Washington, D. C., presented a valuable series of 26 objects from Basket Maker and Cliff Dweller habitations in southeastern Utah. John L. Baer contributed 226 stone artifacts collected by him in the Susquehanna Valley. An ancient pottery censer from the island of Carmen, Yucatan, was presented by David I. Bushnell. Dr. W. L. Abbott sent in two stone bowls and other specimens from Santo Domingo. Several lots of stone implements and ornaments from Colombia were presented by Brother Ariste Joseph, of Bogota.

Chief of the accessions received in the division of Old World archeology during the year are a series of prehistoric antiquities from France, Belgium, and Germany, which were collected by Dr. Aleš Hrdlička during his recent trip to Europe; 30 eoliths from Ipswich, England, received in exchange with J. Reid Moir; and 8 prehistoric specimens from France, in exchange with Dr. Henri Martin.

Accessions in the division of physical anthropology deserving special mention include a large collection of skeletal remains from early historic Arikara Indian village sites near Mobridge, S. Dak., which has been received and catalogued. Material much desired by the Museum was obtained from the Tokyo Imperial University through Prof. Y. Koganei, and in exchange five trephined and three artificially deformed crania were sent. A number of additions to the collection illustrating early man were secured by the curator. Phillips Academy, Andover, Mass., kindly sent as a gift 21 crania from Mississippi, apparently of Natchez Indians.

In the section of musical instruments Hugo Worch added three rare instruments to his collection: A clavichord of 1700 and two Italian spinets of 1475 and 1525, respectively. Mrs. Charles Wetmore presented a harp-back piano long obsolete but in perfect playing condition. Miss Le Clair Gaillard presented an antique Spanish guitar beautifully embellished with inlay and painting.

Important accessions received in the section of ceramics were a loan from Miss Eliza Ruhamah Scidmore of five specimens of Japanese, Chinese, and Korean porcelain; the gift from Dr. W. H. Holmes of two beautiful Pennsylvania Dutch pottery dishes of tulip

ware; and the gift of a Copeland Parian pitcher finely modeled, received from Mrs. Horatio King.

Special mention must be given in the section of art textiles to a handerchief and flounce of old Point de Gaze, lent by Mrs. Lester Godfrey Wilson; a finely embroidered India muslin christening robe, donated by Miss Eliza Gardner; and a lace insert showing the crown of England, the design used in making the so-called "Mary" dress of Queen Mary by all the women named Mary in England, the gift of Mrs. Anna M. Stringfield.

EXPLORATIONS AND EXPEDITIONS

The National Museum expedition to Mobridge, S. Dak., resulted in a considerable collection of material new to the division of American archeology. The National Geographic Society continued its third season of exploration at the prehistoric Pueblo Bonito, N. Mex., under the direction of Neil M. Judd. A second expedition under the same auspices was directed by Mr. Judd and penetrated a previously unexplored section of southeastern Utah and secured some material of interest.

WORK OF PRESERVING AND INSTALLING THE COLLECTIONS—PRESENT CONDITION OF COLLECTIONS

With the appointment of M. W. Stirling in the division of ethnology work was at once taken up in arranging in order the material not on exhibit. This work was still in progress at the time of Mr. Stirling's resignation and is near completion. The customary work in poisoning, cleaning, repairing, and putting in dust-proof cases was continued. The bulk of the collection is in good condition, but some material requires tight cases for its better preservation. The dust problem was given attention and the attic ranges were cleaned with modern apparatus. The origin of dust is varied, but the bulk of it is the result of imperfect combustion of carbon fuels. This dust remains in suspension in the atmosphere and is conveyed a considerable distance from where it is emitted. It is hoped to place most of the material in receptacles where dust will not be such a serious matter.

Important installations are noted, especially the placing of three Chinese pagodas derived from the Philadelphia Centennial of 1876, which were repaired and placed on the east corridor and filled with appropriate oriental objects. The plan is to make this section of the division a hall of oriental art craft. In this hall a case of jade carving and one of bronze art castings were installed. A case of Formosan ethnologica, the first of this locality to come to the Museum, was also installed. Two

suits of antique armor of 1510 and 1565, lent by Mrs. Luisa Dahlgren, were cleaned, mounted, and exhibited.

The clearing of two sections of the exhibit hall of the division of American archeology for the erection of a room for the National Portrait Gallery necessitated serious changes in the installation, and a number of cases were removed and considerable reinstallation effected. The collection as a whole is in better condition than ever before. The card catalogue is nearing completion, and when this has been accomplished unnumbered or mislabeled specimens may be correctly identified and properly distributed.

With some additions the Jewish, Mohammedan, and Belgian exhibits were rearranged in the division of Old World archeology.

The time appeared to be ripe to place some of the series of specimens in the division of physical anthropology on public exhibit. This was effected by setting aside a limited space on the exhibit floor and installing therein eight cases of the more important material. Several cases of exhibits were placed on view on the occasion of the opening of the new building of the National Academy of Sciences.

It was hardly realized what an excellent collection of musical instruments was in the possession of the National Museum until a connected study of it was made by Miss Frances Densmore in preparing a guide to the collection. The vision and knowledge displayed during the more than 40 years consumed in gathering this collection is truly remarkable. The idea always kept in mind was not that of art expression in construction and embellishment of musical instruments, but the science of sound production, and on this plan the collection is displayed. Moreover, keeping pace with the acquisition of instruments, a vast amount of orderly data concerning the nature, origin, and properties of the instruments of the world was gathered which would form the basis of a comprehensive encyclopedia of the subject. At present it remains for reference until taken up by a student who can devote a lifetime to the task. The arrangement of the collection on the severe lines of science does not preclude the display of series of specimens illustrating the type and history of certain important instruments, as the Worch collection of pianos, which is unsurpassed in beauty and completeness.

The ceramic collection is gradually growing more valuable because the material collected years ago is assuming a historical importance. The additions in recent years are almost negligible and in this sense the collection is not keeping up with current great advances in art ceramics. Specimens collected now will in the course of time become extremely valuable. From this point of view current ceramics carefully collected would represent a profitable investment.

The art textiles collection in the Museum represents the work of Mrs. Pinchot and a number of ladies whose object basically was to show a complete series of types of art work in European textiles of past centuries. In this respect the collection is markedly complete and additions, except to substitute a better specimen, are not so important. Since the bulk of the exhibit consists of loans, specimens actually donated to the Museum are desired in order to insure the permanency of the exhibit.

The anthropological laboratory accomplished a great amount of work for the department and the National Gallery of Art. The work consisted of modeling figures, repairing groups, mending and restoring pottery, making casts, etc. A figure for the costume of Mrs. Harding was made for the division of history.

Mr. Karl Ruppert worked in the laboratory for several months and received instructions in casting, restoring, and painting ancient pottery.

RESEARCHES FOR THE BENEFIT OF THE MUSEUM

The curator of ethnology completed a manuscript of 700 pages on the general subject of fire and its development in heating and illumination, the technical portion based on the collections in the Museum. He also made progress in a monograph on the collection of illuminating devices. The ethnological material of the Ward African collection was made the subject of an article for the handbook on this collection to be published by the Smithsonian Institution. Mr. Stirling began the study of the collection from Fiji, expecting to complete a handbook on that portion of the Pacific island area.

Mrs. Elizabeth Johnson, who is writing a book about Indian literature from nature sources, pursued an extensive study in the sectional library and was materially assisted by the curator. Dr. Waldemar Jochelson, the explorer, made a study of the Aleut specimens to be used in a report for the Carnegie Institution. Dr. Leslie Spier, of Chicago, copied the designs on Indian parflesche cases for an article which he is preparing. Dard Hunter, of Chillicothe, Ohio, examined the tapa cloth collection and was furnished photographs for a work on primitive paper making. Dr. S. A. Barrett, director of the Milwaukee Public Museum, spent several days in the Museum making a study of the methods employed in the division.

In the division of American archeology the curator has almost completed his investigation of the Utah material collected between 1915 and 1920 for the Bureau of American Ethnology. Karl Ruppert, of the Arizona State Museum, Tucson, was engaged for eight months in studying the Pueblo Bonito collection already received. Dr. A. V. Kidder, of Phillips Academy, Dean Byron Cummings, of the University of Arizona, and Earl H. Morris, of the American Museum of

Natural History, New York, have examined collections in the division with a view toward comparison with material obtained during their own explorations. During the course of his field work the curator aided in the examination conducted by Dr. A. E. Douglass, of Steward Observatory, University of Arizona, of the annual tree rings in timbers found in prehistoric ruins.

The curator of physical anthropology has carried on investigations on the morphology and racial characteristics of the teeth, and the results were published in the *American Journal of Physical Anthropology*. In addition, the curator has devoted a large part of his time on the one hand to studies of ancient man, and on the other to the completion of the studies carried on since 1912 on the old Americans. The latter are practically complete and will be ready for publication by the end of the fiscal year, forming a volume of some 400 or 500 pages. There has also been prepared for publication and printed the first part of the catalogue of human crania in the division collections.

Dr. M. C. Lasher, of San Diego, used material in the division to aid in his study in connection with Dr. Engel on malocclusion of the teeth; Dr. R. Bennett Bean, of the University of Virginia, consulted the scientific works in the division library; Dr. H. C. Cooper, of Abercrombie, N. D., studied teeth; Dr. Thomas W. F. Gann, of the Carnegie Institution, received extensive instruction in anthropometry for work on the Indians of Honduras; Dr. Milo Hellman studied jaws and teeth; Dr. W. A. Galloway, of Xenia, Ohio, examined the pathology of Indian bones; Dr. Reynolds, Boston, made studies on the pelvis; R. R. Lutz, manager of the Washington office of the National Industrial Conference Board, consulted the curator on racial mixtures and immigration; Dr. Boyd Gardner of the Mayo Clinic, Rochester, Minn., investigated jaws and teeth; George Miller consulted on the subject of flat and deformed feet; Hon. Emanuel Celler, M. C., was helped with the literature on immigration; Carter G. Woodson, editor of the *Journal of Negro History*, called to discuss in detail the subject of the anthropology of the negro; Dr. David N. Dennis, Erie, Pa., studied lesions and diseases of prehistoric bones; Dr. A. E. Jenks, of the National Research Council, and Dr. Adolph Schultz, of the Carnegie Laboratory of Embryology, were given instruction in anthropometry; Dr. Charles Leroy Lowman, Los Angeles, Calif., studied racial pathology; and Dr. W. G. Harrison studied the bones in the division showing evidences of pathological lesions.

NUMBER OF SPECIMENS IN THE DEPARTMENT

During the fiscal year just ended the department received 114 accessions, totaling 2,359 specimens, of which 6 accessions, comprising 111 specimens, were loans.

The total number of specimens received were allotted as follows: Ethnology, 492; American archeology, 1,459; Old World archeology, 222; physical anthropology, 169; musical instruments, 5; ceramics, 8; and art textiles, 4.

On June 30, 1924, the specimens on hand in the department of anthropology aggregated 649,943, assigned as follows:

Ethnology	156,176
American archeology	425,252
Old World archeology	30,124
Physical anthropology	28,858
Musical instruments	2,057
Ceramics	6,134
Art textiles	1,342
Total	**649,943**

REPORT ON THE DEPARTMENT OF BIOLOGY

By Leonhard Stejneger, *Head Curator*

The reports of the activities of the various divisions of this department during the past fiscal year demonstrate plainly that the material which of necessity is increasing in volume and value from year to year is rapidly reaching the point where lack of space for expansion and lack of personnel for working the accumulation threaten to prevent the functioning of the National Collection as a scientific institution. The exhibition space is filled to capacity and the space allotted to the study series is rapidly nearing the point of saturation. The staff, on the other hand, remains stationary. The work accumulates but the number of the workers does not increase. These conditions are becoming more and more serious as the years pass by; if continued much longer without relief, the efforts of the curators to carry on the scientific work must suffer while the safety of the collections themselves may become imperiled from lack of help to take care of their preservation.

COMPARISON OF INCREMENT OF SPECIMENS OF 1923–24 WITH THAT OF 1922–23

The collections received during the year surpass those of the years immediately preceding not only numerically but equally so in scientific importance, notably emphasized by the addition of a large number of species and genera new to the Museum. Many gaps have been filled and deficiencies supplied that have helped to remedy some of the many serious defects of our collection. This is particularly noticeable in the division of birds, where the generosity of B. H. Swales has made possible the acquisition of many forms hitherto unrepresented. Such increments do not make for quantity but for quality and add immensely to the scientific value of the collections.

ACCESSIONS DESERVING SPECIAL NOTICE

The most outstanding accession of the year is the donation by Dr. J. M. Aldrich, associate curator of insects, of his private collection of 44,610 specimens of dipterous flies, mostly North American.

The influx of material from China begun during the previous fiscal year has continued, and as it is of particular importance, attention is called to the comprehensive collections received through the

liberality of Dr. W. L. Abbott and Col. R. S. Clark, to whom we owe the specimens of mammals, birds, reptiles, etc., received from Charles M. Hoy and Arthur de C. Sowerby, respectively. No less remarkable and valuable are those made by Rev. D. C. Graham in Szechwan. Large consignments are on the way, and a large number of specimens have been received from the National Geographic Society's expeditions in China under F. R. Wulsin and under Dr. J. F. Rock. To Dr. Hugh M. Smith we owe important collections from Siam which will be of value in linking up the Chinese material with the collections the Museum already has received from the Indo-Malayan region, through Dr. W. L. Abbott's efforts.

Mammals.—Perhaps the most interesting material received was collected by Dr. W. L. Abbott himself in Santo Domingo, namely, 13 skins, skulls, and skeletons, together with 3 embryos representing a genus of rodents which has not been found alive for nearly 100 years. To him we likewise owe 168 mammals collected in China by Charles M. Hoy. Benjamin Burbridge, Jacksonville, Fla., presented two skins and skeletons of gorilla from Belgian Congo, representing a species of gorilla new to the Museum collection. Dr. C. Ishikawa, Tokyo, Japan, donated the skeleton of a porpoise (*Neophocaena*) from the coast of Corea, and A. H. Fisher, Washington, D. C., the skeleton of a river porpoise (*Inia*) from Santarem, Brazil. The mammals from western China sent by Rev. D. C. Graham, 62 specimens, represent an important addition, as do the 33 collected by A. de C. Sowerby, and the 12 by F. R. Wulsin. The latter collection contained one skin and three skulls of the rare dolphin *Neophocaena.* Skins and skulls of five California moles and rodents, forms hitherto unrepresented in our collection, were donated by Donald R. Dickey, Pasadena, Calif. Among the mammals brought home by C. R. Aschemeier from Brazil there were some interesting bats, including a genus new to the collection. Secretary Walcott, during his explorations in Canada, collected the skin and skull of a black bear in British Columbia and skins and skulls of a Rocky Mountain goat and kid (*Oreamnos*) from Alberta, thus making it possible to begin work on the new group of the latter for the exhibition series. A collection of animal remains from Carib kitchenmiddens, including many bones of an extinct rodent, presented by S. Wylde Howes, of Montserrat, British West Indies, deserves mention.

Birds.—Of the 201 skins donated by B. H. Swales, no less than 183 represented species and 4 genera not hitherto in the collection, chiefly in the families of thrushes, jays, sunbirds, babblers, cuckoos, parrots, pigeons, owls, hawks, among them a number of species from Madagascar, and *Comatibis*, an unusual and rare ibis from northern

Africa. Another genus and family new to the collection, *Mesites variegata*, from Madagascar, was secured from a dealer. A notable addition was donated to the Museum by Dr. Casey A. Wood, Chicago, Ill., consisting of 229 skins from the Fiji Islands, among which three species of fruit pigeons of a genus (*Chrysaena*) as well as a honey eater of the genus *Amoromyza* not before represented in the Museum. The Chinese collections alluded to above contained 882 birds from Szechwan, collected by Rev. D. C. Graham, including many novelties; 451 skins collected by A. de C. Sowerby, mostly from the vicinity of Shanghai and Nanking, are of importance for comparison with the increasing material in the Museum from other parts of China. An owl (*Otus glabripes*) is new to the collection. The birds collected by the late Charles M. Hoy in the vicinity of Yochow, 83 specimens, contained a new species named *Pycnonotus hoyi* after the discoverer. The first installment of a shipment of 700 birds from F. R. Wulsin, containing 51 specimens, mostly from Kiangsu, was received before the end of the fiscal year. The Biological Survey of the Department of Agriculture transferred to the Museum 84 eggs, 15 nests, and 709 alcoholics and skeletons, the latter chiefly from Laysan, Midway, and other islands in the Pacific. The material also contained nest and four eggs of the wandering tattler (*Heteroscelus incanus*) from Alaska, the first of this species brought to light by naturalists, collected by O. J. Murie, of the Biological Survey. Among the specimens received from the National Zoological Park deserving of notice is that of *Rhynochetos jubatus*, as it represents a family not previously in the skin collection of the Museum, and also the downy young and two eggs of the greater snow goose (*Chen hyperboreas nivalis*). Dr. Hugh M. Smith, Washington, D. C., presented 26 skins from Siam, not yet critically examined, but possibly containing novelties. From the Bureau of Science, Manila, P. I., 19 specimens, including three genera and species new to the Museum were obtained in exchange. The 105 skins brought home by Mr. Aschemeier from the Amazon River region, Brazil, included three species and three genera new to us.

Reptiles and batrachians.—The collection of reptiles and amphibians made by Dr. W. L. Abbott in Santo Domingo, consisting of 107 specimens, was of particular value, as it supplements his earlier collections which are now being worked up by Miss Cochran. The Chinese material has been very important, consisting as it does of 128 specimens collected by Mr. Sowerby, 100 by Mr. Wulsin, and 68 by Rev. D. C. Graham, as they contained a large number of new species, now being described, and species new to the collection. Other interesting collections received were from the Biological Survey, including specimens from the United States and various small islands in the Pacific Ocean; 91 specimens from Dr. Hugh M. Smith, col-

lected in Siam; 109 collected by Gerrit S. Miller, jr., in islands of the West Indies; and 37 lizards and tree toads by Dr. Paul Bartsch in the island of San Salvador, Bahamas. A number of amphibians from Santa Catharina, Brazil, representing species new to the collection were secured from a dealer.

Fishes.—In this division also the most important accessions are represented by the Chinese collections, consisting of 686 specimens from the Provinces of Fukien, Kiangsu, and Chekiang, collected by Mr. Sowerby, and 115 specimens from the Province of Szechwan by Rev. D. C. Graham. Gerrit S. Miller brought home a collection of 29 fishes from the Lesser Antilles. In exchange 68 specimens of African fresh-water fishes were obtained from the British Museum, London.

Insects.—Allusion has already been made to the donation by Dr. J. M. Aldrich, associate curator of the division, of his private collection of Diptera. It consists of 44,610 specimens, 4,145 named species and many unnamed, with type material in 534 species. Another fine donation of 10,759 Lepidoptera from Syria was made by B. Preston Clark, honorary collaborator in the division of insects. William Schaus, honorary assistant curator, purchased and donated to the Museum several lots of Lepidoptera from Ceylon and South Africa. The Chinese material was augmented by Rev. D. C. Graham, who donated several thousands of insects collected by himself in western China, many in high altitudes. The United States Bureau of Fisheries transferred to the Museum 2,329 pinned insects from the Pribilof Islands, Bering Sea. More than a thousand specimens of Lepidoptera were received as a gift from Prof. C. F. Baker, Los Baños, Philippine Islands. In exchange 169 specimens of Diptera were obtained from the Zoological Museum, Copenhagen, Denmark, including type material of 11 species. An encouraging sign that the movement to make the National Museum one of the prime type depositories is making progress is shown by the enlightened action of the Bureau of Plant Industry, Department of Agriculture of the State of Pennsylvania, in donating the holotypes of 14 species, paratypes of 35, and cotypes of 6.

Marine invertebrates.—Among the more notable accessions received is a comprehensive collection of parasitic copepods, including 15 types of new species, donated by Dr. C. B. Wilson, Westfield, Mass., being in part the material upon which his recent paper in the Museum "Proceedings" is based. From the State University of Iowa, through Prof. C. C. Nutting, we received 291 crustacea, 5 sponges, 9 alcyonarians, 1 sea anemone, 18 worms, and 2 ascidians, collected by the Barbados-Antigua Expedition of the University, including representatives of 8 new species. Lieut. H. C. Kellers,

United States Navy, presented 100 specimens, mostly crustacea, collected by himself at Constantinople, Turkey, and various localities in England. Prof. M. M. Ellis, University of Missouri, donated more than 500 specimens of crayfish collected by himself between Missouri and Idaho, including a species new to the collection. To Dr. Hugh M. Smith we owe a comprehensive collection of 729 crustaceans and 69 other marine invertebrates from Siam. An exchange with the Zoological Museum at Copenhagen, Denmark, resulted in the addition of 57 species, 373 specimens, of Arctic amphipods and isopods, of which 13 genera and 42 species are new to our collections. A large number of smaller collections by various contributors too numerous to be detailed here added many species hitherto unrepresented in the Museum. These collections were made in many countries, a considerable portion in China by a number of correspondents to whom we are under great obligations.

Mollusks.—Owing to the overshadowing importance of the Evezard collection added to the Museum in 1923, the accessions of the present year suffer by comparison. Nevertheless, the additions have been many and important, notably because they come from many regions from which the Museum has but little material, and also because many of them contain type material of newly described species. Among them are collections received from Dr. R. A. Olsson, Gloversville, N. Y.; Mrs. Ida S. Oldroyd, Stanford University, Calif.; Dr. Fred Baker, Point Loma, Calif.; Marcus H. Dall, Santa Barbara, Calif.; Mrs. Carrie L. Simons, San Diego, Calif.; Prof. E. C. Faust, Baltimore, Md.; Prof. T. D. A. Cockerell, Boulder, Colo.; Dr. H. A. Pilsbry, Philadelphia, Pa., and A. W. B. Powell, Auckland, New Zealand. Dr. Paul Bartsch collected about 23,000 specimens of land and marine mollusks on the island of San Salvador, Bahamas. Dr. Hugh M. Smith presented 139 lots, estimated to contain 1,500 specimens of land, fresh water, and marine mollusks collected by himself in Siam. The Museum has very little material from this region, and it is hoped that this collection will contain many new species when worked up. D. Thaanum, Honolulu, H. I., donated 65 species, 156 specimens, of marine shells from Japan and Palmyra Island, and George Hamilton, Watling Island, Bahamas, about 2,000 specimens, 94 species, from Watling. Many species from China were received from Rev. D. C. Graham, from Prof. C. Ping, Nanking, and A. Jacot, Tsinan. G. G. Bardarson, Akureyri, Iceland, donated marine shells from that island; the Bureau of Science, Manila, P. I., and Maxwell Smith, Hartsdale, N. Y., land mollusks from the Philippines; B. Sundler, Boras, Sweden, mollusks from Sweden; and Dr. F. Felippone, Montevideo, Uruguay, mollusks from

southern South America, etc. The Frances Lea Chamberlain Fund, which was created for the benefit of the Isaac Lea collection of mollusks, made it possible to secure 121 species of Cerions, mostly topotypes, by purchase.

Echinoderms.—All the accessions received during the year were small.

Plants.—The more important accessions are as follows: 9,918 specimens transferred by the Bureau of Plant Industry, United States Department of Agriculture. These include 5,000 specimens of plants collected in southeastern Asia by Dr. Joseph F. Rock; 2,010 mounted grasses, from various sources; 1,700 specimens collected in Ecuador and Peru by Dr. A. S. Hitchcock; 100 palms collected in Panama by Dr. O. F. Cook; 403 specimens of agave, constituting the collection assembled by Mr. Alwin Berger, and purchased by the Department of Agriculture; 2,021 specimens, largely from Alaska, received as a transfer from the Bureau of Biological Survey, United States Department of Agriculture; 17,000 specimens of plants from Panama and Costa Rica collected for the Museum by Paul C. Standley, associate curator; 4,500 specimens from Panama, Costa Rica, and Nicaragua collected for the Museum by William R. Maxon, associate curator; 846 specimens of plants, collected chiefly in Peru by Francis J. Macbride, received as an exchange from the Field Museum of Natural History, Chicago, Ill.; 2,734 specimens, chiefly from eastern Canada, received as an exchange from the Gray Herbarium of Harvard University, Cambridge, Mass.; 1,872 specimens of plants from British Guiana, purchased; 500 specimens from the Dominican Republic, collected and presented by Dr. W. L. Abbott, Philadelphia, Pa.; 1,364 specimens of Philippine plants received as an exchange from the Bureau of Science, Manila, P. I.; 3,820 specimens of plants, largely from Kansas and Colorado, comprising the private herbarium of Prof. E. A. Popenoe, received as a gift from W. P. Popenoe, Topeka, Kans.; 861 specimens from Salvador, received as a gift from the Dirección General de Agricultura, San Salvador, Salvador, through Sr. Dr. Salvador Calderón; 485 specimens of plants from Salvador, received as a gift from Dr. Sisto Alberto Padilla, Ahuachapan, Salvador. In addition a number of collections including from 450 to nearly 800 specimens of plants from various localities in tropical America were obtained as gifts from American Museum of Natural History, New York; Brother Claude Joseph, Nuñoa, Chile, Prof. H. Pittier, Caracas, Venezuela, and Brother Ariste Joseph, Bogota, Colombia; or in exchange, from Dr. E. Rosenstock, Gotha, Germany, and the New York Botanical Garden.

EXPLORATIONS AND EXPEDITIONS

The hopes expressed in last year's report that the activities so auspiciously begun in the biological exploration of China might be the inauguration of a new era in field work destined to benefit the National Museum, have received great encouragement during the past year. It is true that a tragic event early in the year resulted in a serious setback of the plans. It will be recalled that Dr. W. L. Abbott, after the return of Charles M. Hoy from Australia, decided to send him to China to collect for the Museum and that he departed for his new field on December 15, 1922. Owing to delay in clearing the collecting outfit at the customhouse in Shanghai, it was impossible to begin serious field work until May 17, 1923. During part of May and June specimens were collected in Yochow district, Hunan, but adverse conditions greatly interfered with the work. Nevertheless, 168 mammals and 83 birds were collected. On July 2 he left for a trip through Hunan and Kiangsi. Conditions were bad owing to banditry and revolution, and then Mr. Hoy was severely wounded by the accidental discharge of his revolver and brought to Kuling early in August. No anxiety was felt for his condition but, about a week after, he developed a severe case of appendicitis, and although operated on immediately, he died on September 6. The Museum thus suffered a great loss, for as the Secretary of the Smithsonian Institution feelingly wrote to the father, young Hoy "gave great promise as a field naturalist, and there is no doubt that with experience he would have soon advanced to the front rank of his profession. The remarkable collections which, after only a few months of special training here, he made in Australia, furnish abundant evidence of his ability and tireless energy."

With his usual liberality, Doctor Abbott permitted Hoy's collecting outfit to be sent to Rev. D. C. Graham, in Suifu, who will thus be enabled to do even more effective work than has hitherto been possible. Mr. Graham, during the summer of 1923, was able to carry out his plan of making a collecting trip to Tatsienlu near the Tibetan border. He practically duplicated A. E. Pratt's route, going by way of Mount Omei, and not only secured valuable topotype material of species based on Pratt's and Potanin's expeditions, but secured a number of undescribed species which had escaped his predecessors. He also ascended the Tibetan Plateau and secured specimens in very high altitudes. It is to be hoped that he will be able to carry out his plans for the present year to explore the territory to the north, previously only visited by such pioneers as the French abbot Père Armand David, and the Russian explorers Berezowski and Potanin. As the result of Mr. Graham's activity, the Museum during the last

year received from him 62 mammals, 882 birds—with 300 skins shipped some time ago and still on the way—68 reptiles and amphibians, 115 fishes, several thousand insects, 800 crustaceans and other invertebrates, etc. Several new species have already been described from this material and many more will probably appear when it has been thoroughly worked up.

The National Geographic Society's expedition under F. R. Wulsin, was in the field during the season. The first trip had for its object explorations along the Yellow River. Starting from Peking in the neighborhood of which some collections were gathered while preparations for the trip were being made, he proceeded by way of Inner Mongolia and Kansu, reaching Lake Kokonor, in Tibet, during August, 1923, returning by way of Lanchow. Considerable zoological material obtained in Shanghai which add to our knowledge of the eastern Chinese fauna has already been received.

Under the auspices of Col. Robert Sterling Clark, Arthur de C. Sowerby continued his collecting for the Museum, but on account of the disturbed conditions in China he was unable to go far afield from his headquarters in Shanghai. Nevertheless, as shown above, valuable additions to our collection resulted, furnishing as they do serial material for comparison with collections from more remote regions.

Dr. W. L. Abbott's expedition to Santo Domingo during the months of November and December, 1923, was chiefly confined to the Samana region. About 500 plants, a fine series of reptiles and amphibians, and a few birds were collected, but best of all the specimens of the long lost rodent. A long and strenuous search for this interesting mammal was thus crowned with success.

Dr. Hugh M. Smith, honorary associate curator in zoology, who is engaged in fisheries investigations for the Government of Siam, collected in many localities of that country. The birds, reptiles, amphibians, and invertebrates, including great numbers of crustaceans and mollusks obtained, are now in the National Museum and form a most important addition linking up the collections made formerly by Dr. W. L. Abbott in the Malay Archipelago and Peninsula with those of the countries farther north.

The Museum profited greatly by two expeditions undertaken by the Bureau of the Biological Survey, Department of Agriculture. Harry Malleis was sent to the Province of Peten, Guatemala, for the purpose primarily of obtaining living specimens of the ocellated turkey for introduction on an island off the coast of Georgia. The trip in addition resulted in a very considerable miscellaneous collection of which the bird skeletons and alcoholic preparations form a conspicuous part. The other expedition was undertaken in conjunction with the Navy Department. Dr. A. Wetmore, of the

bureau, visited Laysan, Midway, Johnson, Wake, and other islands in the Pacific and made large collections, part of which have already been transferred to the Museum.

Dr. Casey A. Wood, a valued collaborator of the division of birds, made a three-months visit to the Fiji Islands. During his stay there he enlisted the help of several native collectors, and secured over 200 skins of birds from Viti Levu, Vanua Levu, and Kandavu Islands, thus supplementing very importantly the Museum series from that region, adding many species hitherto unrepresented. Through his arrangement with his local assistants to continue the work in localities he himself was unable to visit, it is hoped the Museum will profit further.

C. R. Aschemeier, during the summer of 1923, visited the lower Amazon region, Brazil. He returned shortly after the beginning of the fiscal year, his trip resulting in adding 105 specimens, including several species new to the Museum.

During the summer of 1923, Prof. T. D. A. Cockerell and his wife undertook at his own expense, an expedition into Japan and the opposite coast of the maritime province of eastern Siberia, principally for the purpose of collecting and studying insects. All of the insect material was forwarded to the Museum, where it has been mounted and labeled for study and partly sent to specialists for identification. After the material has been worked up and reported on, it is Professor Cockerell's intention to deposit it in the National Museum.

Dr. H. G. Dyar, custodian of Lepidoptera, during the spring of 1923, made a trip financed by himself to Panama, primarily for the study of larvae of mosquitoes. The trip was undertaken in company with Mr. R. C. Shannon, of the Bureau of Entomology, whose expenses were paid by the bureau. Besides an extensive collection of adults and larvae of mosquitoes, many thousands of miscellaneous insects were obtained. In the early part of 1924, Dr. T. E. Snyder, of the Bureau of Entomology, went to Panama and secured a large material of termites besides miscellaneous insects which will be added to the National Collections. Doctor Dyar shortly afterwards started for the western coast of the United States, studying larvae of mosquitoes with the hope of securing the immature stages of species not represented in our collection. This expedition was also at his own expense.

Dr. J. M. Aldrich, associate curator of insects, has been collecting dipterous flies throughout the high altitudes and on the west coast of the United States since early in June of the present year and will continue for some time into the next fiscal year.

During the year Dr. William M. Mann, of the Bureau of Entomology, undertook several expeditions into Mexico, Panama, Co-

lombia, Guatemala, Costa Rica, and Honduras, by which the Museum has profited greatly not only in insects, but also in specimens of other classes.

Dr. Paul Bartsch, curator of mollusks, made a trip to the little island of San Salvador, Bahamas, last August. The Army transport service was kind enough to give him transportation on the United States Army transport *San Mihiel*, landing him at Cockburntown. Through the kindness of the Navy, the United States Navy transport *Kittery* picked him up later and landed him at the naval station at Guantanamo Bay, southeastern Cuba. During his stay on San Salvador, he secured about 2,300 specimens of land and marine mollusks, birds, reptiles, batrachians, fish, marine invertebrates, and other natural history objects. During June, Doctor Bartsch visited Cuba and the Florida Keys in connection with his experiments in heredity which are being conducted under the joint auspices of the Carnegie and Smithsonian Institutions. He secured a lot of breeding material which had been planted in the Tortugas group of the Florida Keys, and also a lot of specimens for the United States National Museum. The Museum is indebted to the authorities of the United States Navy and Army, for furnishing transportation to San Salvador and Cuba to Doctor Bartsch, and also to Andrew S. M. O'Brien, commissioner, Watling Island, Bahamas, for rendering every assistance possible to make the expedition a success.

Gerrit S. Miller, jr., curator of mammals, undertook during the early part of 1924 a trip to the island of Granada, British West Indies, during which he made extensive collections of animals and plants which are now in the Museum. He was able to collect at various other islands on the way, notably in Barbados and also in Bermuda, securing for the Museum a large amount of valuable material.

The geological expedition of Dr. C. D. Walcott into the Canadian Rockies, as usual, resulted in the addition of many interesting specimens.

Three major expeditions besides Dr. W. L. Abbott's trip to Santo Domingo already alluded to, undertaken during the fiscal year have enriched the National Herbarium. Dr. A. S. Hitchcock, custodian of the grass herbarium, was absent from May 25, 1923, to February 17, 1924, on a trip of botanical exploration in northern South America conducted under the auspices of the Department of Agriculture, the Gray Herbarium, and the New York Botanical Garden. Four months was spent in Ecuador, two months in Peru, about six weeks in Bolivia, and a few days in Panama. Large collections were obtained, of which a set of approximately 1,700 specimens, exclusive of grasses, have been deposited in the National Her-

barium. Paul C. Standley, associate curator of plants, was absent from November 13, 1923, to April 29, 1924, engaged in field work in the Panama Canal Zone and Costa Rica, the expenses of the exploration being borne in part by the Department of Agriculture and by Oakes Ames, who is especially interested in the orchids of Central America. About 7,000 numbers were obtained during the two months spent in the Canal Zone, and 8,000 numbers, including a larger percentage of orchids, during the ten weeks spent in Costa Rica. The former material was particularly desired for use in preparing manuscript for a popular flora of the Canal Zone, and the latter for similar use in preparing a treatise of the flora of all Central America. Altogether, about 17,000 specimens were obtained, this number including certain duplicate material intended for a reference herbarium to be established in the Canal Zone. Dr. William R. Maxon, associate curator of plants, who was detailed by the Museum to accompany an expedition from the Department of Agriculture to Panama and Central America in May, 1923, returned to Washington early in August, 1923. As a result of the field work in Panama, western Nicaragua, and Costa Rica, about 4,500 specimens were obtained, apportioned about equally among the three regions. The Nicaraguan material will be especially useful in the preparation of the proposed flora of Central America, above mentioned.

WORK OF PRESERVING AND INSTALLING THE COLLECTIONS—PRESENT CONDITION OF THE COLLECTIONS

The principal work of the taxidermists during the year has been the dismantling of one of the largest of the North American mammal groups, namely, that of the Rocky Mountain goats, and the work connected with the mounting, etc., of the animals of the new group which is to take its place. For a number of seasons back, Doctor and Mrs. Walcott during their explorations in the Canadian Rockies have been gathering material consisting of specimens, photographs, notes, etc., with a view to replacing the old group by a new one which should do justice to the interesting animal with the appearance and habits of which they had become familiar, while campaigning among some of the grandest scenery of the continent. During the year W. L. Brown and his assistants have modeled and mounted the individual animals composing the group. The remaining work, the building up and finishing of the accesories, including rocks and vegetation, was still in progress at the end of the fiscal year.

A number of smaller mammals have been mounted and placed on exhibition. A large number of birds have also been mounted for

the District of Columbia animal exhibit. Owing to the necessity of giving up one of the rooms formerly occupied by this exhibit, a readjustment and reinstallation had to be undertaken. An interesting exhibit of "whale bone" showing the difference in its structure and appearance in the various species was prepared and installed in the whale hall.

The work of caring for and recording the study series in the various divisions has been attended to in the usual manner.

In the division of mammals 30 quarter-unit and 6 half-unit cases were received during the fiscal year for the storing of skins and small skulls and skeletal material, while 8 quarter-unit cases have been added to the storage facilities for large skulls and skeletons in the attic. The entire collection stored there is in a crowded condition especially the larger skins, 17 quarter-unit cases having been added for the further arrangement and storage of the cetacean collection. The small skulls and skeletons have all been placed in cases, but the greater part will need rearrangement and spreading. A card index of all whale material is being made and practically completed. Of the general skin collection, 14 quarter-unit cases containing types and 7 half-unit and 2 quarter-unit cases, consisting of the entire collection of marsupials, except the larger kangaroos, were removed from the mammal range, and placed in a small room on the ground floor, northwest corner. Considerable work has been done in the alcoholic collection, most of it consisting in identification and general rearrangement of the material. The condition of all the material is good. The taxidermists have prepared as study specimens 70 tanned skins and 50 made-up skins. Work on cleaning large and medium skulls and skeletons by the Museum force has resulted as follows: Skulls 223; skeletons 105. Work on small and medium-sized skulls and skeletons has resulted in the cleaning of 442 skulls and 52 skeletons. This work is in a satisfactory condition.

In the division of birds the work of distributing the identified material and of shifting and rearranging due to accumulation of new material has been continued. A very few new quarter-unit cases and one half-unit case were provided this year, but not enough to take care of the unexpected increase in certain parts of the collection. The study collection of skins is in a very satisfactory condition. It is of course impossible to predict in advance where more storage will be needed, and when the new material is to be distributed in the systematic series, it is often found necessary to provide for it by inserting a new case over a crowded one and respacing the material. A large number of skins received from the field collectors during the year were in such condition as to require

being made over by our taxidermists. Cleaned skeletons and skulls to the number of 462 were entered on the card catalogue list, labeled and distributed in the collection. With the help of a cataloguer progress was made, but at the close of the year the cleaned specimens needing attention had again assumed considerable proportions. Dr. Alexander Wetmore has kindly continued his labors with this part of the collections. A considerable amount of old alcoholic material was examined, numbers and data verified, and labels written. The alcohol was replenished and many specimens previously stored in bulk were separated out and placed in more suitable containers. The eggs and nests received during the year were catalogued and filed away. Distribution of specimens in the systematic series has not been accomplished but otherwise the condition of the collections is very satisfactory.

In the division of reptiles and batrachians 2,500 specimens were installed in permanent places in the storage room, a considerable gain over the number of specimens received during the year. The washing and refilling of the jars has gone forward as usual. The replacing of old cork-stoppered jars by standard glass-stoppered containers has not progressed as desired because of the difficulty in obtaining proper glassware.

In the division of fishes the collections have been thoroughly inspected, containers refilled, cleaned, and labels restored when necessary. The material received during the year has been determined, catalogued, and installed in the systematic series. The duplicates have been separated from the study series thus facilitating the assembling of sets for distribution. The condition of the collection is reported to be excellent.

The collection of insects was furnished 600 insect drawers rendering it possible to make substantial progress in transferring the older part of the collection to the tray system, as 350 of the drawers were fitted for trays. The remainder, as well as many lined drawers released by the process of transfer, were used by the section of Lepidoptera. Dr. H. E. Ewing has arranged the collection during the year, and also begun the transferring of the tick collection into new standardized equipment, about one-half of the collection having been thus transferred. The collection of mites has also been arranged as far as practicable. At present, practically all of the slides are stored in temporary boxes and it will be necessary to have additional equipment to properly house this rapidly growing, important collection. He has also rearranged the entire collection of fleas. Much of the material had to be transferred to slides, and the collection is now in a very satisfactory condition. In the section of Coleoptera much of

the material in the families Buprestidae, Cerambycidae, Elateridae, and Eucnemidae, has been arranged and placed in trays by W. S. Fisher, J. A. Hyslop, and H. S. Barber. Dr. A. Böving has finished the arrangement of the collection of Palearctic coleopterous larvae, as well as the entire larval collection of Carabidae, half of the Chrysomelidae and part of the Curculionidae. William Schaus has continued arranging and identifying the Macrolepidoptera so far as drawers and cases permitted. A rearrangement has been possible in the Palearctic part of the geometrid subfamily Larentiinae, the South American Epipaschiinae, the Old World Pieridae, and Hypsidae. H. G. Barber has arranged most of the Hemiptera of the family Reduviidae, and John R. Greely, under the supervision of W. L. McAtee transferred and arranged the Hemiptera of the Baker collection. The collection of aphids is still housed in the Bureau of Entomology Building. P. W. Mason, under Dr. A. C. Baker's direction, has rearranged and revised the collection in two of the smaller genera. The coccid collection was removed from the bureau building early in 1924 to a room on the third floor of the Natural History Building, where it is now under the care of Harold Morrison, who has revised and arranged the subfamily Ortheziinae. C. T. Greene has continued his work on the Diptera and placed the adults of the families Bombyliidae, Asilidae, Phoridae, Conopidae, Therevidae, Platypezidae, and part of the Tabanidae in trays and arranged the collection. S. A. Rohwer reports that in the section of Hymenoptera as much progress in arranging the collection was made as was possible with the equipment, as all the drawers and trays which could be spared for rearranging the material were used, and more could have been utilized if they had been available. The present condition of the insect collections is good, and there is little or no infestation with museum pests.

In the division of echinoderms a large number of specimens have been placed in permanent containers and transferred to the study collections and much previously unidentified material has been determined. Practically all the material received in current accessions was indentified and added to the study series. Thanks to the voluntary work of Miss Elisabeth Deichmann, of Copenhagen, who studied the holothurians of our collection for more than half a year, all of our unidentified material in this difficult group has been determined.

Curatorial work in the division of plants in connection with the upkeep and increase of the herbarium has continued satisfactorily during the past year. In the course of a general review of West Indian and Costa Rican ferns, Doctor Maxon has reidentified a considerable amount of herbarium material, and Mr. Standley has performed a similar service in the case of many groups of flowering

plants from Mexico and Central America in connection with identifying recent large collections from Guatemala and Salvador. Doctor Rose has practically finished his study of the Cactaceae but has continued his study of the American species of Caesalpiniaceae in cooperation with Dr. N. L. Britton. Mr. Killip has identified a large number of flowering plants recently received from the Andes of South America. Mr. Leonard, in continuation of his study of the flora of Hispaniola, has reviewed the herbarium material of West Indian phanerogams in general, and has identified many specimens hitherto unnamed. Dr. A. S. Hitchcock and Mrs. Agnes Chase have continued their studies of American grasses. The critical work of Dr. S. F. Blake and Dr. C. V. Piper, of the Bureau of Plant Industry staff, upon special groups, has been mentioned elsewhere. The recent plan of mounting a part of the specimens with glue and reenforcing them by adhesive plaster has worked well, about 14,000 specimens having been mounted during the year in this way. In addition, 15,750 specimens have been mounted wholly by plaster, 12,155 specimens of this number having been mounted by contract. There remain unmounted not less than 35,000 specimens, not including about 15,000 specimens that have been glued but not strapped. Under the condition obtaining, preference in mounting has been given to material urgently needed in current studies of tropical American botany, and great care has been exercised in eliminating as "duplicates" all but the most desirable specimens. In pursuing this course there is recognized the danger of sacrificing material, especially specimens of numbered sets, that would prove of utility in providing suites indicating geographic distribution, breadth of variation, and possibly undescribed species; yet, the inability to keep abreast in mounting and the lack of space for additional cases both for storage and for the study series have permitted no alternative course.

Supplementing the complete distribution of mounted specimens into the herbarium last year, there are being incorporated at present about 14,000 specimens, chiefly South American, this material being especially necessary in current work. An equal number of mounted specimens from other regions are held for incorporation at a later time. Not only are the specimens crowded in the herbarium cases at present, but there is also extreme congestion of cases, the aisles being greatly narrowed by having to contain a complete double row of cases. These features are in fact a very serious obstacle not only to the present usefulness of the herbarium, but also to its proper development as a repository for material required in many branches of study by an ever-increasing number of investigators. Under present conditions of crowding the special importance of segregating type material will be recognized. This work has continued, in so far

as opportunity permitted, a total of 11,371 specimens now having been distinctly labeled, catalogued, and placed apart in individual covers, constituting the so-called type herbarium. This has been fumigated at intervals. The general herbarium has been fumigated once. The condition of the cryptogamic herbaria is as reported a year ago, except that Mr. Leonard, by giving a day to the work each week, has finished incorporating in the moss herbarium a former accumulation of about 19,000 specimens. The collections of hepaticae, algae, and fungi are seriously in need of similar curatorial work. The condition of the plant collections in general is satisfactory, making due allowance for the crowding of specimens in the cases and the extreme congestion of cases in a too limited area. It has seemed for several years past as if the actual limit of installing new cases has been reached, and the crowding is now so great as to render unduly difficult such ordinary curatorial work as it is possible to undertake with the small staff.

The work of the taxidermists in so far as it has been incorporated into the exhibition series has already been mentioned. It is, however, the least part of the work accomplished in the shops, as it represents only the time saved from routine work for the preservation of the study collections, which, of course, must take precedence. Material is received from all over the world in all sorts of states of preservation, and to save from spoiling and place it in better shape for study may take weeks or months. Then again the repair work on old specimens in the collections, both on exhibition and in the magazines, requires much time. In addition to his mammal work, Mr. Brown mounted 39 birds and degreased and made up 60 bird skins. Mr. Aschemeier, besides assisting in the mammal work, made up 288 bird skins from China and 64 other bird skins, some of them from distant Pacific Ocean islands, but mounted only 13 birds for exibition. In addition to the small mammals mounted for the exhibition series of this department, Mr. Marshall mounted 5 mammal carriers of the bubonic plague slated for extermination in California, for exhibition in another department of the Museum. Mr. Scollick spent all his time in cleaning bird skeletons and the more delicate mammal skulls and skeletons, cleaning 431 objects, 284 of which were full skeletons of birds and mammals.

Alexander Sprunt and E. B. Chamberlain, of the Charleston, S. C., Museum, spent some time in our taxidermist laboratories studying the processes of mounting and preserving birds and mammals, adopted in the National Museum. So far from hindering the work of our taxidermists, it is a pleasure to report that the time spent in showing them our methods was more than repaid by their assistance in the work going on, always willingly and intelligently given.

RESEARCHES FOR THE BENEFIT OF THE MUSEUM

Numerous students of special groups of animals and plants of which no specialists are attached to the scientific staff continue to carry on research based on Museum material either at the Museum itself or—as is mostly the case—at their home institution, the specimens having been sent to them for study. Very often such shipments have been to supplement material upon which they were engaged, but in perhaps a majority of cases, and always of course when unassorted, unclassified, and unidentified material has been thus submitted to them, the Museum has been greatly benefited by their researches. In such cases reports of progress is hardly ever insisted on, and the results of such work, which often extends over many years, can only be gathered from the bibliography which accompanies this report. In the divisions the research work may, for the carrying on of which time has to be snatched from the routine curatorial work, be briefly summarized as follows:

The curator of mammals, Gerrit S. Miller, jr., saw two manuscripts through the press, one on the telescoping of the cetacean skull, the other being Bulletin No. 128 of the National Museum, a List of North American Recent Mammals completed to the end of the calendar year 1923.

Dr. Robert Ridgway, curator of birds, reports that he is making considerable progress on volumes 9 and 10 of Bulletin No. 50 of the National Museum, the Birds of North and Middle America. Dr. Charles W. Richmond, associate curator, and Bradshaw H. Swales, honorary assistant curator of birds, continued work on the proposed bulletin on the birds of Haiti and Santo Domingo, and published descriptions of three new species from the island of Gonave, Haiti. Considerable progress was also made on the proposed bulletin on the type specimens of birds in the National Museum. During the year two "lost" types have been rescued after considerable research, namely, those of *Pelionetta trowbridgei* Baird, and *Ardea patruelis* Peale, from Tahiti. Doctor Richmond also continued his bibliographical, historical, and nomenclatorial researches. J. H. Riley, aid, spent some time in the study of the birds brought home by the Collins-Garner Congo expedition and began a report on them, and also continued his work on the Chinese material which has been accumulating.

The curator of reptiles and batrachians finished and submitted for publication an extensive and critical paper on all the Chinese herpetological material in the Museum, but particularly on the collections recently made by Rev. D. C. Graham and A. de C. Sowerby, with descriptions of many new species. The paper forms practically an extension of his Herpetology of Japan, published in

1907 by the Museum as Bulletin No. 58. In addition to continuing his monograph of the North and Middle American turtles, he completed his report on the fur seals and fur-seal industry of the Commander Islands, 1897 to 1922. The aid, Miss Doris M. Cochran, besides identifying about 2,000 reptiles and amphibians, continued work on her Herpetology of Haiti and Santo Domingo, and nearly completed the large series of illustrations which are to accompany it.

In the division of fishes, the assistant curator in charge, B. A. Bean, has determined and partly reported on collections received during the year, particularly material from China and Africa.

In the division of insects, Dr. J. M. Aldrich, the associate curator, has continued the study of the muscoid flies and has published a number of papers on them, while several other papers have been prepared and are ready for the press. Charles T. Greene studied critically and reported on the larvae and pupae in the family Sarcophagidae and has nearly completed a similar study of Leptidae. He has also made good progress on a catalogue of the type specimens of Diptera in the National Museum. The amount of research work in the various sections of the division of insects by the honorary custodians and other members of the staff of the Bureau of Entomology is too highly specialized for a convenient summary and is best shown by a reference to the bibliography accompanying this report. Dr. H. E. Ewing prepared the outline of a paper on the North American scorpions. Among the numerous studies by A. N. Caudell, mention may be made of his completed report on the wonderful collection of oriental Blattidae submitted by Prof. C. F. Baker, as well as of the fact that he also has worked up the Palmer-Bryant material of Orthoptera from Java, received by the Museum years ago. W. S. Fisher has prepared a paper on all the West India species belonging to the Buprestidae, as well as on the Philippine Exocentrini of the family Cerambycidae. Dr. A. Böving has continued his studies of larval beetles in cooperation with Dr. F. C. Craighead and J. A. Hyslop. Mr. Schaus in addition to his other studies has prepared a report on Siberian material of Lepidoptera collected by Prof. T. D. A. Cockerell. Dr. H. G. Dyar has continued his studies on the mosquitoes assisted by Raymond C. Shannon. S. A. Rohwer has made some progress in studying the Oriental Sphecidae submitted by Doctor Baker and in addition has completed another paper dealing with the Scoliidae forwarded by him after the first report was prepared. R. A. Cushman has continued his investigations on Baker's Oriental Ichneumonidae and has made considerable progress in preparing descriptions of the new species. L. H. Weld has devoted a great deal of his time to the critical study of the Cynipids and has prepared an extensive manuscript dealing

with new species and technical problems concerning the classification of this interesting group. Dr. W. M. Mann has continued his study of the ants secured by the Mulford Biological expedition.

Dr. Mary J. Rathbun, associate in zoology, although she devoted most of the time during the past year to a study of fossil crustaceans, found leisure to prepare a report on the brachyuran crabs collected by the Williams Galapagos expedition, 1923, besides describing a number of new species. Dr. Waldo L. Schmitt, curator of marine invertebrates, completed four reports on macruran, anomuran, and stomatopod crustaceans collected by Dr. van der Horst in Curaçao, by the American Museum Congo expedition, the University of Iowa Barbados-Antigua expedition, and the Williams Galapagos expedition. Only the latter has as yet been published. Work upon the material of the *Albatross* 1911 expedition to the Gulf of California has been continued as demands of other duties have permitted. Besides his various curatorial duties Clarence R. Shoemaker, assistant curator, has continued his studies upon the amphipods of the Cheticamp expedition of the Biological Board of Canada, while a report on the amphipods of the *Albatross* 1911 expedition, and a paper on the amphipod family Bateidae have been submitted for publication. Owing to the exigencies of the curatorial work, J. O. Maloney, aid, has been obliged to devote nearly all his time to routine work. Dr. Harriet Richardson Searle, collaborator, has continued studies on several collections of undetermined isopods. Prof. Max M. Ellis, of the University of Missouri, collaborator, has carried on his studies on the North American Discodrilid collections. H. K. Harring, custodian of rotatoria, has continued his studies in preparation of a monograph on the American rotifers.

Dr. William H. Dall, honorary curator of mollusks, has been engaged in original investigations as follows: He completed the report on marine shells dredged off the coast of Florida by the U. S. steamer *Albatross* in 1885–86. This is ready for publication when illustrations are finished. He prepared a paper, including illustrations of many unfigured types of shells in the National Museum, comprising 36 plates, with appropriate references. This is completed and has been submitted to the National Museum for publication. Doctor Dall has completed the index to The Nautilus, volumes 1 to 34. This work was begun a number of years ago by Miss Marguerite Woodward who, while in Mr. Henderson's employ, used odd times to prepare the individual slips. Doctor Dall has done the tremendous work of assembling and editing these records, which embrace more than 69,000 entries. Dr. George H. Clapp, of Pittsburgh, Pa., has generously met the expenses of transcribing the sheets. See also Doctor Dall's bibliography for his lesser contributions.

The greater amount of Doctor Bartsch's available time for research has been given to the monographing of the mollusks of the Mazatlantic faunal area. When completed, this work will cover several volumes. It is largely based upon the collections obtained by the American Museum expedition of the United States Fisheries steamer *Albatross* to the Gulf of California, in 1911, on which expedition Doctor Bartsch was present and stressed the gathering of material from this region. The work, however, is not confined to this alone, but embraces all the material in the National Museum collection, as well as that previously reported. He has completed the monograph on the Philippine land shells of the genus *Hemiglypta*, and has nearly completed a monograph on the genera *Hemitrichia*, *Hemiplecta*, and *Physota*. The report on these genera will furnish a volume to Bulletin 100 of "Contributions to the Biology of the Philippine Archipelago and adjacent regions." The entire collection of Cerions has been overhauled, and the classification and nomenclature revised. Thomas S. Creighton of Monterey Circle, Blue Ridge Summit, Pa., and Washington, D. C., has graciously volunteered his help during the past winter and, with the help of John A. Mirguet, has measured and counted the number of whorls of each specimen of each race, when their number did not exceed 100. Where larger series were present, 100 specimens were treated. This enormous mass of data will help materially in the preparation of a monograph on this family. A short paper was prepared on "New mollusks from Santa Elena Bay, Ecuador," which will be published in the Proceedings of the United States National Museum. William B. Marshall, assistant curator, last year began a study of the microscopical characters of the periostracum of the pearly freshwater mussels. This study has been continued during the present year, and a paper has been prepared giving the results of the investigation. Difficulty in photographing microscopic details has delayed the submitting of the paper for publication. A paper on New Uruguayan mollusks of the genus *Corbicula*, which was practically completed two years ago, has been somewhat revised and submitted for publication. New material of the South American freshwater gastropod genus *Chilina* has yielded six new species and one new subspecies which have been described in a paper entitled "New species of mollusks of the genus *Chilina*," now in the hands of the printer. At present Mr. Marshall is preparing a report on the mussels gathered in the summer of 1907 in the Mississippi, Ohio, and Tennessee rivers by Dr. Paul Bartsch while engaged on the pearl mussel inquiry of the United States Bureau of Fisheries. Dr. Charles Wardell Stiles, custodian of the helminthological collections, and Dr. B. H. Ransom, assistant custodian, have continued their study of the parasites of man and other animals. Dr. T. Way-

land Vaughan, custodian of madreporarian corals, until his departure from Washington to become director of the Scripps Institute at La Jolla, Calif., worked on the recent corals.

Austin H. Clark, curator of echinoderms, during the past year continued work on part 3 of Bulletin No. 82, which is now about three-quarters done. It is expected that the manuscript will be finished before the end of the next fiscal year as the work remaining on it has been practically completed except for reduction to typewritten form. In addition, part 4 is well under way, and the present indications are that its completion will follow that of part 3 within a year. This part will contain an account of the stalked crinoids, which are relatively few in numbers.

Special investigations begun or continued during the year in the division of plants are as follows: Dr. Frederick V. Coville, curator, has continued his studies in the breeding and propagation of blueberries (*Vaccinium*), giving especial attention to certain species occurring in Florida. In this connection he has made frequent use of the herbarium; Dr. J. N. Rose, associate curator, has continued and brought to practical completion his studies of the family Cactaceae in cooperation with Dr. N. L. Britton, director in chief of the New York Botanical Garden, the fourth and concluding volume of the monograph The Cactaceae having appeared in December, 1923. In cooperation with Doctor Britton he has begun a study of the family Caesalpinaceae; Dr. William R. Maxon, associate curator, has continued his work upon the peteridophyta of tropical America, giving special attention to ferns of the West Indies. Several papers have been published relating to the ferns of Hispaniola, and preparation of manuscript upon the ferns of Porto Rico has been begun; Paul C. Standley, associate curator, was absent for nearly half of the year in Central America, engaged in obtaining data for the Flora of Central America upon which he is working. Material was obtained also for an account of the flora of the Canal Zone, which is in course of preparation. Much of his time was devoted also to study of collections forwarded for identification from Mexico and Central America, and descriptions of several new genera and many new species were published in a series of papers relating to the flora of Salvador. He has prepared an enumeration of the Salvador flora which it is expected will be published in Salvador in the near future; Emery C. Leonard, aid, has completed his study of the genus *Scutellaria* as represented in North America, and has continued work upon the botany of the West Indies, more especially the collections obtained in the Dominican Republic in recent years by Dr. W. L. Abbott. He has undertaken also a critical study of the mosses of the District of Columbia; Ellsworth P. Killip, aid, has continued his studies of

the genus *Passiflora* as represented in the American tropics and has given much time also to a study of recent collections of plants from the Andes of northern South America, especially the Urticaceae; Dr. A. S. Hitchcock, custodian of the grass herbarium, has continued his studies of North American grasses, and at present is engaged upon a monographic revision of the critical genus *Stipa*. Dr. Albert Mann, custodian of diatoms, continued his studies of diatoms and completed an elaborate paper on material chiefly gathered by the *Albatross* Philippine expedition.

Dr. C. Hart Merriman, associate in zoology, continued his studies on North American bears and other mammals. N. Hollister has continued his interest in the mammal collections recently received from China. Dr. O. P. Hay, of the Carnegie Institution, has made constant use of the collection of recent mammals, in connection with his work on the Pleistocene fauna of North America. Dr. Glover M. Allen, Boston Society of Natural History, has examined the collection of American bats of the genus *Myotis* with the purpose of completing the monograph begun several years ago by the curator of mammals but abandoned on account of pressure of other duties. It is now planned to issue this monograph under joint authorship. Dr. Alexander Wetmore and Dr. H. C. Oberholser, of the Biological Survey, have rendered invaluable help in a volunteer capacity by identifying specimens and in various other ways. They have both worked in the Museum collections almost constantly while in Washington, Doctor Oberholser chiefly on the Abbott Malayan collections, and Doctor Wetmore on birds of Argentina, skeletons, etc. The division of birds has also been greatly benefited by the work of Dr. C. E. Hellmayr, Field Museum of Natural History, Chicago, James P. Chapin, American Museum of Natural History, New York, and W. E. Clyde Todd, Carnegie Museum, Pittsburgh, during their visits to the Museum. Similarly, the division of reptiles and batrachians has been aided greatly by the researches on its material by Dr. E. R. Dunn, Smith College, Northampton, Mass., Prof. Frank N. Blanchard, University of Michigan, and Dr. A. G. Ruthven, director of the Michigan Zoological Museum. Dr. Afranio do Amaral, of the Instituo do Butantan, Sao Paulo, Brazil, spent a month studying in this division, during which time he overhauled the entire collection of South American snakes, identifying the undetermined material and critically revising the rest. Henry W. Fowler, of the Academy of Natural Sciences, Philadelphia, has continued his cooperation with the division of fishes.

The work of the scientific staff of the Bureau of Entomology, especially as far as taxonomic research is concerned, is practically a part of the Museum's own staff and has been alluded to above.

Nathan Banks and R. V. Chamberlin, of the Museum of Comparative Zoology, Cambridge, Mass., have as usual kindly cooperated in the determination of exotic spiders and of myriapods. Prof. T. D. A. Cockerell, of the University of Colorado, continued his invaluable collaboration and Miss Grace Sandhouse, working under his direction, has studied the Museum collection of bees of the genus *Osmia* and completed a revision of the North American forms. Extensive collections of unidentified material in various groups have, as usual, been sent to a number of other correspondents for the benefit of the National Museum, such as beetles to Howard B. Notman, Keene Valley, N. Y., R. W. Dawson, St. Paul, Minn., and Charles Schaeffer, Brooklyn Museum; membracids to Dr. W. D. Funkhouser, Lexington, Ky.; water bugs to Prof. H. B. Hungerford, Lawrence, Kans.; bees to Dr. T. H. Frison, Urbana, Ill.; flies to M. C. Van Duzee, Buffalo, N. Y.; wasps to Dr. F. A. Fenton, Ames, Iowa, and C. E. Mickel, St. Paul, Minn.; and bark beetles to Dr. M. W. Blackman, Syracuse, N. Y.

The "volunteer staff" of the division of marine invertebrates, alluded to in last year's report, embraced the following investigators, to whom the division is under great obligations: Dr. Henry B. Bigelow (Medusae, Ctenophora); Dr. L. R. Cary (Alcyonarians); Dr. R. V. Chamberlin (Annelids and Gephyrea); Dr. Henri Coutière (Crangonidae (Crustacea)); Dr. Joseph A. Cushman (Foraminifera); Prof. Arthur Dendy (Sponges); Prof. G. S. Dodds (Fresh-water Entomostraca); Prof. Max M. Ellis (Discodrilids); Dr. A. G. Huntsman (Ascidians); Frits Johansen (Fresh-water Entomostraca); T. Kaburaki (Turbellaria); Dr. C. Dwight Marsh (Fresh-water copepods); Dr. Maynard M. Metcalf (Salpa, Pyrosoma, Protozoa); Dr. J. Percy Moore (Leeches); Dr. Charles C. Nutting (Hydroids); Dr. Raymond C. Osburn (Bryozoa); Dr. Henry A. Pilsbry (Barnacles); Capt. F. A. Potts (Rhizocephalids (Crustacea)); Prof. Frank Smith (Earthworms, fresh-water sponges); Miss Caroline E. Stringer (Turbellaria); Dr. W. M. Tattersall (Mysidacea (Crustacea)); Dr. Aaron L. Treadwell (Annelids); Dr. C. B. Wilson (Parasitic, and free-swimming marine copepods). The divison of mollusks confesses indebtedness to Dr. Frank C. Baker, University of Illinois, in connection with identification of fresh-water material submitted to him, and to Dr. Bryant Walker, Detroit, Mich., who similarly identified the *Ancyli* collected in Lower California by Dr. Bartsch. Miss E. Deichmann's work on the holothurian material in the Museum has already been referred to. Prof. Walter K. Fisher, director of the Hopkins Marine Station, Pacific Grove, Calif., has continued his work on the starfishes in connection with the second volume of Bulletin No. 76, which he hopes to complete shortly.

The National Herbarium is indebted to a number of investigators to whom collections in groups in which the Museum has no specialists have been sent, or who, in making studies of a revisional nature, have gone over our material critically and thus increased its usefulness and scientific importance. Most of the students to whom specimens have been sent for examination have contributed in this way and it would be impracticable to detail here every transaction of that nature. Only a few of the more important instances can be mentioned here. Among the numerous members of the scientific staff of the Department of Agriculture who have benefited the herbarium, Dr. S. F. Blake and Prof. C. V. Piper, of the Bureau of Plant Industry, have given particular attention to a study of critical material of the Compositae and Fabaceae respectively. In connection with the identification of recent large accessions of specimens from the Andes of northern South America, Doctor Blake has reidentified a large amount of material in the herbarium.

RESEARCHES ELSEWHERE AIDED BY MUSEUM MATERIAL

As usual a large amount of material has been sent out to investigators in most of the scientific institutions of the country and to many abroad for the purpose of aiding them in their studies. Others have preferred to come to Washington to pursue their researches in the collections here, some staying perhaps for only a day, while others have spent months for the purpose. To all the Museum has extended every facility at its command. Scientific workers in all branches of systematic and geographic zoology and botany all over the world know that they can count on the active cooperation of the officers in charge of the National Collections as far as their resources go, and that students who choose to come here will receive a cordial welcome to examine our material which because of its richness in types and large series of specimens in critical groups, takes a commanding position among the scientific institutions of the country. Prof. Heiichiro Motohashi, of the Imperial College of Agriculture, Tottori, Japan, during his recent visit to Washington, examined the Museum's specimen of the wild Przewalski horse, as well as other equine material in the Museum, in connection with his studies of the horses of Japan. Dr. C. J. van der Klaauw, conservator in the Zoological Laboratory of the University of Leiden, Holland, spent a week or 10 days in the division of mammals during the autumn of 1923 examining alcoholic embryos in connection with his studies of the development of the ear, and considerable material was sent to Leiden for further study. A. M. Balter, Washington, D. C., spent several months in the same division working on

a valuable study of general mammalian osteology. Fourteen skeletons of recent lions and tigers were sent to the Museum of History, Science and Art, Los Angeles, Calif., for comparative study with the Pleistocene fauna of Rancho la Brea. Nearly 400 skins of African birds were lent to the American Museum of Natural History, New York, for the use of J. P. Chapin in his study of the Congo collection of that museum. W. E. Clyde Todd, of the Carnegie Museum, Pittsburgh, borrowed 134 birds for comparison with material in that museum. The Field Museum of Natural History, Chicago, borrowed 117 bird skins from South America to assist Doctor Hellmayr in his work on the "Catalogue of Birds of the Americas," begun by the late C. B. Cory. These gentlemen also visited the Museum for several days examining material in connection with the above studies. Prince N. Taka-Tsukasa, president of the Ornithological Society of Japan, Tokyo, Japan, spent a day in the collection examining various groups and especially the types of Japanese species of birds. Herbert L. Stoddard, Milwaukee, Wis., spent about two weeks studying specimens and literature relating to the bob-white. Other ornithologists who examined bird skins were: Dr. Frank M. Chapman, American Museum of Natural History, New York; W. L. G. Edson, Rochester, N. Y.; Dr. E. H. Forbush, State ornithologist of Massachusetts; Robert Gordon, Columbus, Ohio; Maria C. Klagh, Detroit, Mich.; Frederick H. Kennard, Newton Center, Mass.; Robert C. Walker, Washington, D. C.; and Frank C. Willard, Farmingdale, N. Y. The egg collection was examined by Edward Arnold, Montreal, Canada; Herbert W. Brandt, Cleveland, Ohio; W. S. Brooks, Cambridge, Mass.; and Alexander Sprunt, jr., Charleston Museum, S. C. Doctor Amaral's studies in the division of reptiles have already been alluded to. Dr. Thomas Barbour, Museum of Comparative Zoology, and Prof. E. R. Dunn, visited the division repeatedly, studying material. Dr. A. G. Ruthven, Zoological Museum, Ann Arbor, Mich., and Prof. F. N. Blanchard, University of Michigan, likewise spent some time there, the latter nearly a whole month. Dr. Alfred C. Herre, of the Bureau of Science, Manila, studied the gobies of the Indo-Pacific region contained in the collection of the division of fishes. Dr. David Starr Jordan has continued his relations with the division. Dr. J. R. Norman, of the British Museum, has been aided in his work upon the right-sided flounders, as has been Dr. Johannes Schmidt, of the Carlsberg Laboratorium, Copenhagen, Denmark, in his studies on the Indo-Pacific eels.

The collections of the division of insects have been examined by a number of entomologists, as follows: H. W. Allen, Mississippi Agri-

cultural and Mechanical College, spent three months in the Museum during the summer of 1923, studying Tachinid flies. George M. Greene, Bureau of Plant Industry, Harrisburg, Pa., interested in Coleoptera, spent several days on two occasions looking up literature in the library of the division. W. A. Hoffman, of the Johns Hopkins University, made three visits of several days each, with the object of studying bloodsucking midges. E. R. Buckle, entomological branch, Department of Agriculture, Ottawa, Canada, studied Orthoptera; Dr. William Barnes, Decatur, Ill., and Dr. W. J. Holland, Pittsburgh, Pa., examined Lepidoptera. The division of marine invertebrates, as usual, has furnished material assistance to members of the scientific staff of the Biological Survey in the identification of invertebrate remains found in bird stomachs; to the Bureau of Fisheries in the determination and furnishing of information relative to marine and aquatic invertebrates; to the zoological division of the Bureau of Animal Industry in the classifying of invertebrate hosts of animal parasites; and to the Federal Horticultural Board in identifying invertebrates found associated with various plant importations. In the division of mollusks Dr. C. W. Cooke, Dr. W. P. Woodring, Dr. Julia A. Gardner, and W. C. Mansfield, all connected with the United States Geological Survey engaged in investigations on the Tertiary fossils, required frequent reference to the recent collections, as it is largely through the recent shells that the fossils are interpreted. William F. Clapp, Cambridge, Mass., spent a day in the division with the shipworm collection, and Prof. Ernest C. Faust, Johns Hopkins University, another day looking over mollusks that act as intermediate hosts for human parasites. Calvin C. Goodrich, Toledo, Ohio, spent a day looking over Isaac Lea types of freshwater mollusks, and so did Mrs. John F. Hicks, Captiva, Fla., studying Florida shells. Prof. W. D. Reed, Clemson College, S. C., spent several hours seeking advice on collecting mollusks for certain chemical investigations; Dr. Carlos de la Torre, president of the University of Habana, worked in the division during the past summer, devoting especial attention to the study of our collection of West Indian Cerions; and Miss Mary Quick, a student of George Washington University, spent several hours each week throughout the year making a comparative study of the anatomy of various species of Cerion. These studies will be used by Doctor Bartsch in his report upon the family. The work in question was financed by the Marine Biological Laboratory of the Carnegie Institution.

Dr. C. Wardell Stiles and Miss Marguerite Woodward of the United States Public Health Service spent several weeks in the division, seeking the correct names of molluscan hosts of various

parasites; Dr. L. A. Faustino of the Philippine Bureau of Science spent considerable time in the division in the study of Philippine corals and mollusks; J. Edward Hoffmeister continued to work up the Samoan corals collected by Dr. A. G. Mayor.

Many professional botanists from outside of Washington have visited the herbarium during the year. Among these may be mentioned: Prof. H. Pittier, of Caracas, Venezuela, who spent several weeks in a study of material from northern South America, chiefly specimens of his own collecting in Venezuela; Prof. L. H. Bailey, of Ithaca, N. Y., who spent a fortnight in identifying critical material of his recent collections in Brazil, Venezuela, and the Lesser Antilles; Alwin Berger, of the staff of the New York State Agricultural Experiment Station, Geneva, N. Y., in examination of herbarium material in connection with monographic work upon the small cultivated fruits of temperate regions; Miss Caroline C. Haynes, of Highlands, N. J., in connection with the preparation of a report upon an extensive collection of Louisiana specimens of Hepaticae intrusted to her for elaboration; Dr. T. Nakai, assistant professor of botany of the Tokyo Imperial University, who gave special attention to the identification of certain early collections of Japanese plants by Charles Wright; Edwin B. Bartram, Bushkill, Pa., who has made recent large collections in the southwestern United States, and is particularly interested in the succulents and mosses of that region; A. V. Frič, of Prague, Czechoslovakia, in connection with a study of the Cactaceae of Mexico, of which he has obtained large series through personal field work; Prof. A. W. Sampson, of the University of California, in connection with the preparation of a paper on the forage grasses of California; and Miss Ena A. Allen, of Grubb's Vocational College, Arlington, Tex., who was engaged in the preparation of a paper on the grasses of Texas.

Allusion to loans of specimens to institutions and investigators for aid in the study of their own material has been made above in several instances, especially where the National Museum was incidentally benefited by their studies. This, needless to say, is almost always the case, to a greater or less degree, when the material is used by expert specialists, whose critical remarks and identifications are highly valued. The extent to which such loans have been made at the request of the investigators will be seen from the following list: Mammals were loaned to the American Museum of Natural History, New York, for the benefit of Dr. W. K. Gregory and H. E. Anthony; British Museum, London, for Oldfield Thomas; Dr. G. B. Weslocki, Johns Hopkins Medical School, anatomical material to be used in histological studies; Dr. C. J. van der Klaauw, Leiden, Holland, embryological material; Field Museum of Natural History, Chicago,

specimens of *Orolestes* for study by Jeannette Oberchain; Dr. W. A. Bryan, Los Angles, Calif., skeletons of tigers and lions; and Alfred S. Romer, Walker Museum, University of Chicago, alcoholic and skeletal material. Birds were sent to the Academy of Natural Sciences, Philadelphia, for the use of Dr. Witmer Stone in preparing his report on the Princeton Patagonian expedition; 404 skins to American Museum of Natural History, New York, to aid Dr. F. M. Chapman and Mr. Chapin in their studies of South American and African birds; H. H. Bailey, Miami Beach, Fla., for use in determining Florida material; Carnegie Museum, Pittsburgh, Pa., for Mr. Todd; Donald R. Dickey, Pasadena, Calif., for use in determining material from California; Field Museum of Natural History, Chicago, for Dr. Hellmayr; Los Angeles Museum of Science and Arts for use of Dr. L. H. Miller, in determining bird material from the Rancho la Brea deposits; Museum of Comparative Zoology for the benefit of James L. Peters, O. Bangs, Thomas E. Penard, and F. H. Kennard; and Arthur T. Wayne, Mount Pleasant, S. C., to assist in determining South Carolina material.

Reptiles and amphibians were sent to Prof. E. R. Dunn, Smith College; Museum of Comparative Zoology for Dr. Thomas Barbour and Dr. Afranio do Amaral; 481 specimens to Dr. A. G. Ruthven, Museum of Zoology, Ann Arbor; snakes to Professor Blanchard, and frogs to Mrs. H. T. Gaige, also of Ann Arbor; E. L. Troxell, New Haven, Conn., a crocodile pelvis. To assist in his studies of Indo-Pacific eels, 31 specimens were loaned to Dr. Johannes Schmidt, Copenhagen, from the division of fishes. Entomological material was loaned to a number of institutions and investigators to aid them in their studies, thus to H. J. Reinhard, College Station, Tex.; Prof. Stanley Freeborn, Amherst, Mass.; B. A. Porter, Vincennes, Ind.; Dr. W. D. Funkhouser, Lexington, Ky.; W. A. Hoffman, Johns Hopkins University; Prof. James S. Hine, Columbus, Ohio; Prof. A. Damf, Mexico City; Dr. S. M. Walker, Toronto, Canada; and Henry G. Good, Ithaca, N. Y. From the division of marine invertebrates material was sent to Dr. A. Gruvel, Museum of Natural History, Paris, France, isopods for study in connection with a monograph prepared by Mr. Monod on the isopod family Gnathiidae; Dr. C. C. Nutting, State University of Iowa; Dr. Raymond C. Osborn, Ohio State University; Miss Belle A. Stevens, Marine Biological Station, Friday Harbor, Wash., for study in connection with a systematic paper being prepared by her on the hermit crabs of the northwest coast; and Dr. A. E. Verrill, New Haven, Conn., alcyonarians from Porto Rico, for study in connection with his *Blake* expedition report. Samples of deep sea ooze were sent to William L. Bryant,

New Museum, Buffalo, N. Y., for examination, and foraminifera to Dr. J. A. Cushman, Sharon, Mass., also for examination.

Plants loaned to institutions or individual investigators outside of Washington aggregated 3,987, comprised in 65 lots, a considerable increase of the previous year. Of these the following deserve special mention: 188 specimens of Orchidaceae lent to Oakes Ames, Boston, Mass., in connection with his monographic study of the orchids of tropical America; 223 specimens of *Rubus* and *Ribes*, lent to the New York State Agricultural Experiment Station, Geneva, N. Y., for study by Alwin Berger in connection with his investigation of small horticultural fruits; 149 specimens, chiefly Eupatoriae and Boraginaceae, lent to the Gray Herbarium of Harvard University for study by Dr. B. L. Robinson and Ivan M. Johnston, respectively; 313 specimens of Piperaceae lent to the University of Illinois, Urbana, Ill., for use by Prof. William Trelease, who is engaged in a monographic study of this family; 704 specimens of sedges (*Carex*) lent to Kenneth K. Mackenzie, Maplewood, N. J., who is continuing his monographic study of this genus as represented in North America; and 1,890 specimens of Senecio and Menthaceae, lent to the Missouri Botanical Garden, St. Louis, Mo., for study by Dr. J. M. Greenman and Carl Epling.

DISTRIBUTION AND EXCHANGE OF SPECIMENS

Duplicates distributed to high schools, colleges, institutions, etc., aggregated 4,194 specimens, of which 2,086 consisted of mollusks in 14 prepared sets, and 800 fishes in 9 sets.

Exchanges to the number of 14,526 were sent out, of which 2,737 were zoological specimens supplied by nearly all the divisions. Of the 11,789 plants thus distributed, exchanges of 1,000 specimens and over were sent to Field Museum of Natural History, New York Botanical Garden, and the Academy of Natural Sciences, Philadelphia.

TOTAL NUMBER OF SPECIMENS IN DEPARTMENT OF BIOLOGY, INCLUDING DUPLICATE SPECIMENS

The figures given below do not represent an actual count which in some divisions at least it would be a physical impossibility to accomplish at the present time. They are mostly based on an earlier estimate by adding the yearly increment and deducting the specimens which have been disposed of by gift or exchange, or which have dropped out of the collection for other causes. In the division of mammals an actual count was undertaken in 1922 which showed that the actual number was slightly in excess of the estimates, so that

there is good reason for believing that the census is a conservative one. In confirmation of this it should be noted that the estimated number of plants is only that of the mounted specimens, and does not include the unmounted material, nor the lower cryptogams.

Division:	
Mammals	80,813
Bird skins, skeletons, and alcoholics	238,662
Birds' eggs	80,653
Reptiles and amphibians	77,446
Fishes	685,740
Insects	2,415,060
Marine invertebrates	729,293
Mollusks	1,557,336
Echinoderms (ascertained total 151,407; actually probably)	158,113
Plants	1,183,700
Total	7,206,816

REPORT ON THE DEPARTMENT OF GEOLOGY

By George P. Merrill, *Head Curator*

The period covered by the present report is notable on account of the unusual amount and value of the material received for both exhibition and study purposes, the increment in specimens being far beyond that for many years past, if not in the history of the department. The paleontological collections have been the chief beneficiaries, although, while the amount is small by comparison, much of interest has been received in the divisions of economic geology and mineralogy. In exhibition value, a *Diplodocus*, secured from the Dinosaur National Monument in Utah, will far exceed anything acquired in recent years, while the Edgar E. Teller and George M. Austin collections of fossils add material of great value to the study series. Noteworthy also is the petrographic reference series of rocks transferred by the United States Geological Survey. These will all be mentioned in detail.

Reports from all divisions show satisfactory progress in the care of the collections. Comparatively few changes are to be noted in the exhibits since these have now reached a point where little that is new can be secured without the expenditure of considerable sums of money. Expansion of the study series to accommodate new acquisitions has occupied much of the time of the curators and their assistants. Research work, however, has progressed, and such explorations as were undertaken yielded satisfactory results.

Accessions.—An increase over last year is shown in number of accessions and of specimens received. Those of the present year are tabulated below:

Division	Accessions	Specimens
Geology, systematic and applied	63	2,434
Mineralogy and petrology	64	2,608
Invertebrate paleontology	65	154,720
Vertebrate paleontology	28	43
Paleobotany	7	116
Total	227	159,921

The totals for last year were 196 accessions covering an estimated total of 36,698 specimens.

Notable among the accessions of economic materials are Canadian nickel and silver ores received from various sources. Frank L. Hess secured and presented a large, fine exhibition example of nickel ore showing masses of pentlandite embedded in pyrrhotite, from the Creighton mine, Sudbury, Ontario, and, at his suggestion, a mass of native silver and argentite from the Frontier mine, Cobalt, was donated by M. F. Fairlie, of the Mining Corporation of Canada. A series of carefully selected polished specimens illustrating the mineralogy and genesis of the cobalt-nickel-silver ores of the Cobalt district was prepared by the Royal Ontario Museum of Mineralogy for exhibition at the meeting of the Geological Society of America held at Washington in December. Each specimen was accompanied by a natural-sized photograph upon which each mineral is indicated. This very interesting and instructive exhibit was, after the meeting, turned over to the Museum, and has been used as the nucleus for a special exhibit of the ores of that remarkable area, now nearly exhausted.

A more comprehensive exhibit of the occurrence of the diamond than that already installed was made possible through the assistance of H. D. Miser, of the United States Geological Survey, in securing a very complete series of the diamond-bearing rocks of the Arkansas mines, which has been installed in a case adjacent to the Gardner Williams collection from South Africa. This makes possible a direct comparison of the rocks of the two fields. The Arkansas collection is accompanied by copies of the photographs of the region used by Messrs. Miser and Ross to illustrate their report.

Victor C. Heikes has continued to contribute to both mineral and ore collections. Through his instrumentality there were received arsenic ores from the Gold Hill mine, Tooele County, Utah, donated by Samuel M. Soupcoff, of Salt Lake City, and, as a gift from Robert N. Bell, also of Salt Lake City, two interesting specimens showing native silver in curved wires and columns resting upon cerussite crystals lining cavities due to the leaching out of argentiferous galena. The United Mercury Mines Co. presented a piece of pure stibnite from their mines near Yellow Pine, Idaho, and a crystallized example of the same ore was presented by the White Caps Mining Co., Tonopah, Nev. Four large exhibition specimens of antimony were obtained from H. G. Clinton, Manhattan, Nev., as an exchange.

As supplemental to the special exhibit of Franklin Furnace, N. J., zinc ores, there was secured from the New Jersey Zinc Co. a series of the concentrates obtained from the ores by the electromagnetic process.

As usual the United States Geological Survey has transmitted a number of series illustrative of the work of its members. These include silver ores from the vicinity of Chloride and Kingman, Ariz., and from the Aspen district, Colo., collected and described by Edson S. Bastin; rocks illustrating the Riddle, Oreg., folio, by J. S. Diller; rocks and minerals illustrating a reconnaissance through northern Idaho and northwestern Montana as described by F. C. Calkins in Bulletin 384 of the United States Geological Survey; typical ore and rock specimens described in Bulletin 741; drill cuttings from various oil wells in Texas studied by M. A. Goldman; and manganese ores and minerals from Virginia, Georgia, and Alabama, studied by H. D. Miser and G. W. Stose. In addition to these there were transferred one large exhibition specimen of manganese oxide from Philipsburg, Mont., and a large rhodochrosite from Butte. The latter, with its handsome pink color, affords a pleasant relief from the monotonous black of most of the manganese ores.

A valuable lot of ores and minerals, chiefly of the rarer metals, was transferred from the Bureau of Mines. This is not newly acquired material but represents rather an accumulation by members of the staff of the bureau in their technological investigations.

An extensive series of minerals and ores from Czechoslovakia was received as a gift from the Masaryk Academy of Labor at Prague, and examples of bauxite, alunite, and radioactive minerals from the same country through exchange with Prof. Jaroslav Jahn, Brno.

The most noteworthy accession to the series of building and ornamental stones is a large slab of green fuchsite marble from Rutland, Vt., presented by Henry W. Clement. Other gifts to this collection include cubes of Briar Hill sandstone, from the Briar Hill Stone Co., Glenmont, Ohio; a sample of Colorado travertine, from the Colorado Marble & Stone Co., Denver; a slab of soapstone from the Virginia Alberene Corporation; "Buckingham" roofing slate from the Williams-Arvonia Slate Corporation, Richmond, Va.; and 13 samples of Jamaica marbles from Dr. C. A. Matley, government geologist of Jamaica.

By far the most interesting accession to the meteorite collection was a 55-pound iron found some years ago in San Juan County, N. Mex., near the common four corners of New Mexico, Colorado, Arizona, and Utah. This was secured through an arrangement with the late R. C. Hills, of the Colorado Museum at Denver, whereby the material was to be sliced and exchanges made for the benefit of that museum, a portion to be retained for the National Collections. Other additions acquired through exchanges include a practically complete individual of meteoric iron weighing 14,530 grams, found in Chile in 1905; one-half of a mass of meteoric stone which weighed 20 kilo-

grams, found near Anthony, Kans., in 1919, date of fall unknown; a fragment, weighing 1,185 grams, of a stone which fell in Molina, Spain, on December 24, 1858, together with a cast of the complete individual; a fragment, weighing 197 grams, of a stone which fell at Cabezzo de Mayo, Spain, on August 18, 1870; and three small pieces of irons from Cowra, Australia, and Mantos Blancos and Sierra Sandon, Chile, weighing, respectively, 62, 365, and 72 grams.

Nine accessions are credited to Col. W. A. Roebling, Trenton, N. J., who supplied funds for the purchase of new minerals and made other gifts. Among the materials acquired through his generosity may be mentioned a suite of exceptionally fine crystal groups of epidote from Prince of Wales Island, Alaska; two large crystals of gem kunzite; a series of new and rare minerals from Langban, Sweden; a large and unusually fine specimen of crystallized calamine from Sterling Hill, N. J.; an unusual group of zincite crystals showing some twins; selenite from Saxony, struverite from Madagascar, and a polished jadeite from Burma.

From various sources, through honorary curator Frank L. Hess, were donated exceptionally fine radium-bearing minerals from Katanga, Belgian Congo, including a mass of uranophane carrying soddite, weighing over 14 pounds; examples of curite, schoepite, and rich masses of pitchblende. An additional suite of the typical minerals from the same locality was presented by the Union Minere du Haut Katanga, Brussels, Belgium, and a large sample of the ore from Kasola was donated by Messrs. A. H. Bunker and K. L. Kithil, Denver, Colo.

Victor C. Heikes and Samuel M. Soupcoff, mentioned above as contributors to the economic collections, have also supplied interesting minerals in examples of argentojarosite and scorodite crystals from Utah. H. G. Clinton continued his interest by presenting specimens of the new mineral benjaminite, also xonotolite and miscellaneous minerals from the White Caps mine. Others who may be mentioned as donating materials are Jack Hyland, Pazna, Bolivia, who forwarded various Bolivian minerals; Alfred C. Hawkins, Rochester, N. Y., who donated the type specimen of canbyite; and C. W. Chater, of Burma, India, who, through the Bureau of Standards, presented a specimen of jade.

The greater part of the material representing species new to the collections was acquired through exchanges arranged by Assistant Curator Foshag. Minerals from the Mendip Hills, Scotland, were secured from the British Museum; an extensive suite of the rare Langban types from Dr. Harry von Eckermann, Ljusne, Sweden; an attractive series from Tsumeb, South Africa, collected by Prof. Charles Palache, of Harvard University; rare Italian and African

species secured from Prof. A. Pelloux, Genoa, and Prof. Henri Buttgenbach, Brussels, Belgium; a type specimen of chlorophoenicite and other Franklin Furnace minerals from R. B. Gage, Trenton, N. J.; and a number of Canadian types from the Royal Ontario Museum of Mineralogy.

A quantity of the rare mineral serendibite from an American locality, which has proved of great value as exchange material, was transferred by the United States Geological Survey, and three lots, including anhydrite from Germany, anglesite from Mexico, and tourmaline with associated minerals from Maine, were acquired by purchase.

The acquisitions to the gem collection through the Frances Lea Chamberlain fund are comprised in 12 accessions representing 51 objects. These include an Australian so-called black opal, weighing 24.3 carats; a diamond of a peculiar green-yellow color; 2 large cut gems of kunzite; 4 Madagascar beryls, pink, golden, and golden-green; 6 zircons, colorless and various shades of brown; 1 rare gem of willemite; 15 Chinese carvings, chiefly in pendant form, of jade, amethyst, turquoise, rock crystal, chalcedony, and amber; and a small collection of 21 stones cut from pebbles picked up in the District of Columbia. Individual contributions to this collection consist of a necklace of coral from H. P. Petersen and a large cut citrine quartz deposited by Benjamin Butler Cain, jr.

An accession of great importance to the study collections is the petrographic reference series of rocks. This is an assemblage of all of the rocks and many of the rock-forming minerals that have been analyzed and the subject of special investigation by the United States Geological Survey petrographers and others. It consists of approximately 2,000 hand specimens, domestic and foreign, with thin sections, and is accompanied by card catalogues giving the detailed records. It is, without doubt, the most important collection of rocks, from a scientific standpoint, now in existence. For some years, owing to lack of space at the Geological Survey, it has been stored and hence not available. For this reason it was decided to transfer it to the National Museum where it now occupies 61 standard drawers in a well-lighted room, and is readily accessible to all properly accredited students.

The Edgar E. Teller geological library and collection of over 100,000 specimens of Paleozoic fossils, received through the Smithsonian Institution as a gift from Mrs. Teller in memory of her husband, is the most valuable accession to the division of invertebrate paleontology for many years. In addition to a most extensive series of Devonian fishes from Wisconsin, it contains numerous beautifully preserved and well prepared invertebrates from localities which are in many cases exhausted, and which were poorly represented in the

Museum's collections. It is also rich in type specimens illustrated in various Wisconsin and New York reports by Mr. Teller and other paleontologists. As a whole, the collection forms a stratigraphic unit which fits most admirably into the scheme of arrangement adopted by the division.

A second most noteworthy gift consists of approximately 25,000 Early Silurian invertebrates from Clinton County, Ohio, representing the life work in paleontology of the donor, Dr. George M. Austin, Wilmington, Ohio. Clinton County is classic ground for the excellent and numerous fossils from the various formations of the Richmond and succeeding groups, and Doctor Austin's efforts were devoted to assembling and accurately labeling the faunas, so that his collection furnishes a complete record of the stratigraphic succession of the area.

Notable among other gifts are collections of Upper Cambrian and Ozarkian fossils from Wisconsin, donated by the geological survey of that State, and a full set of Middle Triassic fossils from Nevada, presented by Ward's Natural Science Establishment in appreciation of the services of a member of the division in identifying and labeling a large collection of similar forms.

Ordovician and Silurian fossils from northern Michigan and St. Joseph Island were collected by Dr. E. O. Ulrich; Curator R. S. Bassler made collections from the Ordovician and Mississippian of Tennessee and Kentucky; while Associate Curator C. E. Resser made similar collections of Cambrian and Ordovician forms from the Appalachian Valley of southern Virginia and from eastern Nevada and Utah.

An exchange, which added a number of type specimens of both invertebrates and vertebrates to the collections, was arranged with the Colorado College, Colorado Springs. Extensive teaching collections of invertebrates were furnished in return for these types.

Among the materials from foreign sources mention may be made of Upper Cambrian and Lower Ordovician fossils from Sweden, gift of the Geologisk-Mineralogiska Institutionen, Lund; Lower and Middle Cambrian fossils from England, by exchange with Prof. E. S. Cobbold, Church Stretton, Shropshire; trilobites from Norway and Italy, through exchanges with the Paleontologisk Museum, Christiania, and the Geological Institute, Regia University, Pisa; and Tertiary fossils from Italy, by exchange with Real Istituto di Geologia e Paleontologia, Florence. Dr. T. Wayland Vaughan was instrumental in securing extensive series of Australian and New Zealand Tertiary fossils during the summer of 1923, including donations from F. S. Mann and Francis A. Cudmore, Melbourne. Pliocene fossils from Iceland were presented by Hans Schlesch, Helle-

rup, Denmark, and G. G. Bardarson, Akureyri, Iceland; types of fossil insects from Siberia were donated by Prof. T. D. A. Cockerell, Boulder, Colo.; and various small accessions representing the Paleozoic, Mesozoic, and Cenozoic of South America are recorded.

An important transfer from the United States Geological Survey consisted of 5,000 Tertiary and Quaternary invertebrates from the Gulf Coastal Plain and the West Indies.

Although the number of accessions to the section of paleobotany is small, several are of considerable interest and value. A Devonian tree stump from the Gilboa dam, Schoharie County, N. Y., received through the engineering department of the New York Board of Water Supply, and a fossil cycad trunk, gift of Bart Johnson, of Comanche, Tex., form excellent additions to the exhibition series, while a collection of fossil plants from the Tertiary of South America, gift of Dr. Harvey Bassler, Myerstown, Pa., and a small series of types from the Green River, Eocene, of Colorado, described and presented by Prof. T. D. A. Cockerell, add valuable material to the study collections.

The most notable accession to the division of vertebrate paleontology in many years is the *Diplodocus* material from the Dinosaur National Monument, Utah, collected under the direction of C. W. Gilmore, curator of the division. This consists of material for a nearly complete skeleton which, it is estimated, will exceed 80 feet in length with a height of 14 feet at the hips. Other miscellaneous material representative of the Morrison fauna was also secured.

A second exceptionally interesting addition to the exhibition series is a slab of fossil footprints from the Triassic shales of Virginia, received through the courtesy of F. C. Littleton, of Aldie, Va. This slab is 2 by 12 feet, weighs in the neighborhood of 1,500 pounds, and shows three successive footprints of a three-toed dinosaur, with a stride of 56 inches. This discovery is of additional interest in being the first recorded find of such footprints in the State of Virginia.

Two composite skeletons, suitable for mounting, from the famous Rancho la Brea deposits, one a saber-toothed cat, *Smilodon californicus*, and the other the fossil wolf, *Aenocyon dirus*, were received in exchange from the University of California, and exchanges with the American Museum of Natural History added to the exhibition series a cast of the skull of the fossil rhinoceros *Baluchitherium*, and to the study collection a cast of the type of *Griphodon peruvianus*.

The greater part of a skeleton, lacking the skull, of a fossil elephant was transferred by the United States Geological Survey. This was located in Franklin County, Wash., by members of the United

States Bureau of Soils engaged on the Columbia Basin irrigation investigations, and, through the efforts of Dr. Kirk Bryan, was recovered and forwarded to the Museum.

As a part of a collection received in exchange from Colorado College, Colorado Springs, were the types of the plesiosaur *Trinacromerum bentonianum* Cragin, and of the turtle *Testudo equicornes* Hay; as a donation from Dr. David Starr Jordan, the types of a fossil sculpin from Nevada. All are important additions to the steadily growing series of type material.

Interesting materials from South America, presented by Brother Ariste Joseph, Instituto de la Salle, Bogota, include good teeth of a species of mastodon, part of the carapace of a fossil armadillo, jaws of ground sloths, and several good specimens of other mammals belonging to a peculiar group known as the Notungulata.

A single dorsal vertebra of an extinct lizard, of interest as belonging to the most ancient lizard yet found in North America and from the fact that it will become the type of a new species, was received as a gift from L. S. Russell, of the University of Alberta, Canada.

Important cetacean remains, of which partial skulls of *Zarhachis* and *Eurhinodelphis* are especially worthy of mention, were collected by Norman H. Boss from Miocene deposits along Chesapeake Bay.

Explorations.—During the summer and early fall of 1923, Secretary Walcott, accompanied and aided by Mrs. Walcott, carried on geological field work in the Canadian Rockies in continuation of that of previous years. Special studies were made of the Mons formation of the Ozarkian system, 3,800 feet in thickness, which on the eastern side of the Columbia River Valley was found to contain four well-developed fossil faunas, indicating its position between the Upper Cambrian and Ordovician systems of the geologic time scale. Collections of fossils illustrating new horizons in the Ozarkian system were made in this area, also in the Upper Cambrian and Silurian limestones of this region.

Dr. Charles E. Resser spent August and September in stratigraphic and paleontologic work in the Great Basin ranges of Nevada and Utah, the particular object of the trip being to secure information and collections in furtherance of Doctor Walcott's monographic studies. All of the principal ranges of eastern Nevada and western Utah were visited, particular attention being given to the Wasatch and Bear Lake Mountains in the latter State. Of the fossils collected many were from entirely new localities.

Dr. R. S. Bassler was engaged in field work during the season of 1923 in the Central Basin of Tennessee, the Knobstone area of southern Kentucky, and the Niagaran Plain of southwestern Ohio.

In Tennessee, in cooperation with the geological survey of that State, he completed the mapping of the geology of the Hollow Springs quadrangle and collected fossils from the Ordovician and Mississippian formations outcropping in the area. At the instance of Dr. Frank Springer, a visit was paid to southern Kentucky and preliminary quarrying operations were undertaken with a view of securing a series of crinoids, for which the locality is noted. In the Niagaran Plain and neighboring area in Ohio he obtained a more complete knowledge of the region from which the Austin collection was secured. The month of June, 1924, was spent by Doctor Bassler, also under the auspices of the Geological Survey of Tennessee, in the Lilydale quadrangle in the northern part of the State, mapping the geology of the region and securing data toward a report on the stratigraphy of the State.

Dr. E. O. Ulrich during the summer of 1923 was engaged in field studies of the Upper Cambrian and Ozarkian systems, particularly in Wisconsin. He spent the latter part of the fiscal year in the marble belt of east Tennessee, the object of his researches being the solution of intricate stratigraphic problems connected with the geology of this classical area.

In May, 1923, Charles W. Gilmore, curator of vertebrate paleontology, was detailed for the work of securing a mountable skeleton of the large sauropodous dinosaur from the Dinosaur National Monument in Utah. In the work he was assisted by Norman H. Boss. Work was begun on May 24 and carried on continuously until August 8. The quarrying of these bones was a slow and tedious operation, involving the skill of both the miner and the stonecutter, but it was successfully carried out by the employment of experienced men. The largest block quarried, containing the sacrum and attached hip bones, weighed nearly 6,000 pounds when ready for shipment. The transportation of the boxes to the railroad involved a haul by teams of 150 miles across country and over a range of mountains 9,100 feet above sea level. However, 34 large boxes having a combined weight of over 25 tons, were safely transported. As noted under the heading of accessions, the expedition resulted in the acquisition of sufficient material for a good skeletal mount and a considerable quantity of miscellaneous fossils representative of the Morrison fauna.

In September Mr. Gilmore visited the farm of F. C. Littleton, near Aldie, Va., for the purpose of investigating the reported discovery of fossil footprints in excavations in the red Triassic shale. Numerous dinosaurian footprints were observed at several distinct horizons. Later, through the courtesy of Mr. Littleton, Mr. Gilmore, accompanied by Mr. Boss, again visited the locality and secured a fine slab of these as well as a few separate tracks.

Mr. Boss made several short collecting trips to the Miocene deposits along Chesapeake Bay and, as in previous years, was successful in recovering well-preserved cetacean remains.

Assistant Curators Shannon and Foshag, on their own initiative, made several brief trips to near-by localities where small representative collections of rocks, minerals, and ores were secured. Early in June, 1924, Doctor Foshag joined a field party of the United States Geological Survey in Nevada, where he spent the summer. The head curator spent some days inspecting quarries at Deer Isle and Auburn, Me., and in a geological trip into the northern part of the State. He represented the University of Maine at the inauguration of the president of St. John's College at Annapolis, and the Smithsonian Institution at the inauguration of presidents of Washington University at St. Louis and University of Missouri at Columbia. He also represented the Institution at the centenary of the birth of Joseph Leidy, at Philadelphia.

Preservation, installation, and present condition of the collections.—Few changes have been made in the exhibition series. Probably the most striking additions within the year are those in the hall of vertebrate paleontology. Here has been mounted the Pliocene mastodon from Arizona which has been described by Dr. J. W. Gidley under the name *Stegomastodon arizonae*. This is the only articulated skeleton of this genus in America. Thomas Horne, preparator in the division, spent many months in the restoration and mounting of this skeleton and is to be highly commended on the successful outcome of his work. A large slab of rhinoceros bones from Agate, Nebr., the preparation of which required months of tedious work on the part of Norman H. Boss, and an interesting slab from the Triassic of Virginia, showing footprints of a dinosaur, were also installed, while further additions are a bison skeleton from Minnesota and a cast of a skull of the fossil rhinoceros *Baluchitherium*.

In the adjoining paleobotanical hall, a fossil tree stump from the Devonian of New York, found during excavations for Gilboa dam, forms an important addition to the exhibits. Smaller mounts of fossil plants have been added to the stratigraphic and biologic series, and several cases have been bettered by rearrangement.

An instructive addition in the hall devoted to systematic and physical geology is a series of large photographs, 20 in number, hung above the exhibits which they admirably supplement.

Two new cases, one containing Canadian silver-nickel ores and the other rocks and associations from the Arkansas diamond fields, are the chief additions to the series in economic geology, although a few exceptionally fine specimens were added to the other case exhibits,

necessitating a partial rearrangement of the tungsten, tin, copper, and manganese cases.

Better material has replaced a number of specimens in the systematic series of minerals. The case of recent accessions has been practically rearranged by the substitution of new material, and the case of radioactive minerals was materially improved by the introduction of material from the Belgian Congo received during the year. Temporary pedestal exhibits include a large calamine presented by Colonel Roebling, and two large specimens of chalcopyrite. Some rearrangement of the gem collection was necessary in order to accommodate new additions. These cases, in fact, require constant care, since the slightest jar is liable to displace the stones.

The exhibition and floor space of the various divisions of the department will be fairly well filled with the installation of the large dinosaur, now engaging the full time of the force in vertebrate paleontology. This work, however, will require some years for completion. Future exhibition work here must consist largely in the replacement of inferior material for that which is new and better. The exhibits are for the most part well labeled and the halls fully supplied with guide labels, each on a separate stand.

Work in the laboratories and offices has proceeded along the usual lines. The sets of Survey material which last year were reported as awaiting permanent filing, have been put away, a large series of well borings being now the only material of this kind needing attention. The problem of the final disposition of this has not yet been solved. The study collections in mineralogy have increased in value owing to the introduction of much that is new, Doctor Foshag reporting that, so far as species are concerned, it is now over 80 per cent complete. A rearrangement of the study collection of rocks was made necessary in order to take care of the large petrographic reference series mentioned above. The study series of invertebrate fossils has again been expanded. Space for this was made possible by transferring to the biological department certain recent corals stored in the rooms formerly occupied by Dr. T. W. Vaughan, and substituting Cambrian collections. These changes admit of such an expansion of the Paleozoic series in general that a logical arrangement is now possible.

Curator Bassler has been occupied with the arrangement and classification of the Lacoe, Austin, and Teller collections. The first two have now been put in good museum form, but the last named is so large that its arrangement will occupy a considerable part of the coming year. A storage room on the third floor becoming available, the space was assigned for the reception of the Lacoe library of paleontological literature. This was unpacked, catalogued, and is now housed in compartments made as dustproof as practicable. In

the cases above these compartments the duplicates of fossil invertebrates have been stored, making them for the first time readily accessible. Doctor Bassler was assisted in this work by Miss Beach and Mr. Pohl, aids in the division. Dr. T. W. Stanton and his assistants have cared for the Mesozoic collections as usual, and Dr. W. H. Dall has given careful attention to the arrangement and preservation of the Cenozoic groups.

Through the efforts of Dr. F. H. Knowlton, assisted by T. E. Williard, the Mesozoic plants in the attic have been condensed and rearranged, and a complete card index made. This index is by collectors, localities, States, and formations, so that this part of the series is most accessible. The fossil plants forming a part of the Lacoe collection have also been installed under Doctor Knowlton's direction. These included particularly Triassic plants from the Richmond, Va., coal field, plants from the Dakota sandstone of Kansas, the Miocene lake beds of Florissant, Colo., and the Swiss Miocene, the last not before represented in the collection.

In Paleozoic paleobotany the principal work of the year was the preparation by Erwin R. Pohl of about 75 drawers of Devonian and Mississippian black shales holding plant and animal remains.

The routine of the division included the preparation of some extensive exchanges.

The preparators in the division of vertebrate paleontology have, with slight interruptions, been continuously engaged in the preparation of the *Diplodocus* skeleton. The work progresses slowly on account of the very refractory nature of the matrix in which the bones are imbedded, but substantial progress has been made, 10 of the 34 boxes having been opened and 7 of these fully worked up.

With the assistance of Remington Kellogg, of the Biological Survey, the collection of fossil cetacean remains was practically rearranged. Some progress was also made in bringing about a better arrangement of the study collections of fossil reptiles and birds.

Dr. J. W. Gidley reports some progress toward a better installation of the study collections of fossil mammals but finds the work necessarily slow, partly because of the lack of clerical help.

The question of the extension of storage space in this division is one that must shortly come up for consideration. The large size of much of the material renders such facilities as are found satisfactory in other divisons quite inadequate.

Miss Margaret Moodey has looked after the records of the collections for all divisions of the department Aside from the immediate duties of her position as recorder, she has had the entire responsibility and care of the collection of cut gems, and in connection with this has been called upon to answer numerous inquiries

and furnish information on gems and gem minerals. She has also assisted in the installation of other exhibits and in the care of the study collections, including a complete rearrangement of the types of fossil fish remains studied and described by the late Charles R. Eastman. Within the past year she has revised the card catalogue of fossil mammals, arranging one series by zoological classification. Miss Moodey's work has further included the revision and editing of scientific manuscripts, proof reading, indexing, and bibliographic work.

Harry Warner, preparator, has, as heretofore, been occupied with the work of cutting and polishing specimens for exhibition and cutting thin sections for study.

Researches.—The head curator has completed his researches on meteorites under a grant from the National Academy of Sciences. During the year he has furnished descriptions of stones and irons from Anthony, Kans., San Juan County, N. Mex., and Mejillones, Chile.

Work in the laboratory has been greatly facilitated by the acquisition of a binocular microscope which was presented to the department by John A. Roebling.

A number of investigations were begun, continued, or completed by Assistant Curator Shannon. The lengthy manuscript on the minerals of Idaho, mentioned in previous reports, was completed, and shorter papers on the Goose Creek and Leesburg, Va., minerals were prepared and submitted for publication. These latter, based upon local problems, are believed to have furnished generalizations of widespread application. Many shorter investigations were undertaken. Ganophyllite from Franklin Furnace, a rare mineral heretofore known only from Sweden and not represented in the Museum's collections, was analyzed and described; the status of carrollite and remingtonite was investigated; unusual gersdorffite and amphibole from Idaho were analyzed and described; and beaumontite and halloysite from Baltimore were reexamined and redescribed. Benjaminite and canbyite were described as new minerals, the work on iddingsite completed and that on merrillite continued, and chalcophyllite from Chile was investigated in detail. Work is now going forward rapidly toward a description of the series of minerals from Italian Mountain, Gunnison County, Colo., collected by Dr. Whitman Cross. Work was begun on this by Wirt Tassin in collaboration with Doctor Cross and the collection has been held together awaiting final description for nearly 25 years.

A study of the minerals of the lithophysae in the obsidian of Obsidian Cliff, Yellowstone National Park, has been completed by Assistant Curator Foshag. In this investigation the genesis of the

minerals was of chief concern. A study of the chemical composition and optical properties of the mineral copiapite was also completed by Doctor Foshag, and a new mineral, chlorophoenicite, from Franklin Furnace, investigated, its chemical, optical, and crystallographic properties determined.

No extensive mineralogical investigations on the collections have been prosecuted by others than the Museum force. As usual, however, numerous calls have been made by members of other departments who have studied the collections and been supplied with material to aid in their own researches. Among outside collaborators, however, mention may be made of Dr. A. C. Hawkins, who was joint author with Mr. Shannon in the description of canbyite; Dr. Clarence S. Ross, who collaborated in the investigation of iddingsite; and Dr. E. S. Larsen, who has collaborated in several pieces of work.

Paleontological research has been, as usual, quite actively carried on. Secretary Walcott completed two extended papers on Cambrian stratigraphy and paleontology and with Dr. C. E. Resser has finished the text and illustrations of an article on Nova Zembla fossils. The preparation of a generic work on Cambrian and Ozarkian trilobites has also been undertaken, for which numerous pen and ink drawings of the genotypes are being made. Doctor Resser has continued the study of the Wisconsin Cambrian collections with Doctor Ulrich and has forwarded the preparation of his bibliographic index of the Cambrian. In collaboration with Prof. B. F. Howell, of Princeton University, Doctor Resser has undertaken a monographic study of the trilobite family Agnostidae.

Dr. R. S. Bassler has completed his work on the Recent Bryozoa of the Gulf of Mexico in collaboration with Ferdinand Canu, but the illustrations for this work are as yet unfinished. These two authors have completed and sent to press a report on the Cretaceous Bryozoa of Tennessee.

Although suffering much inconvenience from illness, Dr. Frank Springer has completed a paper on unusual forms of fossil crinoids and several smaller articles, in addition to continuing his monograph on the Silurian crinoids of the Ohio Valley.

Dr. E. O. Ulrich has completed a study of an extensive series belonging to the trilobite family Bathyuridae, and, with Dr. A. F. Foerste and others, has prepared a paper on the stratigraphy and paleontology of northern Michigan. In an endeavor to work out the complicated stratigraphy of eastern Tennessee he has studied the collections from that area.

Dr. W. H. Dall has completed his studies on some remarkable fresh-water fossils from the Payette formation in Idaho and has

revised a paper by Thomas Oldroyd, of Stanford University, on the Pliocene of San Pedro, Calif.

Dr. Mary J. Rathbun has nearly completed an account of the fossil decapod crustaceans of the Pacific Coast States and Alaska, based on material collected by the United States Geological Survey; by the State universities of Washington, Oregon, and California; Stanford University; the California Academy of Sciences; the San Diego Society of Natural History, and by various individuals, as well as specimens in the collections of the United States National Museum and the Yale University Museum.

Dr. T. Wayland Vaughan has continued his work on the National Museum collection of the larger foraminifera, and hopes soon to begin forwarding his papers for publication.

Due to absence from the office for nearly six months of the fiscal year, C. W. Gilmore prepared no papers based on museum material. Such time as he has been able to devote to research work was spent on his study of the fossil lizards of North America, the monographic work undertaken under a grant from the National Academy of Sciences. This is now nearing completion. Mr. Gilmore's studies of the dinosaurian collections at the Carnegie Museum, Pittsburgh, upon which he was engaged for a period of six weeks, resulted in the preparation of two papers giving information concerning little known forms from the Morrison formation. These will be published by the Carnegie Museum. A short paper for the University of British Columbia, descriptive of a new species of *Laosaurus*, was also completed.

Dr. J. W. Gidley has revised and completed his paper descriptive of the Proboscidea and Edentata from the San Pedro Valley, Ariz., with important notes on the geology of that region. The revision was made necessary by additional observations and data obtained from a second expedition to the Valley conducted by Doctor Gidley for the American Museum of Natural History. He also reports considerable progress in the technical study of the remaining Pliocene material from the San Pedro Valley and the Pleistocene collections from Sulphur Springs Valley, in Arizona.

Remington Kellogg, of the Biological Survey, has continued his study of the fossil cetaceans. He has submitted four papers for publication based on this material. Dr. Alexander Wetmore, also of the Biological Survey, has studied certain of the fossil birds, and Dr. O. P. Hay has continued his researches under the auspices of the Carnegie Institution.

Dr. F. H. Knowlton completed his monograph on the Miocene flora associated with the Columbia lavas near Spokane, Wash. His

account of the flora of the Animas formation is now in the hands of the printer. Prof. E. W. Berry, of Johns Hopkins University, has studied the paleobotanical collections, particularly from South America; Prof. R. W. Chaney is working on certain Tertiary floras from the west coast; F. B. Frost continued his researches on the Upper Paleozoic plants; and Dr. Arthur Hollick spent the last six months of the year at the Museum completing his monograph on the Cretaceous flora of Alaska, comprising about 250 species. Doctor Hollick's Tertiary flora of Alaska, embracing 300 species and more than 75 quarto plates, is now nearly completed. Dr. G. R. Wieland has continued work on the cyads; Prof. A. C. Seward has prepared an elaborate paper on our splendid specimens of *Tempskya* from Wyoming; and Prof. I. W. Bailey, of Cambridge, Mass., has completed a lengthy paper on a new dicotyledonous wood from the Cretaceous of Arizona.

Dr. A. F. Foerste and Dr. Rudolf Ruedemann are continuing their studies of the invertebrate collections, and various paleontologists of the United States Geological Survey have, as in past years, been actively working on the Cretaceous and Tertiary forms. The meeting of the Geological Society of America and the Paleontological Society at Washington in December afforded an opportunity to a number of visiting members to study our collections and methods of installation.

As in previous years, no small amount of research has been necessary in order to furnish information on subjects pertaining to geology and to report on materials. Within the year 469 letters have passed through the head curator's office and 399 lots of material were received for examination and report.

Distributions.—Shipments comprising 2,742 specimens and 24 pounds of material in bulk were sent out as loans for scientific research, exhibition, or other purposes. Among the beneficiaries were the American Museum of Natural History, American Chemical Society, the Bureau of Soils, Bureau of Standards, Geophysical Laboratory, University of California, Johns Hopkins University, and various individuals. As exchanges, 4,543 specimens and 92 pounds of material in bulk were distributed, and as gifts, chiefly to educational institutions, 2,123 specimens of selected material, 19 of the so-called "school sets" comprising 1,615 specimens, and 10 of the rockweathering and soils series, comprising 210 specimens. It is to be regretted that these sets, prepared some years ago, are now exhausted and the demand for them can not be met until funds are available for collecting the necessary materials.

Total number of specimens in the department.—Adding the receipts of the present year to the estimated total given last year, we have now a total of 1,720,123 specimens in the department.

Department of Arts and Industries

REPORT ON THE DIVISIONS OF MINERAL AND MECHANICAL TECHNOLOGY

By Carl W. Mitman, *Curator*

COMPARISON OF INCREMENT OF SPECIMENS OF 1923–24 WITH THAT OF 1922–23

For educational value, enhancement of the National Collections and intrinsic money value, the accessions received by these divisions during the fiscal year just closed far surpass those received during any of the five years of the writer's incumbency as curator. A total of 38 accessions was recorded as over against 32 the year before; of these, 29 were assigned to mechanical technology and 9 to mineral technology. The total number of specimens included in these accessions is 638, of which 429 were assigned to mechanical technology and 209 to mineral technology. In comparison with last year this is only about one-half as many objects. These, however, cover a wider range of subjects; for example, of the 1,357 objects received in 1922–23, 969 were assigned to the section of communication, whereas of the 638 specimens received this year but 157 were assigned to this section. In furtherance of the policy inaugurated several years ago of separating from the divisions all strictly biographical material, there were transferred to the division of history 46 specimens pertaining to S. F. B. Morse.

ACCESSIONS DESERVING OF SPECIAL NOTICE

The facts stated in the opening sentence of this report make it extremely difficult to make a selection of accessions deserving of special notice, for all of them fall within this category. For the past 20 years Emile Berliner, of Washington City, assisted by his son Henry, has engaged in experimental research with a view toward perfecting an aircraft of the vertically lifting type, known as the helicopter. Their efforts were within the past few years crowned with success in that they were able, using a man-carrying plane, to rise vertically from the ground and proceed in a horizontal direction, all under complete control. The airplane which made these successful flights now forms part of the aircraft collection, having been presented to the Museum by Mr. Berliner. In 1911, there was held the initial official demonstration of the feasibility of using air-

planes for mail transportation. The Hendee rotary gas engine used in the airplane at that time has been added to the aircraft collection, being the gift of Earle Ovington, Santa Barbara, Calif., who was the airplane pilot. Still another historically important airplane to be added to the collection was the Fokker airplane *T–2*, which made a nonstop flight in May, 1923, from the Atlantic to the Pacific coasts in a little less than 27 hours, piloted by Lieutenants Macready and Kelley, of the Air Service, War Department. This plane was received as a transfer from the War Department.

The division's efforts toward rounding out the collections in the section of communication were brought materially closer to a successful goal by the gift of the Automatic Electric Co., Chicago, Ill., of a complete working unit of the Strowger automatic telephone system, made by this company. By automatic is meant the total elimination of telephone operators to make connections between phones. It is exhibited in the vicinity of the telephone equipment developed by Alexander G. Bell and forms an interesting and valuable addition to the communication collections. Not only is every bit of the equipment visible but also three telephones are mounted on the outside of the exhibition case so that by the use of them visitors can see the system in complete operation. From the American Telephone & Telegraph Co. there were received as gifts two original pieces of the very early Bell telephone equipment consisting of one of the first box telephones ever put into commercial use, the particular instrument being one of a pair used by Alexander Graham Bell in a test made between Boston and Salem, November 26, 1876; and the first form of telephone transmitter used commercially in 1886. This company also presented replicas of four pieces of Doctor Bell's first experimental telephone apparatus. From E. E. Cole, Washington, there was received as a loan a form of telegraph apparatus known as the typewriter telegraph transmitter. This apparatus was invented by Charles E. Yetman in 1894 and developed for commercial use by the Remington Typewriter Co. Its particular feature is that an ordinary universal typewriter keyboard is used to transmit telegraphic messages in the Morse code. In other words, a single depression of a typewriter key transmits in Morse code the character depressed on the keyboard, thus eliminating as essential a knowledge of the Morse code on the part of the operator and also reducing the number of arm movements to transmit a Morse code character.

Of great value in the visualization of developments in the automotive industry is the accession received as a gift of the Cadillac Motor Co., Detroit, Mich., consisting of one of the first automobiles

made by this company in 1903, of which all have disappeared except this one and three others, and a complete chassis of the Cadillac automobile made in 1923. The latter is complete except that no body is attached, and all of the working parts and inclosed mechanisms normally hidden from view are exposed. This has been accomplished by cutting away portions of the metal coverings within which the many and diversified parts are hidden. The metal surfaces throughout are beautifully finished either by being nickel plated or etched, while other portions of the frame are painted in white enamel. This latter model, standing as it does parallel to the John Bull locomotive, affords a very impressive illustration of the progress made in the modes of land transportation in the past 80 years in that the wheel base of the John Bull locomotive is less than that of the automobile, while the overall length of the two is very closely identical. From the signal section of the American Railway Association, New York, the division received four pieces of original railway signaling apparatus. This phase of the railroad industry was, before the receipt of this accession, unrepresented in the collections, but with the continued cooperation of this association there is a surety that it will not be neglected in the future. From Buster Keaton, Los Angeles, Calif., the division received as a gift a "hobby horse" or curricle. This vehicle is representative of the predecessor of the bicycle and while not an original specimen is a very accurate replica of this type, having been used by Mr. Keaton in one of his motion pictures produced in 1923. Ransom Matthews, Selma, Calif., added to his loan collection of automobile accessories and essentials an additional series of 25 spark plugs.

The collections devoted to the developments in electrical illumination were enchanced by the gift of a part of the apparatus used by D. McFarlan Moore, in 1897–98, in the operation of his vacuum tube electric light. This apparatus was also used at that time to transmit electric emanations or radio waves, the specific use being to ignite a bomb located a city block distant from the instrument, which bomb in turn blew up a miniature model of the battleship *Maine*. This very valuable piece of apparatus is a gift of D. McFarlan Moore, Harrison, N. J.

In the general section of machinery there were received as a gift of the American Society of Civil Engineers a model of one of John Ericsson's hot-air engines, made by Ericsson and presented by him to a friend, and two models of the Eads sand pump, developed by James B. Eads, originally for the specific purpose of excavating for the piers of the famous Eads bridge across the Mississippi River

at St. Louis. From A. W. Willet, Birmingham, England, the division received as a gift an engineer's drawing in color of one of the famous pumping engines built by James Watt and which is still in existence. This particular pump was used for pumping water for one of the canal systems near Birmingham. From Howard B. Dailey, Battle Creek, Mich., there was received as a gift a small and beautifully made static electric engine. It was designed by Mr. Dailey and built by his father about 1880, the purpose being to demonstrate that static electricity could be made to do work. By the very fine adjustment of aluminum-coated wooden balls and the use of very light woods for other moving parts, the phenomenon of electrical attraction and repulsion is utilized in turning the flywheel of the machine. From Wilfred B. Ward, Richmond, Ind., there were received as a gift five wood-cutting tools for making wood screws and screw threads. These tools formed part of the equipment of the donor's grandfather, who was a turner in Philadelphia about the beginning of the nineteenth century.

The section of metrology was materially enhanced by the accessioning of two large groups of objects, one received as a transfer from the Signal Corps of the Army, and the other as a gift of the Taylor Instrument Companies, Rochester, N. Y., by James Ely, vice president. The latter group consists of 31 specimens of thermometers and barometers, visualizing the progressive changes in these types of measuring instruments. They include industrial, household, and clinical thermometers and household, professional, and laboratory barometers, including both mercurial barometers and those of the aneroid type. From the Signal Corps were received 43 objects such as are currently used in meteorological work, including sunshine recorders, rain gauges, recording thermometers and barometers, hygrometers, anemometers, compasses, and theodolites—in other words, all of the apparatus now in current use for weather and climatic determinations. In the Army, of course, such data are essential in aviation and in the use of heavy ordnance. The phonograph collections were enlarged by the gift of an original tinfoil phonograph record such as was used about 1878 on the first Edison phonographs. This record was presented by H. R. Dalton, Boston, Mass. Emile Berliner, Washington, donated another object to his valuable collection showing the development of the Berliner gramophone, namely, a heavy rubber disk record, made in 1898. To the collection of watches there were added one Swiss watch movement, a gift of Dr. Henry E. Karnofsky, Minneapolis, Minn., and three watches and a chronometer, loaned by Donald S. Parsons, Washington, D. C.

The watercraft collection was very materially enhanced in quality by two accessions of steamship models. The Canadian Pacific Railway Co., Montreal, Canada, through Walter Maughan, steamship passenger manager, generously loaned a model of the steamship *Empress of Russia*, one of the vessels plying between Vancouver and the Orient. The model was made in Glasgow, Scotland, and is perfectly executed in every detail as far as exterior is concerned. It is approximately 12 feet in length and is shown in an appropriate exhibition case, which also was loaned to the Museum. The second accession is that of the model of the steamship *Leviathan*, which was transferred to the Museum from the office of the Alien Property Custodian, which office secured the model at the time of the seizure of other German property upon declaration of war with that country. This model, too, is complete in every detail as to exterior and measures 18½ feet in length over all; in other words, it is approximately one-fiftieth actual size. Both of these accessions do much toward rounding out the collection of models visualizing the developments in steam transportation.

In mineral technology very important and valuable additions were made to the glass-industry exhibit through the generosity of the Corning Glass Works, Corning, N. Y. The series of objects includes two scale models of the modern glass-melting furnaces, known, respectively, as the pot furnace and tank furnace; 174 specimens of chemical, railway, industrial, domestic oven, and art glassware; and a full-size glass-blowing machine such as is used in the making of incandescent electric-light bulbs. With this accession, the glass industry exhibit may be said to be approaching more nearly to a complete exhibit. Mention was made in the last annual report that the divisions' own preparators were engaged in the preparation of a model visualizing the land pebble phosphate mining industry of Florida. This model was accessioned during the current year and placed on exhibition. Its construction would hardly have been possible had it not been for the whole-hearted assistance rendered by the Morris Fertilizer Co., Chicago, Ill. The model is 16 feet long and 30 inches wide and visualizes the mining and preparation of this valuable mineral product. For addition to this exhibit the Morris Fertilizer Co., Atlanta, Ga., donated 10 samples of land pebble phosphate rock in the various stages of its preparation, and from photographic negatives supplied by this company the Museum's photographic laboratory made eight transparencies showing conditions in and about this enterprise, which are exhibited above the model. As a further addition to its earlier donation to the division's exhibit of asbestos and asbestos products, the Keasbey & Mattison

Co., Ambler, Pa., donated 12 specimens representing steps in the process of producing commercial asbestos fiber.

WORK OF PRESERVING AND INSTALLING COLLECTIONS—PRESENT CONDITION OF COLLECTIONS

The major operations of installation made during the year were confined to two sections, namely, communication and aircraft. Toward the close of last year over a thousand objects pertaining to telegraphy, telephony, and radio were transferred from the War Department, Signal Corps, and the work of cataloguing, installing, and labeling this collection of objects has required most of the time of the two out of the three members of the staff available. When not engaged upon the communication collections these same two members devoted their time to the installation of aircraft and other objects which were secured during the year to augment the aircraft collections. At this writing none of this work can be said to be completed; there is still remaining the final numbering and rechecking of the objects comprising these major collections. The third member of the staff has the primary duty of maintaining the mechanically operative models and exhibits. The number of this type of exhibits is increasing annually and is consequently increasing the percentage of time which the preparator must spend on this work and decreases the amount of his time available for other purposes. For this reason, therefore, the model showing the mining and preparation of land pebble phosphate mining begun last year was not completed until January of this year, and time was found to construct but 10 additional models for the exhibition series begun last year relating to mechanical powers, motions, and devices. Additional time, when it was available, was spent in making repairs on the older collections. This work involves a variety of operations, including the renewal of sails and rigging on boat models, making and replacing worn-out parts both of wood and metal on working models, renewing broken parts of other models and exhibits, and repairing and painting broken exhibits in plaster.

The model mentioned above, visualizing the land pebble phosphate mining industry, is constructed entirely of plaster and wood, the topographic features being modeled in plaster and all superstructures made in wood. The model is 16 feet long and 30 inches wide and made to a scale of 20 feet to the inch. The main feature of this industry is the mining of the pebble phosphate by hydraulic methods, using enormous streams of water to wash down the banks of phosphate pebbles and collect the washed material in a depression where electrically driven pumps carry it to a washing, drying, and screening plant. The model of the natural pitch lake on the island of

Trinidad from which asphalt and asphaltic products are obtained was completely renovated during the year, and alterations were made to conform with the present conditions of the island which have taken place since the model was made 10 years ago. The Barber Asphalt Paving Co., which originally donated the model to the Museum, generously paid all expenses involved.

RESEARCHES

Last year Samuel S. Wyer, associate in mineral technology, made a special study of the mineral resources of Pennsylvania, which was published in a book entitled "The Smithsonian Institution's Study of Natural Resources Applied to Pennsylvania's Resources." The edition has already been exhausted and to satisfy the demand a second edition is being considered which will have added to it a third part on the transportation industry. Toward this end Mr. Wyer and the writer have spent a great amount of time, the results of which are expected to appear in printed form early in the coming fiscal year. For this work materials within the division were largely utilized.

In continuance of the work of visualizing the progress in aeronautical developments, Paul E. Garber began his investigations and the collection of data for construction of a model of the aircraft made in 1896 by Sir Hiram Maxim. Henry Schroeder, Harrison, N. J., made an intensive study covering a period of several months of the collections devoted to electrical illumination. This was done at the instigation of the curator for the specific purpose of publishing a bulletin on the developments of electrical illumination in so far as based on the Museum material. This publication was finally issued in August of last year under the title "History of Electric Light." In the section of transportation, the oldest within the divisions, there have been brought together a large number of photographs, drawings, and engravings of railway materials, particularly of locomotives. The data on file are in many instances rather meager and in others apparently inaccurate. With a view toward correcting these defects the divisions had the whole-hearted cooperation of C. B. Chaney, Brooklyn, N. Y., who has spent a great many years in the collection of data on the history of locomotive building in the United States. Many of our photographs were sent to him for identification and the furnishing of additional data which he most graciously supplied.

DISTRIBUTION AND EXCHANGE OF SPECIMENS

The very nature of the divisions' collections, comprising in the main original models and other objects, precludes the possibility of the distribution of specimens; however, the divisions are often called

upon to furnish photographs of material together with data pertaining thereto. The largest gift of this sort made during the year was to Miss Gertrude A. Gillmore, of the Children's Museum of the Detroit Institute of Arts, Detroit, Mich.

NUMBER OF SPECIMENS IN THE COLLECTIONS

		Mechanical technology	Mineral technology
Number of specimens on hand June 30, 1923		6,678	3,809
Number of specimens received during the year		429	209
Number of specimens transferred from other divisions		21	
		7,128	4,018
Number of specimens transferred to other divisions or returned to donors:			
Morse biographical objects	46		
De Haviland–4 airplane	1		
		47	
Models of chemical industries			11
Net total number of specimens in collections June 30, 1924		7,081	4,007

REPORT ON THE DIVISIONS OF TEXTILES AND MEDICINE AND THE SECTIONS OF WOOD TECHNOLOGY, ORGANIC CHEMISTRY, AND FOOD

By F. L. Lewton, *Curator of Textiles*

COMPARISON OF INCREMENT OF SPECIMENS OF 1923–24 WITH THAT OF 1922–23

The accessions received during the year number 81 (including three joint accessions with other departments), and in addition parts of six accessions covering 291 specimens which were received and recorded elsewhere in the Museum prior to the beginning of the current fiscal year.

The entries covered by the above accessions number 3,364, 1,223 more than were received in the fiscal year 1923, and they may be divided into five groups as follows: Textiles, 438; medicine, 828; wood technology, 580; organic chemistry, 1,513; and foods, 5; each group with the exception of medicines and foods showing more entries than last year.

The additions to the collections assigned to these divisions and sections consist of specimens not heretofore represented in the Museum and, taken as a whole, are believed to be more valuable than those received last year.

ACCESSIONS OF IMPORTANCE

The most important additions to this department of the National Collections made during the year were the result of cooperation with several national trade associations. Manufacturers supporting these associations are becoming more appreciative of the value of the National Museum as a means of informing the American public of the importance and scope of great American industries, and as a result several large series of industrial specimens were collected and contributed for exhibition.

The first of these to be mentioned is that illustrating the origin, manufacture, and applications of rubber, which was planned to cover every phase of the rubber industry and was the gift of the Rubber Association of America (Inc.). The exhibit material was obtained from representative American firms, members of the association, but in no case were these manufacturers mentioned on the labels, the credit for the exhibit being given to the rubber association for the benefit of the whole industry. Some 307 specimens, models, and photographs for this exhibit were received before

the close of the year, while as many more were in process of preparation to complete the exhibit as planned. The specimens are arranged in the following 16 groups:

1. Natural history of rubber production: Botany, cultivation, tapping, curing.
2. Commercial raw rubber: Types, grades, packing, statistics.
3. Rubber manufacture (general operations): Washing, drying, mixing, compounding.
4. Aid of rubber in the communication of ideas: Telephone, telegraph, radio, typewriter, pens, stamps, erasers.
5. Rubber as an aid to transportation: Automobile and bicycle tires.
6. Rubber in control and transmission of power and light: Covered wires, cables, storage batteries.
7. Mechanical rubber goods: Belting, packing, valves, hose.
8. Fighting fire with rubber: Fire hose.
9. Waterproof footwear and clothing: Boots, shoes, heels, raincoats, etc.
10. Rubber in the service of health: Hospital equipment, dental rubber.
11. Rubber in the home: Combs, bath and plumbing fixtures, mats, tile, jar rings, wringers.
12. Rubber for toys and sports: Toys, tennis, golf, baseball, billiards.
13. Rubber in warfare: Gas masks, balloons.
14. Reclamation of rubber: From shoes, tires, etc.
15. Rubber substitutes and related materials: Balata, gutta, chicle, guayule, etc.
16. History of rubber manufacture.

The American Brush Manufacturers' Association appointed a committee to collect for the Museum from various manufacturers a representative series of animal fibers and specimens of all types of brushes made therefrom. This collection of 278 specimens was shown at the annual convention of the association at Atlantic City, N. J., last March, and then presented to the National Museum.

Another example of the cooperation of trade associations is represented in the presentation to the Museum by the National Boot & Shoe Manufacturers' Association of the United States (Inc.), with the assistance of the United Shoe Machinery Corporation, of Boston, Mass., of 119 specimens and cut-out figures illustrating steps in the manufacture of a woman's shoe.

Through the courtesy of the Associated Fur Manufacturers (Inc.), of New York City, the Museum was invited to send a representative to the convention and fur trade exposition in New York, and was assisted in obtaining three valuable fur exhibits. The Fouke Fur Co., of St. Louis, Mo., through the Biological Survey, Department of Agriculture, presented the Museum with three specimens of Alaska seal, showing steps in the plucking, dyeing, and finishing of skins of the Bering Sea fur seal. A. Hollander & Son (Inc.), of Newark, N. J., contributed, through the Biological Survey, 28 muskrat skins showing the 14 principal steps in the production

of "Hudson seal." And to the Vandeweghe Fur Co., New York City, through the same bureau, the Museum is indebted for 10 specimens of rabbit skins illustrating four processes in the conversion of a rabbit skin into "Sealine" or "Arctic seal."

As the first of a series of exhibits to show the most important kinds of leather, the Museum received as a gift from the Barnet Leather Co. (Inc.), New York, N. Y., five skins representing the principal steps in the chrome method of tanning calfskins for shoe uppers. The Fabrikoid division of E. I. du Pont de Nemours & Co. (Inc.), Newburgh, N. Y., contributed 13 articles, including traveling and golf bags, bookbindings, slippers, etc., to illustrate the application of Fabrikoid, a leather substitute, and to supplement the process exhibit of this material contributed by it last year.

Other important additions to the National Collections during the year, also from the field of industrial chemistry, were represented in a group of new materials which are fast finding their places in industry because of special chemical and physical properties. Under this heading should be mentioned 64 specimens showing the manufacture and applications of Insulate, a hot-molded shellac composition made by mixing shellac with various fillers and molding in heated steel forms under pressure to any shape or size. This material finds a place in more than a score of different industries and is used for making parts of musical instruments, electrical and mechanical equipment, dental instruments, automobiles, cameras, furniture, pipes, etc., and was contributed by the General Insulate Co., of Brooklyn, N. Y.

The Bakelite Corporation, of New York, N. Y., contributed 14 specimens manufactured from Redmanol, a synthetic product related to Bakelite and Condensite, to supplement the exhibits of those two materials which were contributed in 1923.

From the Diamond State Fibre Co., Bridgeport, Pa., there were received by gift 97 specimens illustrating the use of Celoron, a laminated fiber product thoroughly impregnated with a combination of phenol and formaldehyde and hardened, and which may be punched, shaved, sheared, turned, sawed, drilled, milled, planed, threaded, engraved, etc., in the same way metal is machined. The specimens included automobile and radio parts, gears, pinions, etc.

The Cutler-Hammer Manufacturing Co., Milwaukee, Wis., presented 55 specimens showing the composition and application of two cold-molded plastics, Pyroplax and Thermoplax. The first, a fire-resisting product made with an inorganic binder and filler, is used for such things as motor terminal blocks and covers, switch and rheostat bases, panel boards, etc. Thermoplax is made with an organic binder and asbestos, has great dielectric strength, takes a

high polish, and is unaffected by heat under 600° F. It finds many uses in electrical equipment, automobile parts, and advertising novelties.

To the Lustron Co., South Boston, Mass., the Museum is indebted for samples of cellulose acetate and specimens of Lustron, a form of artificial silk made therefrom. It is claimed that artificial silk made by this process is but little affected by moisture and is just as soft in texture as other cellulose silks.

The Russia Cement Co., Gloucester, Mass., replaced an old exhibit presented by it many years ago with an extensive collection of specimens showing the preparation and application of animal and vegetable glues and the utilization of the by-products obtained thereby.

A collection of 202 coal-tar dyes representing various classes of dyestuffs, such as direct colors, sulphur colors, vat colors, basic and acid colors, etc., was received as the gift of the Newport Chemical Works (Inc.), of Passaic, N. J.

The interest shown by the National Museum in handicrafts and the encouragement given persons skilled in weaving, basketry, and other arts to prepare and collect such objects for the Museum, led Mrs. Laura M. Allen, instructor of hand weaving and basketry at the Rochester Athenaeum and Mechanics Institute, Rochester, N. Y., after a study of the collections in the National Museum, to undertake to prepare and collect from other weavers specimens of fabrics and woven articles made by hand. This has led to the accession of a collection of 303 specimens woven by 196 different persons. A collection of the appliances used in hand weaving is being made by the same donor for the Museum to supplement the collection of weavings.

Convenient appliances for hand weaving were recently in great demand for use in hospitals and vocational schools for rehabilitating injured ex-soldiers, and with this demand there was a revival of hand weaving as a household art. To meet this need various types of hand looms were developed or redesigned in portable form on which beautiful and practical woven articles could be made. Through the generosity of Miss Elna M. De Neergaard, of New York City, three hand looms designed by her were added to the Museum's collection: A bedside loom, a 6-inch table loom, and a 12-inch floor loom, each one having been fitted with warp and showing a piece of weaving begun.

The Berry Schools, Mount Berry, Ga., through Mrs. Laura M. Allen, contributed to the exhibit of handicrafts three articles made by pupils of this famous school for children of the mountaineers.

Through the kindness of Mrs. Oskar W. Bergh, of Brooklyn, N. Y., three beautiful Norwegian tapestries, valued at $10,000, were loaned to the Museum for exhibition in the textile hall. These wonderful woven pictures, the work of Madame Frida Hansen, of Norway, were on exhibition for four months and attracted a great deal of attention.

An American inventive genius, Simon W. Wardwell, jr., who died in 1921, produced a number of valuable and interesting machines. The first model of the universal winder, invented by him, was deposited in the Museum 12 years ago, and the Museum is now indebted to the Wardwell Braiding Machine Co. and to its president, Carl Christensen, for the gift of the first commercial Wardwell rapid braider built in Central Falls, R. I., 1910. This machine is equipped to braid a covering over the ordinary electric-light cable and has been connected with a small motor so that it can be demonstrated. Instead of a speed of from 150–170 revolutions used in ordinary production, the machine on exhibition has been geared so as to operate very slowly, not over five revolutions a minute, and permit the braiding movements of the spools to be seen. To Harry L. Follett, New York, N. Y., the Museum is indebted for the gift of another historic specimen. This is the original model of the rotary lock stitch shuttle invented by the donor's father, Joseph L. Follett, and patented February 4, 1873 (U. S. Patent No. 130,557).

The Museum's large collection of industrial fibers was enriched by the gift of specimens of Mexican brush and cordage materials from the Tanners Products Co., Chicago, Ill., and by specimens of Spunartsilk, a new industrial material for use in the manufacture of wool fabrics, contributed by Abeeco Mill (Inc.), New York, N. Y. This material is made from artificial silk waste by a process similar to that used in the production of spun silk from worm silk waste, unreelable cocoons, etc., except that the strand of short, straight, parallel, clean fibers is spun according to the worsted system, yielding a rough, fuzzy yarn like that made from wool. On the other hand, the yarn made from waste worm silk is spun on cotton machinery, resembles thrown silk, and is largely used in combination with cotton. Spunartsilk, being of vegetable origin, does not take dyes in the same way as wool, and permits beautiful color effects to be obtained when used in certain combinations with wool.

In spite of the care taken of them, certain specimens of woven fabrics are affected by the light in the Museum's halls. It is with great satisfaction that a series of Everfast cotton dress and drapery fabrics in a beautiful variety of colors and weaves has been received for exhibition in the cotton section of the textile hall. These fabrics were contributed by N. Erlanger, Blumgart & Co. (Inc.), New York, N. Y. Novelties in fabrics are always in demand.

and to supply something new to satisfy the demand of the trade is the aim of every textile manufacturer. Specimens of a new novelty cotton fabric named Voivelle, so constructed that a velvet pile is raised at spaced intervals on a voile-like ground, were contributed by L. & E. Stirn, of New York, N. Y.

From the Robinson Silk Co. (Inc.), also of New York City, the Museum received the gift of seven specimens of novelty silk crêpe fabrics.

For the division of medicine, the most important accessions of the year were those included in the exhibits deposited by the National Committee on Exhibits showing Advances in Sanitary Science, of Washington, D. C. This committee is composed of representatives of governmental bureaus and nonofficial agencies all working in some phase of public health. The following paragraphs describe the 25 models deposited by the committee in addition to posters and smaller objects. Two prepared under the direction of the American Child Health Association embody the aims of the organization; the first, a model arranged to teach the care which is due an infant to insure safe passage to "Grown-up harbor via baby landing, south school islands, and adolescent point." It represents the sea of life with the horizon and sky as the background. In the foreground is the ship "Child health," upon which the infant is about to embark for its journey through life, made fast to a pier upon which is represented the first essentials necessary for the health of the mother and the baby. When connected with electric current the sea in the background is in motion and the ship sways gently backward and forward on the billows. It brings home very forcibly its lesson "Your baby is about to start on a long trip." The second exhibit is called "A museum within a museum," and gives health lessons for the child of school age. The models which make up this exhibit illustrate that cleanliness, diet, recreation, and rest are important factors which must receive early attention if the child is to reach the happy harbor of old age.

Of two attractive and valuable exhibits prepared for the National Tuberculosis Association, the smaller is a model entitled "The modern health crusade," and represents a crusader talking to a group of children, while below are health lessons relating to tuberculosis which should be impressed on the young mind. The larger consists of four models, the first of which shows the tubercular patient engaged in duties which aggravate the condition; next, physical examination and discovery of the cause of his ill health; then the visiting nurse caring for the afflicted one in the home and teaching the family how to prevent further infection; and finally, recuperation at a mountain health resort.

Three models, prepared for the Life Extension Institute (Inc.), New York City, and the charts, pamphlets, etc., which go with them, stress the necessity of periodic physical examinations in order to detect disease in its incipiency while there is yet time to combat it. A life extension unit is represented, showing the offices in which the history of the case is recorded and the laboratories and clinics where special and general physical examinations are made. Charts tell the story of a complete examination of this kind and illustrate the object sought—an increase of the life span.

A series of six small models, prepared for the National Organization for Public Health Nursing, points out that the public health nurse is one of the health teachers of the community, and that she cooperates with the doctor, the health officer, the social worker, and the school-teacher.

Seven miniature theaters representing the activities of the American Red Cross, six first-aid packages, and eight Upjohn child welfare posters were received from this organization.

Models of two farm outhouses, one showing sanitary and the other insanitary conditions, were constructed by R. A. Deal, Emporia, Va., for use by the committee in illustrating the importance of rural sanitation.

The Women's Bureau of the United States Department of Labor transferred to the Museum an excellent model of an ideal factory which was specially constructed for the health exhibit of this division. This model illustrates proper hygienic and sanitary working conditions for women factory workers.

Lloyd Bros., Cincinnati, Ohio, contributed 179 specimens of materia medica, selected by Dr. John Uri Lloyd, and representing plants introduced and employed by the physicians of the eclectic division of American practitioners.

The United States Public Health Service, Treasury Department, transferred considerable material which had been used at the Brazilian Exposition and in health campaigns throughout this country. Among the more important items are the following: "Youth and life" and "Keeping fit" exhibits; social hygiene exhibits; a nutrition exhibit; model of a filth fly; models of a sanitary outhouse and septic tank; models of rat-infested and rat-proofed buildings; transparencies of parasites which infest the human body; glass models of organisms of polluted, partly purified and clean water; and a set of publications illustrating the various phases of public health work.

Part of the Pasteur centennial exhibit arranged by the Bureau of Chemistry, Department of Agriculture, and shown in the American

Museum of Natural History, New York City, in 1923, was transferred to this division. This exhibit shows Pasteur's early studies concerning the crystallography of certain chemicals, the nature of fermentation, distribution of germs in the air, spontaneous generation, etc. The flasks and other apparatus are duplicates of those used by Pasteur. The exhibit is of historic importance and was awarded a grand prize by the French Government at the Exposition Internationale du Centenaire de Pasteur held in Strassburg in 1923.

The H. K. Mulford Co., Philadelphia, Pa., completed their biological exhibit by the addition of five charts outlining the use of bacterins and serobacterins in the treatment of disease.

The discovery of insulin by Dr. F. G. Banting and C. H. Best, working in the laboratories of the University of Toronto, represents an epoch-making event in the history of medicine. The claim made for this medicine is that it enables diabetic patients to utilize carbohydrates in a normal manner. Although discovered only recently, the value of insulin is claimed to have been proven. There was placed on exhibition during the year a series of specimens and pictures, contributed by Eli Lilly & Co., Indianapolis, Ind., illustrating how this medicine (the active principle of the Islands of Langerhans of the pancreas gland) is obtained.

A model of a yellow fever mosquito, a model of a South American home proofed against mosquitoes, a model of a Kropf's window tent used in the treatment of tubercular patients, and 12 charts relating to the spread and prevention of disease were transferred from the Army Medical Museum of the War Department.

Miss Jessie B. Rogers, Springfield, Mo., donated a brass mortar and pestle. This mortar is of a very old type and makes an exceedingly interesting and valuable addition to the historical pharmaceutical collections.

The Museum is indebted to the W. A. Baum Co. (Inc.), New York, N. Y., for the gift of a desk model, mercury tube, sphygmomanometer used for registering blood pressure.

An interesting addition to the historical collections is a small statue of Hygeia, the Greek goddess of health, who is described as one of the daughters of Aesculapius, god of medicine. The statue is finished in soft tones of Pompeian bronze and depicts the goddess caring for a sacred serpent, one of her rites in the temple of health. It symbolizes the sacred shrine of the human body, which also exacts certain health observances. The statue was contributed by the American Medical Association, Chicago, Ill.

Dr. Lyman F. Kebler, of the United States Department of Agriculture, Washington, D. C., contributed for addition to the historical pharmacy collection, applications and specifications for United

States patent rights on pill, tablet, and capsule machines. These machines are used in the manufacture of medicines of various forms, and these papers show the development of machinery of this kind in the United States. Doctor Kebler also presented 16 portfolios containing committee reports, circulars, and correspondence relating to the ninth revision of the United States Pharmacopoeia.

Ten illustrations and one pamphlet concerning the history and development of the housing movement in Washington, also five pamphlets relating to hygiene and sanitation were donated by Dr. George M. Kober, Georgetown University Medical School, Washington, D. C.

The American Red Cross Museum, Washington, D. C., through Miss Irene M. Givenwilson, curator, presented eight Upjohn child-welfare posters.

Thirty-eight pamphlets and one set of reports of investigations of the Bureau of Mines, dealing with sanitation and safety in the mineral industries, were obtained by transfer from the United States Department of the Interior.

A number of important and valuable additions to the collections illustrating wood technology were received the past year. Probably the most interesting were a cypress "knee" and cross section of one of the logs removed from the excavation for the foundation and basement of the new Hotel Walker at Connecticut Avenue and De Sales Street, Washington, D. C., which were given by Dr. L. W. Stephenson, of the Geological Survey. The survey has declared that this cypress deposit can not well be less than 100,000 years old, and that it may be much older.

From the exhibition standpoint, the most important accession was that of 56 products of the hardwood distillation industry received as a gift from Penn Formaldehyde Manufacturing Co., East Smethport, Pa., through the National Wood Chemical Association, Bradford, Pa. This series includes specimens of maple, beech, and birch, the three most used woods in the industry, and the products derived from them by distillation, as well as a few of their compounds. In connection with this, 43 photographs and 9 blue prints presented by the National Wood Chemical Association form a valuable supplement for anyone wishing to study the industry pictorially.

The Grass Fibre Pulp & Paper Co., of Leesburg, Fla., contributed 32 specimens and four photographs showing the manufacture of paper from Florida saw grass, a recent industry which promises to add wealth to the State from the development of a hitherto useless natural product. Kraft wrapping paper is to be the chief product, and since true Kraft paper is made from soda wood pulp, the importance of this industry in helping to conserve our depleting forests

is limited only by production facilities and the supply of raw material, which latter seems to be endless.

The Brunswick-Balke-Collender Co., of Chicago, Ill., continued their cooperation by presenting to the Museum a miniature billiard table, sample cues, wood triangle, set of pocket balls, and a bowling alley section. The billiard table is a most artistic one. It is made exactly to scale with a regulation table and of the same materials. The wood used is African mahogany and has been given the handsome English brown finish. The table is inlaid with ebony, white holly, and mother-of-pearl. The bowling alley section is of edge-grain hard maple in strips carefully glued and clamped together and highly polished in natural finish.

Drake Process (Inc.), Cleveland, Ohio, has developed a unique industry which blows wood pulp into molds, and forms, in one operation, hollow containers and other articles of almost every conceivable size and shape. This company enhanced its former exhibit by contributing 36 more specimens of its products, including a radio rotor, hardened by special treatment; quart berry boxes with bottoms perforated for ventilation; soap-powder containers; and a triangle salt can.

Continuing their cooperation with the Museum, the Paine Lumber Co., Oshkosh, Wis., presented two fine veneered doors of their latest design. One is a brown ash, two-panel door, finished light golden on one side and dark on the other. The second, a one-panel Miracle door, is of red birch, finished on one side as dark mahogany, and on the other similar to English oak.

WORK OF PRESERVING AND INSTALLING COLLECTIONS

The assignment of the southeast court gallery for hygiene and sanitation exhibits has made it possible to utilize a few of the cases of this gallery for the exhibition of medical collections. Advantage was taken of the delay in the receipt of the permanent exhibits for this gallery to relieve the congestion in the division of medicine. Eventually this entire gallery will be devoted to the subjects of hygiene and sanitation. Sixty-two new or rearranged installations were made during the course of the year. Fifty-two cases were utilized for new material and ten used for transferred or rearranged exhibits. Sixteen child-welfare posters were framed and hung on the pilasters over the hygiene and sanitation exhibits.

Thirty-three new permanent installations of exhibits assigned to the section of organic chemistry were made during the year, also four installations of textile products in the south hall. These included various rubber industries, the manufacture of cements and glues, plastic resins, hot- and cold-molded products, furs, brushes,

and animal fibres, calfskin leather, shoemaking, imitation leather, tapestries, dress fabrics, and a braiding machine.

The 21 installations of the present fiscal year set up in the wood court included: Bowling and billiard equipment and specimens illustrating indoor and outdoor sports; specimens of woods, tool handles, wood heels, doors, paper pulp products, wood distillation, and wood preservatives; specimens showing destruction of wood by ants and termites; photographs of lumbering methods; also cases and bulletin boards arranged to point out the damage resulting to forests and game from carelessness with fire in the woods.

RESEARCH AND STUDIES CARRIED ON AT THE MUSEUM

For the benefit of the Museum.—As much time as could be spared from routine work has been given by the curator and one assistant to the preparation of comprehensive technical definitions of textile fabrics based upon authentic specimens in the Museum's collections. This has meant the careful examination of all available current textile literature, as the technical mill and trade terms used in older works of reference are often not in accord with those in current use in the United States. A little progress has been made toward the completion of a fabrics glossary based on actual specimens, as the Museum's collection of named textiles has been steadily increased.

The use of the Museum's collections and facilities by visitors and correspondents.—Numerous visitors made inquiry at the curator's office in search of special information suggested by the exhibits, and made particular use of the technical books on textiles, woods, and drugs in the sectional libraries. The curator and assistant curators furnished special information on industrial raw materials and the identification of specimens, from time to time during the year, to the Bureaus of Chemistry and Plant Industry, United States Department of Agriculture. The identification of specimens of fibers and fabrics, gums, resins, seeds, and woods for numerous individuals, both in and out of the Government service, has been a regular part of the work of this division. The curator furnished the identification of cottons and cotton seeds introduced by the office of foreign seed and plant introduction and distribution, United States Department of Agriculture, and to him has been referred all letters requesting information on silk and artificial silk received by the Department of Agriculture and other Federal departments.

Names of special cooperators.—A number of persons deserve special mention for their splendid cooperation in arranging for the contribution of specimens to the Museum and for making use of every opportunity of presenting the needs of the Museum to persons and professional bodies in a position to render assistance. In this

connection it is desired to name E. D. Walen, manager, Cotton Research Co. (Inc.), Boston, Mass.; Dr. John Uri Lloyd, Cincinnati, Ohio; and James A. Tobey, administrative secretary, National Health Council, who has rendered very valuable cooperation in the planning and developing of exhibits relating to hygiene and sanitation.

RESEARCHES ELSEWHERE AIDED BY MUSEUM MATERIAL

Henry C. Fuller, chemist, Institute of Industrial Research, Washington, D. C., was furnished two small samples of *Brayera anthelmintica* for study purposes. Prof. S. J. Record, Yale School of Forestry, New Haven, Conn., was furnished 172 specimens of woods, collected in the Dominican Republic by Dr. W. L. Abbott, for use in his studies of tropical American woods. F. K. Sparrow, Ann Arbor, Mich., was supplied with two specimens of Argentine woods for scientific research. Seven specimens of "chuño," or Peruvian frozen potatoes, were loaned to Dr. W. E. Safford, United States Department of Agriculture, for use in his study of aboriginal forms of potatoes.

DISTRIBUTION AND EXCHANGE OF SPECIMENS

During the past fiscal year 2,127 study samples of various woods have been prepared for distribution to educational establishments, museums, and individuals. Seven sets, totaling 276 study samples, have been distributed this past year.

Nine textile charts showing the preparation and uses of flax, wool, and cotton, one chart illustrating the manufacture of worsted yarn, and two charts depicting the preparation and spinning of flax were distributed to museums or elsewhere for educational purposes.

STATISTICAL DATA

	Textiles	Woods	Organic chemistry	Medicines	Foods
Number of specimens received during year 1923–24	449	580	1,513	828	5
Total number of specimens in collections June 30, 1924 (estimated)	11,128	4,268	8,465	12,340	1,060

REPORT ON THE DIVISION OF GRAPHIC ARTS

By R. P. Tolman, *Assistant Curator*

The principal activities of this division have been the holding of loan exhibitions and increasing and improving the existing exhibition series. Much valuable material has been received in 100 accessions, totaling 1,652 specimens, including those for the section of photography; 881 loans were returned, leaving 771 specimens still in the Museum. The total number of specimens at the close of the year was 23,707. Over 200 new specimens have been placed on exhibition in graphic arts and 30 in photography, while 65 others were shown for three months, giving some idea of the progress that has been made.

Twelve exhibitions were shown from four weeks to three months as follows:

SMITHSONIAN BUILDING

October 1 to October 26. Etchings. Traveling exhibit of the Chicago Society of Etchers.

October 27 to November 30. Lithographs. The Senefelder Club of London. Loaned by the American Federation of Arts.

December 1 to January 4. Etchings in black and white and in color, by William Meyerowitz, of New York.

January 5 to February 5. Posters. Approved by the Underground Railway of London. Loaned by the American Federation of Arts.

February 2 to 29. Etchings and lithographs, by Benjamin C. Brown and his brother, Howell C. Brown, of Pasadena, Calif., president and secretary, respectively, of the Print Makers' Society of California.

March 1 to 28. Etchings, lithographs, and block prints. Traveling exhibition of the Print Makers' Society of California. Loaned by the American Federation of Arts.

March 29 to April 25. Etchings of birds and animals by Will Simmons, of New York, secretary of the Brooklyn Society of Etchers.

March 26 to May 23. Etchings and drawings by Franklin T. Wood, of Rutland, Mass.

ARTS AND INDUSTRIES BUILDING, SECTION OF PHOTOGRAPHY

October and November. Pictorial photographs by the New York Camera Club.

December to March. Pictorial photographs (photogravures of) by Richard Polak, of Switzerland. (These are the property of the Museum.)

March and April. Pictorial photographs. Combined exhibition by four English societies: The Hammersmith and Hampshire House Photographic So-

ciety, London; the Liverpool Amateur Photographic Association, Liverpool; the Manchester Amateur Photographic Society, Manchester; the Pictorial Group of the Royal Photographic Society of Great Britian. Assembled by Colin J. Unsworth.

May and June. Pictorial photographs. Multigum prints by John H. Garo, of Boston.

These exhibitions were of educational as well as high artistic quality and attracted many visitors, and favorable notices appeared in the press, both locally and abroad. As a direct material result, the collections have received numerous prints of artistic and historical value. Twelve loan exhibitions have been planned for the next fiscal year. The Museum wishes to extend its appreciation to the individuals and organizations through whose interest it has been possible to have these displays.

Of the changes in the existing exhibitions, the most important and thorough, related to etching. All the material was rematted in the new cream mats and bound with dark gray passe-partouts. Much of the new material received recently has been incorporated in the present arrangement; several entirely new additions have been made to the technical series.

The process of intaglio etching consists of covering a suitable metal plate with a very thin coating of an acid-resisting material and next scratching through it to the metal plate the lines that are to be printed; then corroding with acid or other mordant the part of the metal that has been exposed, each scratch is etched into the metal plate and when properly inked, can be printed.

In Germany, about 1500, etching began. From internal evidence Daniel Hopfer is given the credit for being the first to use this medium for printing. None of his prints is dated. The earliest date found on an etching is 1513; it is on Urs Graf's Girl Washing Her Feet. This was etched upon iron, as were five by Albrecht Dürer, dated 1515 to 1519. His follower, Hans Sebald Beham, made about 20, 2 in 1519 and 8 in 1520, others undated, except 1 in 1540. About 1520, in Italy, Francesco Mazzuola, called Il Parmigiano, was the first Italian etcher. The first in the Netherlands was Lucas van Leyden, who in 1520 etched five plates on copper. Before this, all etching had been upon iron. From the beginnings to about 1530 is called the "Incunabula of etching." From 1530 to the time of Rembrandt (his first etching is dated 1628), little if any advance was made. The most important discovery was a wax ground, invented by Dietrich Meyer about 1600, which was easily scratched; the earlier ground had been tough and hard to cut through. Wax grounds have been used ever since.

The series is shown in the Smithsonian Building in the connecting range, now called the "Press room." The historical series is arranged chronologically.

It may also be of interest to name some of the artists who are represented in this historical series which covers the outstanding events. It has been necessary to use modern impressions, reproductions, and photographs to make a chronologically complete arrangement, even though it is very brief.

Daniel Hopfer (working 1493, died after 1536) is represented by two original prints, Ornamental Design and The Last Judgment, and by a photograph of the Portrait of Kunz von der Rosen. It is largely on the evidence relating to this print that Daniel Hopfer is credited with being the first person to make etched plates for printing purposes. It has been assigned to about 1504. Iron was the first metal to be used and its use continued until about 1520, since when it has been gradually superseded by copper. Other prints upon iron in this series are Charles V and his Brother, by C. B., who is thought to have been a member of the Hopfer family; Girl Washing Her Feet, dated 1513, by Urs Graf (1485–1529), (photo); The Handkerchief of Saint Veronica Held by an Angel, dated 1516, by Albrecht Dürer (1471–1528); and The Canon, dated 1518, by the same artist. Lucas van Leyden (1494–1533) of the Netherlands was the first to employ copper, about 1520. Two of his prints are shown, a Self Portrait and Maximilian I with Coat-of-Arms, dated 1520 (reproduction). This is considered the first plate on which etching and engraving were combined. The first person in Italy to be given credit for producing etched plates was Francesco Mazzuola, called Il Parmigiano (1504–1540), who is represented by his print called Judith. Other artists represented are Hans Sebald Lautensack (1524–1563?), Guido Reni (1575–1642), Jost Amman (1539–1591), Pietro Faccini (1560–1602), Annibale Carracci (1560–1609), Anthony van Dyck (1599–1641), Jaques Callot (1592–1635), Rembrandt (1606–1669), Nicholas Berchem (1620–1683), Giulio Carpioni (1611–1674), Renier Nooms, called Zeeman (1610–1676?), Claude Gelee, called Claude Lorrain (1600–1662), Simone Cantarini (1612–1648), Paul Potter (1625–1654), Adriaen van Ostade (1610–1685), Salvator Rosa (1615–1673), Carlo Maratti (1625–1713), Israel Silvestre (1621–1691), Johann Heinrich Roos (1631–1685), Antonio Canal, called Canaletto (1697–1768), Jacob van Ruisdael (1630–1681), Karel Du Jardin (1622–1678), and Giovanni Domenico Tiepolo (1727–1804).

At this point is shown the technical series of line etching, which, to mention very briefly, consists of the tools and materials necessary for the making of an etched plate, with labels describing their uses

and prepared plates showing the necessary operations in finishing an etched plate, together with prints from it and methods of printing, with the material that it may be printed on. Then follows etchings of both the last century and this, foreign and American, the latter predominating, especially those of recent date. Due to recent gifts, works of the following American etchers are shown: John Taylor Arms, Loren Barton, Benjamin C. Brown, Howell C. Brown, William H. Drury, Anne Goldthwaite, Charles E. Heil, Arthur W. Heintzelman, Eugene Higgins, Bertha E. Jaques, William A. Levy, Margaret Manuel, Carl J. Nordell, Louis Orr, Louis C. Rosenberg, Ernest D. Roth, Henry B. Shope, J. Paul Verrees, Frederick Weber, and Franklin T. Wood.

Following the etching in line comes the subject of dry point, which while it is not an etching process is popularly included.

Dry pointing, so called because the work of the point is not followed by the use of an etching agent, is executed upon the bare metal plate with a steel point, held like a pencil. It is indeed simply scratching the copper. A scratch made with a point does not remove the metal, but turns it up alongside the furrow, producing a ridge which rises above the plate, and is called the bur. This bur retains the ink, and causes the rich velvety blacks characteristic of most dry-point prints. When these blacks are not wanted, the bur can be removed by scraping, in which case the ink is retained only in the furrows; there are, therefore, two kinds of dry-point work, with and without bur. A very characteristic mark, by which dry pointing can be detected, is the white line produced by the back of the bur in printing. As the back of the bur stands above the plate in relief, it is, or at least it may be, wiped clean by the hand of the printer, and the result is a white line stamped into the paper, and running parallel to the furrow out of which the bur was thrown up. These white lines, however, are not always present, as the ink, if the wiping is done gently and the bur is low, may hide them. However, the bur being above the surface of the plate, when being printed, presses down into the paper, leaving grooves. These are more often present than the lines mentioned above.

Dry pointing is probably quite as old as engraving. The Master of the Amsterdam Cabinet, who flourished between 1475 and 1500, is the earliest and is thought to have used lead or pewter. Albrecht Dürer's earliest dated dry point is of 1510. Rembrandt was the first artist of note to use it extensively.

The few tools needed are shown with a finished plate and impressions from it in the first, second, and last state.

In the historical series, photographs of the work of the Master of the Amsterdam Cabinet and Albrecht Dürer show the early be-

ginnings, followed by two beautiful original Rembrandts. Twenty-three other dry points are shown, the work of the following artists, the majority of the prints being recent accessions: Benjamin C. Brown, Howell C. Brown, F. S. Church (1842–1924), John W. Cotton, Auguste Delatre (1822–1907), George O. Hart, George E. Resler, Margery Ryerson, Will Simmons, Walter Tittle, Charles A. Vanderhoof, Frederick Weber, and J. Alden Weir (1852–1919).

The next subject is that concerning aquatint.

Aquatint is used to imitate water color washes, and in connection with both line and soft ground and for both one color and full color printing. There are two methods of laying the ground, a dry and a wet. In the dry method, powdered rosin or asphaltum is sprinkled over the plate and attached by heating. In the wet method, rosin dissolved in alcohol is poured over the plate; upon the evaporation of the alcohol, the rosin crackles, leaving the metal exposed in a network of cracks. The size of the cracks is governed by the proportions, the more rosin the wider the cracks. The next step is to paint, with stopping out varnish, the parts of the plate that are to print white. The remainder of the plate is now etched for the lightest tones. It is then removed from the acid and dried and the parts which have been sufficiently bitten are protected with stopping out varnish from further action of the acid in subsequent bitings. The procedure is the same for each value and it is repeated until all the desired values are in the plate, so that when it is printed, the tones will be from white to black and resemble water-color washes.

Many discoveries are simply rediscoveries. Jean-Baptiste LePrince (1733–1781), the French painter, has been given the credit for the invention of the process, and probably was the first one to use it extensively. His first aquatint is dated 1768. A. M. Hind, in the *Print Collector's Quarterly*, December, 1921, shows that there were aquatints by a Jan Van de Velde, which date about 1650, and others by Gerhard Janssen (1680–1725) and one by William Sherwin (died about 1710). In England Paul Sandby (1721–1809) worked extensively in this medium and is often credited with introducing it there. In the previously mentioned article Mr. Hind shows that P. P. Burdett, of Liverpool, produced an aquatint plate in 1771, and informed Sandby as to the method. Sandby's first aquatint appeared in 1775. In 1776 he invented the wet method. Since that time these methods have been used extensively.

In aquatint in line method "touching stuff"[1] is used with water to paint the design over the aquatint ground. When this is dry the

[1] Touching stuff is composed of burnt cork, whiting, lampblack mixed with molasses, and a little ox-gall.

plate is covered with a thin turpentine varnish; after it has set, very dilute nitric acid is poured over the plate, and it is rubbed with a camel's-hair brush until all the "touching stuff" is washed away. The plate is now ready to be etched.

The artists represented are André Scacciati (ab. 1726–1771), Jean Baptiste LePrince, Stefano Mulinari (1741–ab. 1796), L. P. Henriquel-Dupont (1797–1892), J. G. Prestel (1739–1808), Francesco Rosapina (1762–1841), and the following Americans: John Hill (1770–ab. 1850), John Henry Hill (1839– ——), Will Simmons, Frederick K. Detwiller, John Taylor Arms, and Frederic Pauling.

Shown in the same alcove with aquatint is soft ground etching, which is a method of making intaglio plates, prints from which resemble drawings on grained paper.

As to the inventor of this process little is known. Dietrich Meyer (1572–1658) has been mentioned, but his invention was of a "soft etching ground," which is in no way related to the "soft ground etching." Before his time a very tough ground was used, which was hard to cut through. Meyer's ground contained wax and was easily scratched.

In the process known as "soft ground etching" a ball of wax etching ground is melted with an equal amount of tallow, cooled, and applied to the plate in the usual way. This ground never dries and is very sticky. A fairly thin grained paper is now laid over the ground and a drawing made on it with lead pencil or other like medium. The paper is pressed into contact with the sticky ground at every stroke of the pencil, so that when the drawing is finished and the paper removed it pulls off the ground wherever the pencil has made a mark, leaving the copper exposed. The plate is now etched in the usual way, and the prints from this plate have the grained appearance of the original drawing.

Soft ground is used for both black and white and color prints, with or without aquatint. This method was used in England from about 1760, when Thomas Gainsborough made some plates, until about 1830, when it was superseded by lithography. At the present time this method has been revived and is being used by numerous artists in this country and Europe.

The technical exhibit is shown near by. John Crome (1768–1821), Francois H. Villiers (1772–1813), Louis Marvy (1815–1850), Charles Vanderhoof, Louis Brunet-Debaines (1845– ——), Benjamin C. Brown, George Wales, May Gearhart, and T. Francois Simon, are the artists represented.

One screen has been devoted to color prints. A color print is one in which the colors are printed. A print which has been painted by hand is not a color print, but a colored print. These latter have little

interest or commercial value, while the true color print, is as a rule of much interest and large commercial value. Color prints may be made from a single plate at one impression, all the colors being very carefully rubbed or painted on the plate. Or a single plate may be printed several times, different tones of ink being used each time. Or two or more plates, each printed in a different color. Lithography or relief plates may be combined with intaglio plates. Examples of each of these methods and combinations are shown.

The beginnings of most arts are so covered with the dust of ages that it is difficult to determine who should have the credit. In the case of color prints from one plate, Hercules Seghers (about 1590–1645) is the first person to be mentioned, but some claim that his prints were colored after printing. Joannes Teyler, latter half of the seventeenth century, is credited with making true color prints. Peter Schenck (1645–1715), about 1700, made true color prints of flowers. All seem to agree that the French engraver Jacob Christoph LeBlon (1667–1741) was the first person to make color prints based on the three-color theory of Sir Isaac Newton (1642–1727), that all colors could be made by the proper combination of red, yellow, and blue. LeBlon, in 1720, went to London and made large reproductions of paintings. He used mezzotint plates, but found it was necessary to add a fourth plate in brown or black to give strength. He is said to have issued 10,000 prints, but only about 100 are known to exist. From a financial standpoint he was unsuccessful, going into bankruptcy twice. He returned to Paris in 1732, making a few prints. He died there, in poverty, in 1741. His associates and followers continued to issue color prints. In the Medical Museum Library, Washington, will be found some examples in color by this method, printed in 1738 by Joannes Ladmiral (about 1680–1773). LeBlon's assistant, J. B. Gautier D'Agoty (about 1717–1785), and members of his family were his most famous followers. Edouard D'Agoty (1745–1783) interested Carlo Lasinio (about 1757–1839) in this process of color printing from several plates and he was about the last to use it before the present revival. Lasinio's portrait of his teacher Edouard D'Agoty, printed in colors, sold at auction in Paris in 1908 for 76,000 francs, over $15,000, the highest price ever paid for a single print at a public sale.

In recent years all the old methods of making prints in color have been revived and very beautiful and artistic work is being done. Practically all the old work was the reproduction of paintings. Much of the present production is of the same character, but many artists are making original color prints of excellent quality.

One of the more important gifts of the year was that of Miss Beatrice S. Levy, of Chicago. It was a set of three aquatint plates

used to make the color print, White House by the Sea. Her process of preparing and printing an aquatint in color from three plates follows:

First. The drawing and detail is etched in outline in the key plate, either in line or soft ground, or in other ways, soft ground being used in the White House by the Sea. The soft-ground line is more harmonious, when combined with aquatint, than the regular etched line.

Second. It is now necessary to get the drawing and detail of the key plate transferred to the other two plates. This is accomplished in the following manner: A sheet of cardboard about a foot longer than the plate, having a hole the size of the plates cut in its center, is placed on the plate press. The key plate is inked and placed in the opening in the cardboard, a sheet of damp paper the size of the cardboard is placed over it, and the three are run through the press until the plate can be removed but the cardboard and paper are held by the roller firmly by one end. The free end of the paper is lifted and the key plate removed, and a plate with an aquatint ground on it is substituted. These are run back through the press and the fresh ink on the print is transferred to the plate; simply a counter proof on metal. The third plate is treated in the same manner. The drawing is now on the three plates in exact register.

Third. The key plate is now given an aquatint ground. The three plates are stopped out and etched in the usual way and are then ready to be inked.

Fourth. Each plate is inked with its proper color, madder lake, yellow ocher, or Prussian blue. The red plate is placed on the bed of the press, in the hole in the cardboard and a large sheet of moist paper laid over it and the impression is taken, one end of the paper being held firmly by the blankets, the red plate is removed and the yellow one substituted and when it is run through the press the red and yellow have been transferred to the paper; in the same way the key plate is printed, making the three impressions necessary to complete the print. The order of printing and the shades of color may be changed to suit the effect desired by the artist.

The technical series of etchings is now the most complete of any of the technical exhibits and it is planned to bring all the others to the same state.

Another series which has been greatly improved by recent accessions is that of letter-press printing. Excellent examples have been received from Johnck-Beran & Kibbee, of San Francisco; William Edwin Rudge, of New York; Taylor & Taylor, of San Francisco; John Henry Nash. of San Francisco; Worthy Paper

Company Association, of Mittineague, Mass.; and the Laboratory Press, Carnegie Institute of Technology, Pittsburgh.

Thirty-seven examples are now in the permanent exhibition. Title pages and broadsides constitute the majority; as to quality, they are probably as fine as anything that has been produced.

Besides the above-mentioned accessions, others have been received from the following firms and individuals and have added to the exhibits of graphic arts.

Powers Reproduction Corporation, New York City, presented a double surfaced half-tone plate and a print from it. Their invention produces half-tone plates in which the parts of the plate that are to print the dark masses are higher than the parts which print the lighter tones, making overlay and underlay unnecessary.

Thomson-Ellis Co., Baltimore, Md., produced and presented line cuts in colors from five plates. This process requires five drawings, each reproduced and printed in a different color, making a strikingly interesting print.

Jahn & Ollier Engraving Co., Chicago, Ill., gave half-tone prints which have a distinctive and artistic grain, the resulting print having a style all its own.

The Aquatone Corporation, New York City, has developed a remarkable improvement in offset lithography, patented April 24, 1923, by Robert John. In this process the half-tone reproductions are made through a 400-line screen and printed on rough paper, at a speed of 3,600 or more an hour, the results being so true that the prints give practically all the quality of the original. Their prints in line are equally fine.

H. H. Strait, Overland, Mo., contributed an electrotype arranged to show the various uses to which his reversible miniature quoins are adaptable. It is an ingenious and useful article in small spaces, like mortised cuts.

Franklin T. Wood, Rutland, Mass., donated four of his etchings, which are of high technical and artistic value.

A soft-ground etching in color was the gift and work of Miss Gabrielle deV. Clements, of Washington.

Ernest Haskell, of New York, gave one of his "Flick" engraved plates and a print from it. It is a remarkable piece of work in a style that has not been used for several hundred years.

Five wood engravings by Timothy Cole, the world's foremost living engraver in this medium, were received during the year as the result of the preparation of a biography of Mr. Cole's life and the

compilation of a check list of his engraved work, undertaken by Ralph C. Smith, aid in the division. These prints were given by the George Washington Life Insurance Co., Charleston, W. Va.; the Hartford Fire Insurance Co., Hartford, Conn.; Harry V. Johnson, Washington, D. C., and Frederick E. Haight, New York City.

Miss Elizabeth Norton, Palo Alto, Calif., contributed 18 of her woodcuts, landscapes, birds, and animals, the majority having been placed on exhibition, making a valued addition to this series.

George O. Hart, Coytesville, N. J., gave 28 of his prints, dry points, aquatints, and lithographs, black and white and in color. Mr. Hart has an entirely personal view point and technic. He has traveled in many out of the way places and made his sketches from the life with which he has come in contact. The prints, which were made from the drawings, are as original in method as the life he has chosen to portray.

The American Red Cross, Washington, D. C., added three etchings by Louis Orr to the collections. These are views of Rheims Cathedral.

From Richard Polak, Sunn Matt, Switzerland, came 65 photogravures made from his pictorial photographs of Dutch scenes of the seventeenth century. These were exhibited in the section of photography for three months and then loaned to the Camera Club, of New York, for April, 1924. They are very fine reproductions of very fine artistic photographs.

The drawing by Franklin Booth, which he had loaned to the division for two years, was temporarily removed but has now been returned as a gift. It is in Mr. Booth's inimitable style.

Earle W. Huckel, Philadelphia, Pa., formerly connected with the division, continued to show his interest by giving 100 miscellaneous prints. Among them are prints by St. Memin, David Edwin, John Sartain, Samuel Sartain, T. B. Welch, S. H. Gimber, and other early American engravers in stipple and mezzotint. Eight lithographs, hand colored, of American Indians after the paintings by C. B. King, are probably all the work of Albert Newsam, the famous Philadelphia lithographer. One print each by the English engravers, J. Wright, F. Howard, and Thomas Watson deserve mention.

Mrs. Earle W. Huckel added 10 old bookbinding tools, probably of the seventeenth or eighteenth century, which she found in an old shop in London. At her suggestion, the British Museum purchased a large number of the tools that were in this old bookbinding establishment.

About 50 years ago the chromolithograph was embossed and pasted on cloth and mounted on a stretcher frame to imitate an oil painting. This year three specimens were received which were a big improvement over the old embossed chromo, as they were printed by photomechanical methods directly upon prepared canvas and embossed with the actual brush strokes of the original painting. These are called facsimiles of oil paintings and resemble them very closely both front and back. If framed, under glass and aged a little on the back, many might be taken unawares and it is for this reason, more than for the newness of the technic, that they are shown. The old chromolithograph deceived a few but these printed on canvas are liable to mislead many, because they have the look and much of the feel of paintings in oil.

One addition was made to the Woodbury type exhibit; it was a print called Glyptotype, made by Waterloo & Sons (Ltd.), of London, in 1896. In the Woodbury type process, each print had to be trimmed and mounted. The Glyptotype overcame these faults, the finished print being transferred directly to the paper. This is a most remarkable photomechanical process, without screen or grain, resembling very closely a photograph; it was slow to print, but for quality it has never had an equal, but has long been discarded for faster methods.

An index, which shows the location of various exhibits of graphic arts has been installed. Each class is represented by one or more specimens and a brief label, which describes its history and technic. Diagrams show the location in the building of the exhibits. This index is a complete little exhibit of graphic arts.

A. J. Olmsted, custodian of the section of photography, makes the following report as to the collections under his charge.

SECTION OF PHOTOGRAPHY

The year just closing has been one of material gain and advancement in the section of photography. The photographic press, at home and abroad, has given much publicity by notices and illustrated articles describing the collections and the exhibits, as many as 18 full-page illustrations being used in one issue of The Camera, of Philadelphia. The Camera, published in Dublin, Ireland, also devoted many illustrations to the collections of photography.

Thirty-nine accessions, totaling 487 specimens, were received; 214 were loans, which have been returned, leaving a net gain of 273 for the year. The total number of specimens in the section on

June 30 is 5,329. The additions have a high artistic and historical value. Mention of the more important ones follow:

Shutters of historical interest have been received from several sources. Adam Archinal, New York City, supplied six obsolete ones. Frederick C. Hassold, Philadelphia, Pa., gave two more. A. B. Stebbins, Canisteo, N. Y., gave two, one of which was a unique specimen of his own manufacture, known as a drop shutter; this class was in very common use before shutters were produced commercially. He also contributed another valuable exhibit, a daguerreotype camera, which was used about 1850. A multispeed shutter was loaned by Robert Runyon, Brownsville, Tex., the only one of its kind in the collections.

B. J. Falk, New York City, sent in a very early type of magazine-plate camera; it was invented by S. C. Nash in 1885.

Fifty lantern slides, made and used by Edward J. Muybridge, were obtained by purchase. They consist of several sets, more or less complete, showing action of animals, and are a valuable addition to our early motion-picture series. Mr. Muybridge used these slides so mounted on the periphery of a wheel as to produce projected motion on a screen.

Francis F. French, Cynwyd, Pa., donated a very early model view camera, equipped with a no. 2 Darlot lens.

The Society of Motion Picture Engineers contributed an important collection of 15 historical specimens of the early efforts to obtain color in motion pictures. These would be hard to duplicate. They consist of pieces of films and the screens used to obtain the color separation.

The War Department transferred six aerial cameras, fully equipped. These represent the important types of this class of camera.

The American Raylo Corporation, New York City, added seven very unusual prints made by their color process. John Adams Gallagher, Washington, gave a Hess-Ives print, the only one in the collection. Through the interest of Herbert B. Baldwin, Newark, N. J., a portrait of the Rev. Hannibal Goodwin, the inventor of the photographic film, was received from Zachariah Belcher, Newark, N. J. This was added to the collection of early American inventors and manufacturers of photographic material. Mr. Baldwin took great interest in the following accession. He was personally acquainted with Mr. Levison from 1885 to his death in 1923.

The original motion-picture camera, invented in 1887 by Wallace Goold Levison, was received from his brother and sister, C. G. Levison

and Mrs. J. L. Grimwood, Brooklyn, N. Y. This is a camera in which 12 plates could be exposed in rapid succession by turning a crank. It was entirely different in principle from the "battery of cameras" invented and used by Muybridge. In his case the exposure was made by the person or animal being photographed coming in contact with strings which were attached to each camera. In the Levison machine the exposure was governed by the operator, all plates being exposed through one lens and from the same identical spot. This machine was described in several newspapers of 1887 and application for patent was made June 26, 1888, but was allowed to lapse. This is one of the first, if not the first, motion-picture camera made to expose successive plates from one spot and was adaptable to the use of film. Proof of its early existence, and plates and prints made in 1887, accompanied the gift.

From Miss Frances Benjamin Johnston of New York came complete sets of Camera Work and Camera Notes. These are very rare.

The pictorial section received many notable additions, of which the following are important: Two very attractive prints from the veteran child photographer E. B. Core, New York City; Dr. T. W. Kilmer, New York, four multiple-gum prints which had been exhibited at several salons; and Dr. J. B. Pardoe, Bound Brook, N. J., In the Doorway, one of his very attractive productions. Three specimens of the new printing process, "Resinopigmentipia," were received from Joseph Petrocelli, Brooklyn, N. Y. This is a dry-pigment process which produces very beautiful results. H. A. Latimer, Boston, Mass., added six multiple-gum prints to his already generous contributions.

Floyd Vail, New York City, added one more of his beautiful prints, which makes seven now owned by the Museum. His son, Floyd Eugene Vail, gave two bromoils and a portrait of his father; his work is of high pictorial and technical quality.

The international character of the pictorial section was strengthened by eight prints from E. O. Hoppe, London, England, and three from Christopher James Symes, Birkenhead, England, all of which are of high artistic quality. Our pictorial section now contains representative examples of many of the famous pictorial photographers of the world.

Notable assistance has been rendered by the following persons: Frank V. Chambers, of Philadelphia, editor of The Camera, has given much publicity to the photographic collections and through notices of the needs of the exhibition series, valuable exhibits have

been obtained. Through the efforts of Herbert B. Baldwin, who has shown great interest, rare specimens were added to the collections. For three years Floyd Vail, by his untiring efforts, has been of great assistance. His vast knowledge has made his advice most welcome and of great value in the growth and upbuilding of the Museum's photographic series.

REPORT ON THE DIVISION OF HISTORY

By T. T. Belote, *Curator*

COMPARISON OF INCREMENT OF SPECIMENS OF 1923–24 WITH THAT OF 1922–23

The additions to the historical collections received during the past fiscal year do not equal in size and in scientific importance those received during the previous year. It should be noted in this connection, however, that the additions to the collections received during the previous year were unusually large and of exceptional scientific importance.

ACCESSIONS DESERVING SPECIAL NOTICE

The accessions of the present year represent a steady even increase in all departments of the historical work. The most important of these will now be described in the order of the section to which they have been assigned.

The most notable addition to the antiquarian collections has been a number of objects representing the interior furnishings of an American colonial room, which have been presented to the Museum by Mrs. Gertrude D. Ritter, of Washington, D. C. This collection includes wall paneling, furniture, chinaware, glassware, pewterware, pictures, textiles, and miscellaneous objects. The wall paneling is made of American pine carved with plain designs and fastened with pegs. This paneling which was taken intact from the old Bliss homestead located at Springfield, Mass., includes a corner cupboard of three shelves with original glass doors and hinges and latches of wrought iron. The furniture includes a small oval pine table made about 1700; a walnut dining room table of the early part of the eighteenth century with original brasses on the drawers and scalloped apron underframe; a graceful Windsor rocking chair of 1765; an easy chair made by Savery of Philadelphia, between 1750 and 1775, with ball and claw foot, shell ornaments and cabriole legs; a mahogany ladder-back chair of the latter part of the eighteenth century, of exceptional beauty of design, with carved top rail and arms and pierced splats; a side chair and an armchair of Queen Anne type with fiddle back and Spanish feet; an infant's walnut cradle of about 1700 of very interesting general design; a Pennsylvania Dutch love chest, dated 1765, with the initials of the bride and

groom on either side of the heart-shaped key plate; a walnut chaise lounge from the Otis house, Marshfield, Mass., of Dutch type, with slat back and six cabriole legs terminating in club feet; a spinning wheel of the period completes this section of the exhibit. The lighting appliances include half a dozen tin sconces with glass reflectors, two betty lamps, a wrought-iron candlestick and two candle molds.

For the installation of this collection a room adjoining the foyer of the Natural History Building has been utilized. The wall paneling has been set up around the walls, and the furniture tastefully arranged about the floor, which is partly covered by a hooked rug of the Aubusson pattern, made in New England during the latter part of the eighteenth century. One corner of the room is occupied by the corner cupboard filled with the glass and china ware described below. On an opposite wall is located the mantel belonging to the wall paneling. Above is installed a painting on wood showing Holyoke, Mass., with Mount Tom and Mount Holyoke in the background. The locations of the windows in the room are indicated by curtains of old English chintz. At the fireplace are shown a fire stand and set, a pair of andirons, and a trivet.

In the corner cupboard and on the tables are shown the china, glass, and pewter ware belonging to the exhibit. The china includes an exceptionally beautiful bowl of Chinese Lowestoft and a child's tea set of the same ware; a helmet pitcher; and a number of pieces of lusterware of more than usual interest. The glassware includes several pieces of Stiegal ware, a number of plain glass mugs of antique design, a glass pitcher, and a number of glass bottles of rare types. The collection of pewter includes plates, mugs, coffeepots, pepper and salt shakers, dishes, sirup mug and basin. This collection is unique in character, and its presentation marks an epoch in the development of the collections of this type in the National Museum. It is the donor's intention to add to this collection until the furnishings of an entire colonial home have thus been assembled. These will be exhibited as a unit in a house of colonial style to be erected for the purpose in proximity to the present group of Museum buildings.

To the collection of costumes of the ladies of the White House, which has for a number of years attracted so much public attention, two costumes of great interest have been added. One of these is a white satin evening gown worn by Mrs. Warren G. Harding during the administration of her husband, President Warren G. Harding, 1921–23, and now presented to the Museum by Mrs. Harding. The other is a gray silk dress worn by Mrs. Benjamin Harrison at the inaugural ball in 1889 on the occasion of the inauguration of her husband, President Benjamin Harrison. The latter costume was presented by Mrs. James R. McKee, of New York City. Both these

costumes were acquired by the Museum through the generous cooperation of Mrs. Rose G. Hoes.

The biographical collections have been increased by the gift of a pair of silver-mounted flintlock pistols with leather holsters which were owned during the War of the Revolution by Maj. Gen. Charles Lee, of the Continental Army; a sword, a pair of pistols, and a pair of epaulets owned during the same period by Maj. Jacob Morris; and a number of other relics of less importance. These have been presented to the Museum by Victor Morris, through the Wisconsin Society of the Colonial Dames of America. Three silver camp cups, owned during the Revolution by Brig. Gen. Anthony Wayne, have been lent by Mrs. M. W. Stroud. A gold locket containing a lock of the hair of Napoleon I has been presented by H. deB. Parsons, Miss Katharine deB. Parsons, and Livingston Parsons, of New York City. A very handsome gold snuffbox, the lid of which is set with diamonds, which was presented about 1836 to Col. René E. De Russy, United States Army, by the Prince de Joinville, has been donated to the Museum by Mrs. Laura R. De Russy, of New York City. A silver tureen and platter presented March 3, 1919, to the Hon. James R. Mann, Republican leader, by Members of the United States House of Representatives, Sixty-fifth Congress, has been donated by Mrs. Mann.

The military collections have been increased by the addition of a notably large and interesting collection of American and foreign swords, which has been lent by Dr. Alfred F. Hopkins, of Washington, D. C.

An individual relic of unique interest received by the Museum during the past year was one of the four rowboats used by the Geological Survey, Interior Department, Grand Canyon expedition, August 1 to October 15, 1923. This boat was the first of this character to have survived the trip through the gorges of the canyon. It was equipped with a radio, and concerts were received from Los Angeles, San Francisco, Salt Lake City and elsewhere at a depth of from 1,000 to 5,000 feet below the rim of the canyon. This boat was transferred from the United States Geological Survey.

The numismatic collections have been increased by the gift of two notable collections of European paper currency of the period of the World War. The largest of these, consisting of German issues, was presented by the American Numismatic Association through the president of that association, Moritz Wormser, New York City, and the smaller, consisting of Russian issues, was presented by Henry Goldman, of New York City. The philatelic collections have been increased by 3,782 specimens, of which 3,703 were transferred from the Post Office Department.

The collections relating to the World War have been increased by a collection of drawings made in 1917 by Vernon Howe Bailey, showing various war activities of the United States at the period mentioned. An individual relic of great interest relating to the same period is a French omnibus in which is installed a French telephone switchboard. This omnibus was used as a movable telephone office by the American Expeditionary Forces during the St. Mihiel operations in 1918 and was transferred to the Museum from the United States War Department.

WORK OF PRESERVING AND INSTALLING THE COLLECTIONS—PRESENT CONDITION OF THE COLLECTIONS

The principal work connected with the installation and preservation of the historical collections during the present fiscal year has centered about the arrangement of the numismatic collection received during the past fiscal year from the Treasury Department. This work was divided into three separate and distinct phases. The first of these included the removal from the west north hall of the Arts and Industries Building of the collection of historical materials already occupying this space and its installation elsewhere; the second included the mechanical work of setting up in this space the cases received from the Treasury Department and preparing them for exhibition purposes; and the third included the actual installation of the numismatic collection.

The collections installed in this hall when the numismatic collection was received were composed of five large units and a collection of miscellaneous materials. The first of these units consisted of a row of eight narrow wall cases against the north wall which contained a collection of American and foreign swords, the greater part of which belonged to the Alfred F. Hopkins loan collection. A second unit included a row of thirteen slope-top floor cases with sloping diaphragms upon which were mounted a collection of commemorative medals. The third unit included a series of eight floor cases of the Kensington type containing the collections of antiquarian objects and personal relics relating to General and Mrs. George Washington. The fourth unit included a row of eight wall cases containing the Richard Mansfield collection of historical theatrical costumes. A fifth unit consisted of seven double-faced floor cases containing the Dickins collection of historical chinaware.

The removal of this large amount of important material from the west north range and its installation in suitable locations in other parts of the much overcrowded historical space, constituted a complex and serious problem which was only solved after much shifting of cases and prolonged consideration of the new combina-

tions of exhibits thus established. The numerous changes necessary were accomplished without the breakage of a single one of the many valuable and fragile objects involved, and with a distinct gain to the exhibition scheme of the historical collections as a whole. Briefly stated, the new arrangement is as follows: The sword collection has been changed from the north to the south wall of what may now be termed the numismatic hall. The slope-top cases formerly containing the Museum medal collection have been transferred to the northwest court which formerly contained the Museum coin collection. The Washington collection has been installed in a prominent location in the north hall with relics of other prominent Americans, where it properly belongs. The Richard Mansfield collection has been installed in a series of wall and floor cases at the west end of the west gallery, which are of such a size and design as to accommodate this exceptionally interesting and valuable collection in an adequate manner. The floor cases containing the Dickins collection of historical chinaware have been placed immediately in front of the suite of offices occupied by the staff of the division of history. The remaining floor cases containing miscellaneous relics formerly in the west north range have been located in various parts of the historical space, where they best harmonize with the general scheme of installation. The only collection of a general type which now remains in the numismatic hall is that of the National American Woman's Suffrage Association, which is contained in one floor case and two wall cases of a narrow type and does not interfere very greatly with the general scheme of installation of this hall.

The second phase of the work of the installation of the numismatic collection was the installation in the numismatic hall of the cases received from the Treasury Department and the preparation of these cases for the installation of the collection of coins. These cases were of the same general style and design but of two types as regards shape and dimensions. The first of these types consists of four corner cases of three sections each. One of these units was installed in the northwest corner of the numismatic hall, a second unit was located in the northeast corner, and the two remaining units of this type were placed back to back against the center of the wall uniting the space between the corners containing the first two units. This arrangement created two alcoves of equal dimensions in each of which have been placed four flat top numismatic cases formerly installed in the northwest court. The second type of case received from the Treasury Department consisted of a double-faced polygon of 14 units, which was installed in the center of the space to the south of the main aisle of the numismatic hall. Access to the interior of this polygon is afforded from this aisle through the space which, had

the polygonal construction been completed, would have formed the fifteenth section. Each section is accordingly a truncated wedge-shape and the interior exhibition surfaces are considerably smaller than the exterior. In the case of both these types of cases the space for the exhibition of the specimens is furnished by two diaphragms, one extending out from the back of the case with a slight downward slope, and the other extending up and back in the same manner until terminated by the top of the case. Both of these surfaces are fitted with narrow strips of molding for the purpose of supporting the coins arranged at intervals of about two and one-half inches. The diaphragms bearing these moldings were originally painted a dull black, but after careful consideration it was decided to change this to a light gray for the purpose of securing better lighting facilities for the specimens and eliminating, as far as possible, the reflections in the glasses, which were originally of unusual proportions. In addition to this improvement of vital importance in connection with the exhibition of numismatic specimens, a series of special electric lighting fixtures were placed above each unit with specially frosted globes which afford a maximum of lighting with a minimum of reflection. In the interest of the security of the many valuable specimens, new and substantial locks were installed at each end of every section. This effected a very great improvement over the single original central lock formerly employed for this purpose. By these various processes the cases were rendered as suitable as possible for the installation of the valuable specimens they were designed to accommodate.

The mechanical difficulties in this connection having been solved in the manner stated, the actual installation of the coins was begun. It was very essential therefore to adopt a better method of arrangement which would assure to the vistior a clear understanding of the general scheme and at the same time fulfill the scientific requirements connected with the installation of such a large general collection. It was also essential to adopt an arrangement which would allow the collection to be expanded and new issues of coins to be added with as little disturbance of the original arrangement and general scheme as possible. In order to accomplish these aims a larger exhibition space was required than that originally devoted to the collection as originally installed in the Philadelphia Mint. Consequently, although the exhibition cases derived from that source are completely filled, there is not at present available the space necessary for the oriental coins which form a very important part of the collection. Plans have accordingly been made for the installation of these coins in a series of additions to the present cases which are to be constructed during the coming fiscal year. The coins which have already been installed are divided into five main groups.

The first of these includes the coins of ancient Greece and Rome; the second, the coins of the Roman-German Empire, and of modern Germany; the third, the coins of the United States of America; the fourth, the coins of Mexico, Central America, the West Indies, and South America; and the fifth, includes the coins of the modern European countries and their colonies. These groups, which include the most important features of the collection and which have already been permanently installed, are contained in the cases received from the Treasury Department. The numismatic floor cases of regular museum type already mentioned are devoted to series of United States and European commemorative medals. The proposed installation of the series of oriental coins which still remains to be accomplished may result in minor changes in connection with the installation of the floor cases, but it is probable that the general arrangement of the large groups already mentioned will not be disturbed.

The usual precautions have been taken to protect the textiles in the historical collections from the ravages of moth and other destructive insects. Much time has been devoted to the cleaning of specimens and cases. Many changes were made in the arrangement of the pictorial material belonging to the division. The collection of portraits of officers and men of the American Expeditionary Forces painted by Joseph Cummings Chase, was exhibited for a time above the wall cases in the war collection section of the Natural History Building, containing a collection of United States war flags lent by Gen. John J. Pershing. This collection of portraits has attracted much attention on the part of the public and made a very effective showing in this location, in close proximity to relics of the World War. It has, however, since been removed to the war portrait section of the National Gallery of Art.

The work of installing the postage-stamp collection has been greatly hampered by a lack of the necessary exhibition frames. The construction of a sufficient number of these, however, to bring this exhibit entirely up to date, has already been begun, and it seems that within the next few months it will be possible to accomplish a great improvement in this connection. The cabinet already contains 472 frames and the proposed addition will bring the number up to 546.

Notwithstanding the large amount of work accomplished in improving the installation during the fiscal year just past, the present condition of the collections of the division is far from satisfactory. This condition is due to two very important and wide-reaching causes. The first of these is a totally inadequate amount of exhibition space for the collections, and the second consists in the fact that the exhibition space available is scattered in widely separated

units arranged in two buildings at a considerable distance from each other. Not only are the historical exhibits shown in two separate buildings, but in widely separated portions of those buildings. Such a method of arrangement inevitably results in a tremendous loss so far as the value of these exhibits to the public is concerned, and also in the amount of work accomplished by the historical staff in connection with the handling of the exhibits.

RESEARCHES

The progress of the research work for the benefit of the Museum described in the previous report was interrupted by the receipt at the close of the past fiscal year of the large numismatic collection transferred to the Museum by the Treasury Department and described in the previous annual report. The urgent necessity of unpacking, classifying, installing the exhibition series, and arranging in storage series those portions of this collection not suitable for exhibition purposes, has occupied the time of the curator of the division throughout the past fiscal year, with the exception of that devoted to routine work and matters of an urgent character. These processes have by no means been completed and it will be impossible to undertake research work of any other character until the aims of the Museum in this connection have been accomplished. Owing to the magnitude of the numismatic collection, its vast scientific importance, and the circumstances under which it was received, it is felt that the work in this connection outlined above should receive first consideration.

In a number of instances historical materials were lent to the Department of Agriculture for use in connection with the preparation of historical films by that department. A collection of engraved portraits of Confederate military officers was lent to the Brooks Memorial Art Gallery for the Confederate reunion held in Memphis, Tenn. The usual number of inquiries both verbal and written concerning the historical collections and historical museum work in general were answered by the staff of the division. No special tabulation of the exact amount of information furnished in this manner was kept, but the amount of information furnished in this connection during the present fiscal year was both large and varied.

NUMBER OF SPECIMENS IN THE DIVISION

The number of historical objects received by the Museum during the year and assigned to the division of history was 5,374. This brings the total number of objects in the care of the division on June 30, 1924, up to 325,363.

LIST OF ACCESSIONS TO THE COLLECTIONS DURING THE FISCAL YEAR 1923–1924

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

ABBOTT, Dr. WILLIAM L., Philadelphia, Pa.: 131 mammals, 83 birds with 1 set of eggs collected in Hunan Province, China, by Charles M. Hoy (70546); natural history specimens and ethnological material collected by the donor in Santo Domingo (71132, 71345); 2 snakes, 5 lizards, and 12 frogs from Santo Domingo (71661).

ABEECO MILL (Inc.), New York City: Specimens of picarded artsilk, artsilk tops and noils, 3 tubes and 5 skeins of spunartsilk yarn (71037).

ACADEMY OF NATURAL SCIENCES, Philadelphia, Pa.: 195 plants from Venezuela and British Guiana (70907); (through Mr. Morgan Hebard) 151 specimens of insects (Orthoptera) representing 56 species, of which 27 species are represented by paratypes from North America and other countries (70938); 2 specimens of minerals (71027); mollusk from Japan (71167). Exchange.

ADAMS, C. H., Crab Orchard, Ky.: Slab containing fossil remains of a brachiopod (70950).

ADAMS, Paul J., Knoxville, Tenn.: 389 specimens of land and freshwater mollusks from Tennessee (70582, 71803); about 500 specimens of Mississippian fossils from Newman Ridge, Tenn. (71108).

ADKINS, W. S., Tampico, Mexico: Blind snake from Panuco, Mexico (71535).

AGRICULTURAL EXPERIMENT STATION, Logan, Utah: 2 weevils (70318).

AGRICULTURE, DEPARTMENT OF:

Bureau of Animal Industry: 3 plants from Utah (70429); 11

AGRICULTURE, DEPT. OF—Con.

Bureau of Animal Industry—Con. photographs of ostriches (71467).

Bureau of Biological Survey: 940 plants (70254); 48 plants collected in Georgia by W. L. McAtee (70374); 2 photographs of a whale (70398); nest and 4 eggs of a bird, the Wandering Tattler, from Alaska (70486); 269 plants from Alaska (70690, 70814, 71095); skull and other bones of a fossil bison, and miscellaneous bones of other fossil animals from Elephant Point, Kotzebue Sound, Alaska (70763); 440 Alaskan plants collected by O. J. Murie and J. P. Anderson (70543); 245 plants collected in Alaska by L. J. Palmer (70916, 71097, 71129); 15 beetles from the stomachs of Central American and Mexican toads (70692); 23 plants from Georgia (70825); 57 eggs, 14 nests, 2 skeletons, and 1 skull, of birds from Panama, Alaska, and Florida (70991); 49 specimens, 9 species, of crustaceans, collected by James Silver at Chapman Field, near Cutler, Fla., and Cocoanut Grove, Fla. (71004); 38 reptiles and batrachians from the United States (71017); 1,350 specimens, representing 217 species, of mounted and identified insects, belonging to the orders Diptera, Hymenoptera, Coleoptera, Hemiptera, Orthoptera, and Lepidoptera (71157); 15 bird eggs from Florida and Wisconsin (71398); 34 lizards collected by members of the Tanager Expedition on the leeward

AGRICULTURE, DEPT. OF—Contd.
Bureau of Biological Survey—Continued.
islands of the Hawaiian group and on Johnson and Wake Islands (71420); (through Dr. C. R. Ball) 25 specimens of willows (71473); (through Vernon Bailey) 5 plants from Texas and 41 plants from New Mexico (71474, 71849); 10 ferns collected in New Mexico by Mr. Bailey (71879); 445 skeletons and skulls of birds, 14 birds in alcohol, and 12 eggs, mostly from Guatemala (71851); 3 geckos and 3 turtle shells, 11 skeletons and skulls of fishes, 246 birds (80 in alcohol, 157 skeletons and parts of skeletons, and 9 skulls) (71884); 971 mammals (71960); frog from Charleston, S. C. (71948).
(See also under Commerce, Department of, Bureau of Fisheries, Fouke Fur Co., A. Hollander & Son (Inc.), and Vandeweghe Fur Co.).

Bureau of Chemistry: A series of specimens and chemical apparatus prepared for the Pasteur Centennial Exhibit in New York City in 1923 (71436).

Bureau of Entomology: A collection of miscellaneous insects, 22 bats, 2 snakes, 3 frogs with eggs and newly hatched young of 1 species, and 2 fishes collected in Panama by R. C. Shannon in 1923 (71021); 3 slugs from Riverside, Calif. (71046); 6 mollusks collected by J. P. Botts at Dothan, Ala. (71314); (through A. J. Flebut, Lindsay, Calif.) 3 slugs taken from Valentia oranges from California (70425); silk cocoons and 3 skeins of reeled silk from silkworms raised by Señor Briceno Gabaldon at Merida, Venezuela (71465); 3 moths and 1 pierced cocoon of oak silkworms or Chinese Tussah, and 3 moths and 3 pierced cocoons

AGRICULTURE, DEPT. OF—Contd.
Bureau of Entomology—Contd.
of the Mulberry silkworms prepared by the Chefoo Silk Commission (71466); 5 mollusks from Waggaman, La. (71489); (through Gypsy Moth Laboratory, Melrose Highlands, Mass.) 22 specimens of chalcid-flies belonging to the family Encyrtidae, representing 19 species, identified by R. Garcia Mercet, 10 species being new to the Museum collections (71491); (through G. N. Wolcott, San Juan, Porto Rico) fly (71525); land mollusks from Quincy, Fla. (71660); about 200 specimens of mollusks from Luray, Va., collected by T. J. Price (71897); 5 specimens of isopods collected by A. B. Champlain near Harrisburg, Pa. (71952); 5,744 miscellaneous insects (71963); (through Office of Truck Crop Insect Investigations) 1,675 miscellaneous pinned insects, mostly Coleoptera, Hymenoptera, and Lepidoptera (70865); (through James Zetek, Ancon, Canal Zone) 8 specimens of "top" minnows, and 5 shrimps from Colon, collected by Mr. Zetek (70959).

Federal Horticultural Board: 8 specimens of isopods collected by Harry Sargent at Portland, Oreg. (70293); 6 isopods taken in lily, narcissus, hyacinth, and tulip bulbs from Germany (70298); 3 isopods taken from soil about roots of fruit tree stock from Orleans, France (70314); 8 specimens, 5 species, of land and fresh-water mollusks taken from soil around a potted fern from Fowey, England, at Philadelphia, Pa. (70333); scorpion from Cuba (70336); mollusks from Port Antonio, Jamaica (70343); larva of a neuropteroid insect (70382); mollusk taken on an orchid from the vicinity of Bo-

AGRICULTURE, DEPT. OF—Contd.
Federal Horticultural Board—Con.
gota, Colombia, at the Missouri Botanical Garden, St. Louis, Mo., by H. L. Sanford (70423); 6 isopods found in soil and packing about various plant importations by inspectors of the plant quarantine inspection service at New York City, during July, 1923 (70424); 2 specimens, 2 species, of isopods taken on lily bulbs from Scotland, and collected at New York City by Inspector Emile Kostale, August 14, 1923 (70484); isopod taken on an orchid from the vicinity of Bogota, Colombia, by H. L. Sanford at the Missouri Botanical Garden, St. Louis, Mo., July 23, 1923 (70485); 2 specimens, 2 species, of isopods taken from soil around plants from Japan, collected at Honolulu, Hawaii, and forwarded by L. A. Whitney, July 13, 1923 (70511); 2 lots, about 20 specimens, of land, fresh-water, and marine mollusks collected in soil around potted palms from Manila, P. I. (70535); 7 specimens, 5 species, of land and marine mollusks from Germany, Bermuda, Italy, and England (70573); 9 specimens, 6 species, of mollusks, from Sweden, Fiume, and Italy (70620); land mollusks taken at Boston, Mass., on potatoes from Italy (70696); 13 specimens, 4 species, of isopods, and 1 scale insect taken in the course of inspection of various plant importations (70720); 2 mollusks taken at New York City in soil about plants from Britain (70726); 3 slugs taken on bulbs from Lisse, Holland (70773); 16 specimens, 2 species, of isopods taken in the course of inspection of plant importations (71821); 2 mollusks taken on privet cuttings from Denmark, at New York City (70834); 2 slugs from England and Germany (70860); 10 specimens, 4 species, of land and fresh-water shells, probably from India (70989); 9 specimens, 3 species, of land shells from Jamaica and Germany (71008); 8 slugs taken on Manetti rose stock from Hawlmark, Newtownards, Ireland (71015); 4 specimens, 2 species, of isopods collected from plant importations from Bremerhaven, Germany, and Baracoa, Cuba (71053); 2 slugs from Germany (71066, 71075); mollusk from Bell Station, Md. (71133); 4 specimens, 3 species, of land and fresh-water mollusks from Bremen, Germany (71142); mollusk taken on barley from Italy (71216); land shells taken from among ferns from England; 2 slugs taken on plants from England; 4 snails from England (71302, 71303, 71867, 71973); fresh-water mollusks taken on lily pips from Germany (71393); 4 tree toads from Charleston, S. C. (71400); 4 specimens, 3 species, of land shells from Germany and Brazil (71417); slug taken from soil from Angers, France, and a land shell taken on crotons from Habana, Cuba (71418); isopod collected from a plant imported from England (71445); land shell taken in soil about the roots of a Mahaleb plant from France (71464); 2 slugs, one from Ireland and the other from Cuba (71524); 7 specimens, 3 species, of isopods from various plant importations (71526); 60 specimens, 4 species, of land shells from Winchester, England, and Eukhinsen, Holland (71561); mollusk taken in orchids and bamboo from Guatemala (71600); 18 isopods found in soil and packing about various plant impor-

AGRICULTURE, DEPT. OF—Contd.
Federal Horticultural Board—Con. tations at New York City, and Washington, D. C., during March and April, 1924 (71708); bryozoan from Holland, collected at New York City, April 1, 1924 (71741); 3 spiders taken on grapes from Argentina (71750); 5 lizards from logwood sent from Jamaica (71760); 2 land shells from Jamaica and Bermuda (71783); marine shell from Holland (71830).

Forest Service: Plant from Utah (70362); 2 plants from Colorado (70428, 70683); (through Forest Products Laboratory, Madison, Wis.) 10 hand samples of Alaskan woods (70969); plant from Arizona (71044); 82 plants collected in southwest Oklahoma by Frank H. Rose (71494); (through Dr. F. V. Coville) type specimen of a plant from California (71507).

Bureau of Plant Industry: 138 plants collected in Virginia by W. W. Eggleston (70249); (through Dr. C. V. Piper) plant from British Columbia; 74 plants from Oregon and California; plant from South Carolina; 101 plants; 6 plants from Idaho; 2 plants from Porto Rico (70303, 70701, 70736, 70911, 70930, 70964, 71603); 3 photographs of plants (70354); 2 plants from Georgia (70355); 2 plants from Porto Rico (70381, 71343); 8 plants from Alabama (70426); fern from Vancouver Island (70558); (through Office of Foreign Seed and Plant Introduction) 5,000 plants collected in Asia by Joseph F. Rock (70917); (through W. W. Eggleston) 139 plants (70866); 1,605 plants collected by Prof. A. S. Hitchcock in Ecuador (71553); (through Professor Hitchcock) 2,010 mounted grasses; 90 plants from Peru (71592, 71602); (through

AGRICULTURE, DEPT. OF—Contd.
Bureau of Plant Industry—Con. Prof. O. F. Cook) 100 plants, chiefly palms, from the Canal Zone (70754); (through Dr. F. V. Coville) 365 specimens and 36 drawings of a genus and related genera of plants (70780); (through C. M. Matheny) 13 vials of insects collected in Panama by Alfred D. Harvey (70896); plant from California (70942); 4 plants from Indiana (71175); 20 specimens and 5 photographs of plants (71280); (through Dr. C. R. Ball) 75 plants (71334); 3 plants from Mexico (71500); (through G. Hamilton Martin, jr.) plant (71584); 9 plants from South America, collected by Dr. James R. Weir (71847); 7 photographs and 7 fragmentary specimens of South American plants (71886); (through Miss Grace M. Cole) 8 California plants (71904); 58 South American plants collected by C. D. La Rue (71907); 9 plants (70975).

(See also under J. Gossweiller.)

AGUILERA, José G., Mexico City, Mexico: Specimen of obsidian from Sierra de Pachuca (70608).

AGUIRRE, Stephen E., American vice consul, Manzanillo, Mexico: Plant (70565).

ALABAMA, GEOLOGICAL SURVEY OF, University, Ala. (through Dr. R. M. Harper): 5 plants from Tennessee (70345).

ALDRICH, Dr. J. M., U. S. National Museum: A collection of Diptera, comprising 44,610 pinned specimens of which 4,145 species are fully named, and of the latter 534 representing type material (70628); 6 lots, comprising over 300 specimens of phyllopods collected by the donor in Mono and Owens Lakes, Calif., at Brigham and Great Salt Lake, Utah, and Larger Soda Lake, Hazen, Nev., in July, 1911 (71182).

ALDUS PRINTERS (INC.), THE, New York City: Folder entitled "What Printing is," by F. W. Goudy (70601).

ALEXANDER, Dr. C. P., Amherst, Mass.: 63 crane-flies including 60 species, 27 of which are represented by paratypes (71953).

ALEXANDER, Robert, Albany, Ala.: Iron corkscrew of the period of the Civil War (70953).

ALIEN PROPERTY CUSTODIAN, Washington, D. C.: Model of the steamship *Leviathan* (71177).

ALLEN, C. C., Miami, Fla.: 232 specimens of land and marine mollusks from Florida, Cuba, and the Bahamas (71248, 71581).

ALLEN, Mrs. Laura M., Rochester, N. Y.: 303 specimens of hand-woven articles intended to illustrate the evolution of domestic manufactures collected by the donor from various weavers and persons interested in weaving (71965).

(See also under Berry Schools, The.)

AMARAL, Dr. Afranio do, Cambridge, Mass.: 2 paratypes of snakes (70785).

AMERICA, Claude E., Washington, D. C.: Barn owl (70265).

AMERICAN BRUSH MANUFACTURERS' ASSOCIATION, Philadelphia, Pa.: A series of 278 specimens covering animal fibers, various processes of manufacture, and finished brushes, illustrative of the American brush industry (71575).

AMERICAN FEDERATION OF ARTS, THE, Washington, D. C., for special exhibition: 67 posters approved by the Underground Railway of London (71104); 74 etchings, lithographs, and wood-block prints—the traveling exhibition of the Print Makers' Society of California (71517). Loan.

(See also under Senefelder Club of London.)

AMERICAN HARDWOOD MANUFACTURERS ASSOCIATION. (See under Hardwood Manufacturers Institute.)

AMERICAN MEDICAL ASSOCIATION, Chicago, Ill.: A 9-inch statue of Hygeia, Greek Goddess of Health (71321).

AMERICAN MUSEUM OF NATURAL HISTORY, New York City: 7 beetles, including 5 species new to the Museum collections (70329); cast of a skull of a fossil rhinoceros (70645, exchange); 2 skulls and 13 jaws of rats (70742, exchange); packet of cactus seeds from Ecuador (70743); 457 plants collected in Ecuador by H. E. Anthony (71023); 2 examples of meteorites, Wichita and Modoc (71358, exchange); 96 plants collected in Ecuador by G. H. H. Tate (71414); cast of a lower jaw with teeth of a mammal (71687, exchange); (through H. E. Anthony) 153 plants collected in Ecuador by G. H. H. Tate (71870).

AMERICAN NUMISMATIC ASSOCIATION, New York City (through Moritz Wormser, president): Austrian emergency paper currency of the period of the World War, 592 specimens (70956).

AMERICAN RAILWAY ASSOCIATION, signal section, New York City: 4 pieces of railway signal apparatus, namely, "Banner" or clockwork signal; telegraph office train order signal; train order signal; and control manual block signal (71800).

AMERICAN RAYLO CORPORATION, New York City: 7 color prints made by the Raylo process of color photography (71318).

AMERICAN RED CROSS, THE, Washington, D. C. (through Hon. John Barton Payne): 3 etchings by Louis Orr of Rheims Cathedral (71202); (through Miss Irene M. Givenwilson, curator of the Museum): 8 Upjohn child welfare panels (71421).

AMERICAN SOCIETY OF CIVIL ENGINEERS, New York City: 4 specimens of wood; steel droppings formation; 2 models of Eads' sand pump; model of John Ericsson's hot air engine, and model of cannon "Long Cecil" in a glass case (70417).

AMERICAN TELEPHONE & TELEGRAPH CO., New York City (through W. L. Richards): 4 models of Alexander Graham Bell's experimental telephone apparatus and 2 original early forms of telephones, namely, model of harmonic telegraph transmitter; model of harmonic telegraph receiver; model of tuned reed receiver; model of Bell's original telephone, 1875; large box telephone (original); and a long-distance transmitter (original) (70856).

AMERICAN WRITING PAPER CO., Holyoke, Mass.: "Handbook of Quality-Standard Papers" and a pamphlet entitled "Christmas and New Year Greetings" (70652); Eagle-A Desk Library comprising four volumes of paper samples (70708).

AMES SWORD CO., Chicopee, Mass. (through Charles A. Buckley, president): 2 United States revenue and marine swords of the early part of the nineteenth century (70272).

AMOY, UNIVERSITY OF, Amoy, China (through Prof. S. F. Light): Skin of a cat (71192); 251 specimens, 88 species of Chinese crustacea collected by Professor Light at Amoy and vicinity in 1923 (71403).

ANDERSON, C. (See under Australian Museum, The.)

ANDERSON, Dr. R. J., Geneva, N. Y.: 1 lot each of 2 chemical types (71912).

ANECT, Rev. Brother, Las Vegas, N. Mex.: 161 plants (70719).

ANSOVIN, Señor Don FERNANDO, Havana (Vibora), Cuba: Plant (70877).

ANTHONY, H. E. (See under American Museum of Natural History.)

APPEL, W. D., Washington, D. C.: 7 specimens of parasitic isopods from gills of sunfish caught near Annapolis, Md. (70774).

AQUATONE CORPORATION, New York City: 17 prints by the Aquatone process and a circular concerning it (71837).

ARCHINAL, ADAM, New York City: 6 old pattern camera shutters (70421).

ARISTE JOSEPH, Brother, Bogota, Colombia: 126 plants from Colombia (70240, 70682, 71594); (through Department of State) 43 plants from Colombia (70985); 11 archeological specimens, 114 plants and 1 jar of algae (70242); 24 archeological specimens, 4 plants, and a geological specimen from Colombia (70304); 34 plants, celt fragments, terra cotta figures, and a snuff tube (70474); (through J. B. Reeside, jr.) 200 specimens of Cretaceous invertebrate fossils, and 25 specimens of vertebrates from Colombia (70607); 193 plants from Spain and Colombia (70488, 70837); 3 specimens of ancient Indian pottery and a fragment of a stone pipe (70851); ancient terra cotta figurine from Colombia (71899); glyptodont (70970); 61 plants from Europe (71634).

ARKANSAS, UNIVERSITY OF, Fayetteville, Ark. (through Prof. John T. Buchholz, department of botany) 28 plants (70392, 70746, 70995, 71067); (through Dwight Isely, Agricultural Experiment Station) 35 specimens, 8 species of parasitic wasps, 5 of which are represented by paratypes (71448).

ARNOLD, BENJAMIN WALWORTH, Albany, N. Y.: 4 starfishes (70633).

ARTHUR, JOHN J., Topeka, Kans.: 5 chipped stone implements from Kansas (70619).

ASCHEMEIER, C. R., U. S. National Museum: Child's rubber ball from Para, Brazil (70516); skull of a fox squirrel from Lexington, Ky., and skeleton of a bob cat from near Lexington (70952, 71432); skull of a deer from Virginia (71155).

ATWOOD, Col. WILLIAM G. (See under Committee on Marine Piling Investigations.)

AUSTIN, Dr. G. M., Wilmington, Ohio: A collection of approximately 25,000 specimens of early Silurian invertebrate fossils from Clinton County, Ohio (70371).

AUSTRALIAN MUSEUM, THE, Sydney, Australia (through C. Anderson, director): 4 specimens, 2 species, of crustacea from Australia (71003); 10 specimens of shrimps from Australia (71565).

AUTOMATIC ELECTRIC CO., Chicago, Ill.: Automatic telephone equipment, in operation, including a special installation for exhibition, a 50-line private automatic exchange, 6 telephones and power plant (71775).

AVERY, C. E., Washington, D. C.: Samples of native gold panned July, 1921, near Camptonville, Yuba County, Calif. (70471).

BACH, JOHN, Manila, Luzon, P. I.: 2 lizards from Luzon, P. I. (71379).

BAER, JOHN L., U. S. National Museum: 80 rhyolite blades from a cache near Fawn Grove, York County, Pa. (71048).

(See also under Robert G. Messinger.)

BAILEY, Prof L. H., Ithaca, N. Y.: 48 ferns from Brazil (71793).

BAILEY, VERNON. (See under Agriculture, Department of, Bureau of Biological Survey.)

BAILEY, VERNON HOWE, New York City: 10 drawings by the donor illustrating the Muscle Shoals project (71905).

BAIN, Dr. H. FOSTER, Washington, D. C.: 3 marine shells found near an Inca grave in northern Chile (70547).

BAKELITE CORPORATION, New York City: 14 specimens of Redmanol products (71970).

BAKER, Dr. C. F., Los Banos, P. I.: 52 specimens of beetles, including 26 species and 1 cotype, all new to the Museum collections (70378, exchange); 318 moths from the Philippine Islands, and 346 moths from northern Kiushiu, Japan (70432); 1,340 moths, including many new species, and 31 flies, all from the Philippine Islands (70728, 70765, 71716, 71936).

BAKER, Dr. F. H., Richmond, Victoria, Australia: 6 mollusks from Pauton Hill, Victoria (70411, exchange); 64 specimens, representing 27 species of 7 families of Coleoptera from Australia (70859); 4 beetles and 2 fishes (71611).

BAKER, Dr. FRED, Point Loma, Calif.: 2 cotypes of Brazilian land shells (71726).

BALDWIN, HERBERT B. (See under Z. Belcher.)

BALL, Dr. C. R., Washington, D. C.: 2 plants (70266).

(See also under Agriculture, Department of, Bureau of Biological Survey and Bureau of Plant Industry.)

BAPTIE, WILLIAM S., Rapid City, S. Dak.: A large clay-iron-stone concretion from Alberta, Canada (71342).

BARBER, H. S., Washington, D. C.: 35 isopods collected by the donor near Plummer Island, Md. (71731); pine mouse from Kensington, Md. (71856).

BARBER, MANLY D., Knoxville, Tenn.: 123 specimens, 14 species, of mollusks from Florida and Tennessee (70306); 2 fresh-water mussels, representing 2 species, from Florida (71895).

BARBOUR, Prof. ERWIN H. (See under Nebraska, University of.)

BARBOUR, Dr. THOMAS. (See under Harvard University, Museum of Comparative Zoology.)

BARDARSON, G. G., Akureyri, Iceland: About 53 specimens, 30 species, of recent shells; also 25 specimens, 21 species, of Pliocene fossils, all from Iceland (71149).

BARNES, Claude T., Salt Lake City, Utah: 4 land shells from City Creek Canyon, at an altitude of 5,500 feet (70469).

BARNES, Dr. William, Decatur, Ill.: 13 moths (70874).

BARNET LEATHER CO. (Inc.), New York City: A series of specimens illustrating the chrome method of tanning calfskins for shoe uppers (71746).

BARRY, J. Neilson, Portland, Oreg.: Upper (grip) end of a typical Pacific coast pestle (71458).

BARTER, Dr. Angus J., Kiating, China (through Rev. David C. Graham): 53 birds and 4 mammals from China (70337).

BARTRAM, Edwin B., Tucson, Ariz.: 11 plants (71368, 71475, 71829); 2 ferns from Arizona (71572).

BARTSCH, Henry, Washington, D. C.: 9 specimens, in 4 lots, of freshwater shells from Deep Springs, Calif. (71316).

BARTSCH, Dr. Paul, U. S. National Museum: Stilt sandpiper shot in one of the Museum courts, and needed for the local exhibit (70561); 4 specimens of cacti from the island of San Salvador, Bahamas (70659); body of a Carolina paroquet (alcoholic) (71513).

BASCOM, H. P., Bridgetown, Barbados, West Indies: 3 skins of ground doves and 3 bird skins from Barbados (70282, 70850).

BASSLER, Dr. Harvey, Myerstown, Pa.: About 100 specimens of fossil plants from the Tertiary of South America (71795).

BAUM CO. (Inc.), W. A., New York City: Sphygmomanometer (Baumanometer No. 35626) for registering blood pressure (70677).

BAYLIS, Raymond E., New York City: Sample book of Athol Spratone artificial leathers, and 7 pieces of Athol artificial leathers (70838).

BEACH, Alden M., Washington, D. C.: Steatite pipe with incised decoration from Luray, Page County, Va. (71256).

BEAL, Mrs. Elizabeth Clair, Belle Plains, Iowa: Silk bed quilt made of engraved badges of the type used by the adherents of William Henry Harrison during the presidential campaign of 1840 (70903).

BEAN, Barton A., U. S. National Museum: Fishes, invertebrates, and partial skeletons of other animals, collected in Barnegat Bay and on the ocean beach at Seaside Park, N. J. (70779).

BECKER, M. J., Pacific Grove, Calif.: 12 specimens of foraminifera collected at Pacific Grove, Calif. (70889); 4 specimens, 1 species, of foraminifera collected by the donor (71286).

BEEBE, Dr. William. (See under New York Zoological Society.)

BELCHER, Z., Newark, N. J. (through Herbert B. Baldwin): Collotype and a booklet (71732).

BELL, E. J., jr. (See under Montana, University of.)

BELL, Jesse, Fort Myers, Fla.: 6 insects collected by the donor in Florida (70883).

BELL, Robert N., Clayton, Idaho (through Victor C. Heikes): 2 specimens showing the oxidation of galena, with native silver sprouting from cerussite (71853).

BELLAMY, Mrs. Ellen Washington, Macon, Ga.: Silverware, jewelry, and miscellaneous relics (264 specimens) (71656).

BELLARD, Dr. E. P. de, Valera, Venezuela: 104 plants from Venezuela (71290, 71390); a small collection of miscellaneous insects, also lizards and mollusks from Venezuela (71562).

BENJAMIN, Mrs. CAROLYN GILBERT. (See under Colonial Dames of America, National Society of.)

BENJAMIN, Dr. MARCUS. (See under Miss Josephine B. Hall.)

BEQUAERT, Dr. JOSEPH, Boston, Mass.: 16 insects, including 2 named wasps and 1 paratype of a beetle (71394).

BERGH, Mrs. OSKAR W., Brooklyn, N. Y.: 3 tapestries: "Pond Lilies," "Southward," and "King Sigurd's Entrance into the Holy Port," woven by Madam Frida Hansen, Christiana, Norway (71506, loan).

BERLINER, EMILE, Washington, D. C.: Berliner helicopter developed in the course of a number of years of experimentation and successfully flown under complete control, both vertically and laterally, at College Park, Md., in 1923 (71540); gramophone record of rubber, made in May, 1898 (71816).

BERNER, GLENN, Jamestown, N. Dak.: 4 specimens of cacti from North Dakota (71612, exchange).

BERRY SCHOOLS, THE, Mount Berry, Ga. (through Mrs. Laura M. Allen, Rochester, N. Y.): Table mat, hearth broom, and an owl feather fan, made by the pupils of the Berry Schools, Mount Berry, Ga. (71527).

BESSEY, R. F. (See under Navy Department, Bureau of Yards and Docks.)

BILLINGTON, C., Detroit, Mich.: 23 plants from Florida (71434).

BIRD, J. L. C., Washington, D. C.: 6 stone implements from Marion. McDowell County, N. C. (71130).

BISSELL, LIN B., Yakima, Wash.: Copper bowl found embedded in the root of a tree near Yakima, Wash. (70835).

BLACKLOCK, Prof. B. (See under Liverpool School of Tropical Medicine.)

BLAKE, Dr. S. F., Washington, D. C.: 3 plants from Maryland and Virginia (70816); a young turtle from Stoughton, Mass., collected by H. W. Blake (71669); young turtle and 2 vials containing mites from Massachusetts (71869).

(See also under New York Botanical Garden.)

BLOEDORN, Dr. WALTER A., U. S. Navy, New York City (through Dr. C. S. Butler): 60 specimens, 10 species, of marine shells from the west shore of Culebra Island, Porto Rico (71377).

BLUTHGEN, P., Naumburg, Germany: 14 identified palearctic bees (71780, exchange).

BÖDEKER, Fr., Cologne, Germany: 17 plants (70331, 71836). Exchange.

BONNE, C., Soestdyk, Holland: 11 snakes and an eel with some of its eggs (70399).

BOOTH, FRANKLIN, New York City: Pen and ink drawing by the donor (71812).

BOTANIC GARDENS, Georgetown, British Guiana (through R. Ward): 13 plants from British Guiana (71613, exchange).

BOTANIC GARDENS, Sydney, New South Wales, Australia: 100 plants (71450, exchange).

BOTANISCHER GARTEN UND MUSEUM, Berlin-Dahlem, Germany: Fragments from type specimen of a fern from Haiti (71352); 3 fragmentary specimens of ferns (71454); (through Dr. I. Urban) fragment of type specimen of a fern, and 10 fragmentary specimens of ferns from Hispaniola (71671, 71916). Exchange.

BOTTIMER, L. J., Washington, D. C.: 40 plants (71842).

BOVELL, JOHN R., Bridgetown, Barbados, West Indies (through August Busck, U. S. Department of Agriculture, Washington, D. C.): Skin of a gray kingbill from Barbados (70797).

BÖVING, Dr. A. G. (See under E. Rosenberg, and Universitetets Zoologiske Museum.)

BOWEN, C. F. (See under Standard Oil Co. (N. J.).)

BRADY, Maurice K., Washington, D. C.: 3 snakes and a salamander from Virginia; 22 reptiles and batrachians collected near Washington, D. C., and a small collection of salamanders, adult and larval, from various localities (70451, 70811, 71277); 2 frogs from New Orleans, La. (71463).

(See also under William Murphy, jr.)

BRANDEGEE, T. S., Berkeley, Calif.: 3 ferns from Mexico, collected by C. A. Purpus (71396).

BRIER HILL STONE CO., Glenmont, Ohio: 3 cubes of Brier Hill sandstone (70885).

BRIMLEY, C. S., Raleigh, N. C.: 3 flies, types of 2 species (71011); 4 flies, including the types of 3 species (71246).

(See also under North Carolina Department of Agriculture).

BRINKMAN, A. H., Craigmyle, Alberta, Canada: 65 plants from Alberta (70945, exchange).

BRITISH GOVERNMENT:

British Museum (Natural History), London, England: 11 specimens of buprestid beetles, each representing a different species (1 of them a paratype), and all new to the National Collections (70495); 15 specimens of minerals (71051); 2 specimens of meteoric iron, Mantos Blancos (365 grams) and Cowra (62 grams) (71336); (through James Waterston) 11 specimens of chalcid-flies representing 4 species (71821); fragment weighing 790 grams of meteoric iron from Cosby's Creek, Tenn. (71898); 68 specimens of African fresh-water fishes (71956). Exchange.

BRITISH GOVERNMENT—Con.

Royal Botanic Gardens, Kew, Surrey, England (through Dr. Arthur W. Hill): Fragment of specimen of a plant (71100, exchange).

BROADWAY, W. E., Port of Spain, Trinidad, B. W. I.: 3 plants from Trinidad (71709).

BROOKS, S. C., Washington, D. C.: Plant from Maryland (71755).

BROWN, Benjamin C., Pasadena, Calif.: 50 etchings, soft-ground, aquatint, dry point, and lithographs for special exhibition (71226, loan); 2 etchings, 2 soft-ground etchings in color and 1 lithograph in color (71490); 2 three-color half tones from the donor's paintings, comprising 5 progressive proofs of 1 and 2 prints of the other (71544).

BROWN, Howell C., Pasadena, Calif.: 27 etchings, dry points, and lithographs (71225, loan); 4 etchings, 5 dry points, and 1 lithograph (71510).

BROWN, Moses W., Hampton, N. H.: Large grooved stone ax (71119).

BROWN, W. L., U. S. National Museum: Skull of an opossum, and a ruddy duck from Maryland (71265, 71499).

BRUNDIGE, Mrs. Paul, Geneva, Ill.: Plant (70263).

BRUNER, Dr. Stephen C., Santiago de las Vegas, Cuba: 13 specimens of Coleoptera, representing 10 species from Central America and 3 from Jamaica (71319).

BRUNSWICK-BALKE-COLLENDER CO., THE, Chicago, Ill.: Miniature billiard table with 2 cues, wood triangle, and a set of 16 "Ivorylene" pocket balls; also a bowling alley section (70368).

BRYAN, Dr. George, Madison, Wis.: 13 cactus photographs from Peru (71647).

BRYAN, Kirk. (See under John Elaeson.)

BUCHANAN, L. L., Washington, D. C.: 61 specimens, including 51 species, of European beetles of the families Cebrionidae, Cerophytidae, and Elateridae (70704).

BUCHHOLZ, Prof. JOHN T., Fayetteville, Ark.: Fern from Arkansas (70670).

(See also under Arkansas, University of.)

BUCKLEY, CHARLES A. (See under Ames Sword Co.)

BUDLONG, ROBERT, Washington, D. C.: 26 fishes collected in Breton Bay, 2 miles below Leonardtown, Md. (70346).

BULLOCK, D. S., Washington, D. C.: 4 dolls from Jujuy, Argentina, made of dried peach skins, by the Bolivian Indians (70351); 13 specimens, 2 species, of land shells and 4 specimens, 1 species, of fresh-water shells from South America (70403); 690 miscellaneous insects from Buenos Aires and vicinity (70418); collection of ethnological and archeological specimens from the Indians of Argentina, Peru, and Bolivia (70458); 600 specimens of moths and butterflies from South America (70509); 21 specimens of chiastolite from a stream near Canete, Chile (70521); 2 costumes (male and female) for South American Indians (70580, loan); collection of ethnological material from the Araucanian, Aymara, Lengua, and Chamacoco Indians of South America (70581).

BUNKER, A. H., and K. L. KITHIL, Denver, Colo. (through Dr. C. L. Parsons): A large specimen of radium ore from Kasolo, Belgian Congo, Africa (70591).

BURBRIDGE, BENJAMIN, Jacksonville, Fla.: 2 skins and 2 skeletons of gorillas from the Belgian Congo (71121).

BURGA, Dr. B., Moyobamba, Peru: A collection of helminthological material (larvae) (71234).

BURGESS, F., Washington, D. C.: 7 moths, including 2 varieties, new to the Museum collections (70291).

BUSCK, AUGUST. (See under John R. Bovell.)

BUSH, GROVER L., Charles Town, W. Va.: Beetle (70564).

BUSHNELL, DAVID I., Washington, D. C.: Ancient pottery censer found on Carmen Island, State of Campeche, west coast of Yucatan (70617); wooden stand and 3 glass whale-oil candlestick lamps, of the period about 1820, used in Ellsworth, Me. (71194).

BUTLER, Dr. C. S. (See under Dr. Walter A. Bloedorn.)

BUTTGENBACH, H., Brussels, Belgium: 12 specimens of minerals chiefly from African localities; 8 specimens of minerals (70574, 70894). Exchange.

CADILLAC MOTOR CAR CO., Detroit, Mich. (through H. A. Coffin, president): Original Cadillac automobile, Model A, 1903, one of the first machines built in the Cadillac factory; also a full-size Cadillac automobile chassis, Model 61, 1923, with all moving parts cross-sectioned so as to exhibit the working principles involved (71005).

CAIN, BENJAMIN BUTLER, Jr., Washington, D. C.: A cut gem weighing 190.5 carats (71169, deposit).

CALDERON, Dr. SALVADOR. (See under Señor Don Felix Choussy, and Salvador, Government of, Direccion General de Agricultura.)

CALIFORNIA ACADEMY OF SCIENCES, San Francisco, Calif. (through Miss Alice Eastwood, curator of botany): 4 plants (70348, 70698, 70857, exchange); plant from California (70586, exchange); 2 fragmentary specimens of plants (71295, exchange); 30 specimens, 17 species, of crustaceans from the Gulf of California, collected by the expedition of the California Academy of Sciences to the Gulf of California in 1921

CALIFORNIA ACADEMY OF SCIENCES—Continued.
(71204, 71331); (through E. P. Van Duzee) 14 specimens of kelpflies, including 4 paratypes of one variety (71339); (through Dr. Barton W. Evermann) plant (71768, exchange).

CALIFORNIA, UNIVERSITY OF, Berkeley, Calif.: A composite skeleton of the saber-tooth cat, and one of a fossil wolf (71630, exchange); (through Prof. W. A. Setchell, department of botany) plant from California (71230, exchange).

CAMP, JOHN H., Kingfisher, Okla.: Tooth of an extinct elephant (71740).

CAMPBELL, ARTHUR S., Upland, Calif.: 3 lots of marine invertebrates, 2 lots of bryozoans, and a worm from Laguna, Calif. (70810).

CANADIAN GOVERNMENT:
Department of Agriculture, Entomological Branch, Ottawa, Canada: (Through Dr. J. McDunnough) 6 paratypes of new species of Tortricidae (70653); (through C. Howard Curran): 4 flies (70457, exchange); 7 flies (paratypes of 2 species) (71215); (through Dr. John Tothill, Entomological Laboratory, Fredericton, New Brunswick) fly (paratype) (70868).
Biological Board of Canada (through Prof. R. G. Huntsman, University of Toronto, Toronto, Canada): 10 specimens, 2 species, of amphipods taken From the Bay of Fundy, and used in connection with some experimental work carried on at the Atlantic Biological Station, St. Andrews, N. B. (70997).

CANADIAN PACIFIC RAILWAY CO., Montreal, Canada (through Walter Maughan): Model of the steamship *Empress of Russia* and an exhibition case (71975, loan).

CANAVARI, Prof. MARIO. (See under Geological Institute, Regia Universita degli studi.)

CANSON & MONTGOLFIER, New York City: Portfolio of samples of "Vidalon" papers, and a book giving the history of the Vidalon mills (70678); photogravure of President Harding printed on paper made by the donors (71035).

CAREY, Capt. CHARLES, U. S. National Museum: Fifty caliber antiaircraft machine gun cartridge and a censor stamp used by the American Expeditionary Forces in France in 1918; also a French dress sword of the nineteenth century (70316, 70673).

CARLETON, M. A., Cuyamel, Honduras: 149 plants from Central America (70308).

CARLSON, GORDON, Port Allegany, Pa.: 3 salamanders from Port Allegany (71763).

CARNEGIE INSTITUTE OF TECHNOLOGY, Pittsburgh, Pa.: 5 specimens of letter press printing by the Laboratory Press (71931).

CARNEGIE INSTITUTION OF WASHINGTON, Washington, D. C. (through Prof. H. M. Hall, Berkeley, Calif.): Photograph and 89 specimens of plants from the western United States (71267); (through Dr. J. C. Merriam) cast of the skeleton of an extinct flesh-eating bird (71920); (through Dr. D. T. MacDougal, Desert Laboratory, Tucson, Ariz.) 10 plants (70647); 69 plants (70958, exchange); (through Dr. Forrest Shreve, Desert Laboratory) 4 plants from Arizona, and 10 specimens of cacti (71663, 71720).

CARPENTER, J. H. (See under Mrs. Julian James.)

CARSON, Brig. Gen. J. M., U. S. A. (retired): 2 specimens of wood showing the ravages of white ants in the Philippine Islands (70691).

CASE, C. P., Tenakee, Alaska: Mollusks from Tenakee, Alaska (70791).

CASEY, Col. THOMAS L., U. S. Army (retired), Washington, D. C.: 1,043 unmounted specimens of Lepidoptera from Brazil (70464).

CHACE, E. P., San Fernando, Calif.: 7 fossil shells from near San Fernando (70475); 8 specimens, 3 species, of decapods, 40 amphipods, and 8 isopods taken by the donor from Mugu Bay, Ventura County, and Cayucas, San Luis Obispo County, Calif. (70641); (through Dr. W. H. Dall) about 30 specimens, 3 species, of marine shells from Mugu Bay, Calif. (71317); collection of marine invertebrates from California, consisting of 63 specimens (71338).

CHADWICK, Dr. GEORGE H., Rochester, N. Y.: Approximately 1,000 specimens of Coal Measures bryozoans from Kansas (70910); (through Dr. T. W. Stanton) fossil specimen from the Cretaceous formation near Russell, Kans. (71112).

CHAMBERLAIN, EDWARD B., New York City: 42 plants from Maine (70492, exchange).

CHAMBERLAIN FUND, FRANCES LEA, Smithsonian Institution, Washington, D. C.: 21 gem stones cut from pebbles found in the District of Columbia (70288); 2 cut gems of zircon, brown and golden-brown, weighing 21.1 and 12.1 carats, respectively (70410); 2 beryls from Madagascar, golden and golden-green (70592); a colorless zircon, weighing 5.45 carats (70755); an Australian opal weighing 24.3 carats (70864); cut gem of willemite from Franklin, N. J. (70961); 2 cut gems of kunzite, weighing 76 and 60.75 carats, respectively (71250); 121 species of land shells from the Bahamas (71285); Chinese carvings of jade, amethyst, turquoise, rock crystal, and chalcedony (71143); 3 pieces of amber and 3 of jade, carved (71349); a green-yellow diamond weighing 1.34 carats (71597); pink beryl, 2 white zircons, and 1 brown zircon (71598); a pink beryl (morganite) from Madagascar, weighing 3.05 carats (71778).

CHAMBERS, B. L., U. S. National Museum: Devonian brachiopods and bryozoans from West Virginia (70884).

CHAMPLAIN, A. B., Harrisburg, Pa.: 30 named New Zealand beetles representing 21 species (70796).

CHAPIN, E. A., Washington, D. C.: Herring gull in immature plumage from Maryland (71085); 50 crayfishes collected by E. G. Holt at Barachias, Ala. (71158).

CHAPIN, Mrs. E. Y., Chattanooga, Tenn.; 3 plants (71735).

CHAPMAN, W. E. (See under Jesus G. Ortega.)

CHAPPELL, WALTER F., Washington, D. C.: Mounted goshawk from Pikes County, Pa. (71786).

CHARLOTTE HARBOR & NORTHERN RAILWAY CO., Arcadia, Fla. (through T. W. Parsons, vice president and general manager): Piece of piling containing fragmentary specimens of marine boring mollusks (71105).

CHATER, C. W., Burma, India: Specimen of jade from Burma (71174).

CHAVES, Sr. DON DIOCLESIANO, Managua, Nicaragua: 45 plants (70749); 49 plants from Nicaragua (71128). Exchange.

CHICAGO SOCIETY OF ETCHERS, THE, Chicago, Ill.: 153 etchings for special exhibition (70606, loan).

CHINN, Miss E. BERTHA, Washington, D. C.: Carved gourd from near Matanzas, Cuba, collected in 1870 by Mrs. Richard H. Chinn (71405).

CHOUSSY, Señor Don FELIX, San Salvador, El Salvador, Central America (through Dr. Salvador Calderon): 28 photographs of Salvadorean plants (70624).

CHRISTENSEN, Dr. CARL. (See under Universitetets Botaniske Museum.)

CLAGETT, ROBERT M., Smithsonian Institution: Log of persimmon wood from Montgomery County, Md. (70908).

CLAPP, GEORGE H., Sewickley, Pa.: A sinistral specimen of a Cuban Cerion, the only sinistral Cerion so far as noted; 2 additional shells from Cuba, the largest specimens that have come under the notice of the Museum, and 5 microscopic preparations of Cerion radulas (71974).

CLAPP, Dr. WM. F. (See under National Research Council.)

CLARK, B. PRESTON, Boston, Mass.: 10,666 specimens of Lepidoptera from the Philippine Islands, 87 specimens of Lepidoptera from Syria, and 6 species of Sphingidae new to the Museum collections (71713).

CLARK, ROBERT STERLING, New York City: 33 mammals, 451 birds, 128 reptiles and amphibians, 686 fishes, 20 lots of crustaceans, and 2 cephalopods, from the provinces of Fukien, Kiangsu, and Chekiang, China, collected by A. de C. Sowerby (70762).

CLARKSON, EDWARD H., Newburyport, Mass.: 2 photographs of fern rootstocks (70830); photograph of a plant (71672).

CLAUDE JOSEPH, Brother, Correo Nunoa, Chile: 130 plants from Chile (70258); 340 specimens of plants (70497, 70870, 71199); 38 drawings of nests and larvae of bees, and 10 nests of bees (70819); 78 plants from Chile and a collection of drawings of wasps and their nests (71423); nests of 10 species of bees and wasps and material representing immature stages of 22 species of bees and wasps (71485); (through Department of State) 81 plants from Chile (71508).

(See also under Instituto de la Salle, Santiago.)

CLAUDY, C. H., Washington, D. C.: Daguerreotype and a tintype (71730).

CLEMENTS, MISS GABRIELLE DE V., Washington, D. C.: Soft-ground etching with aquatint, printed in colors (70767).

CLEMENTS, HENRY W., Rutland, Vt.: A large slab of fuchsite marble (70931).

CLEMMONS, Dr. WILLIAM, Granville, Ohio (through Dr. George A. Dorsey): Hindu goldsmith's bellows (71866).

CLEVELAND, Miss CATHERINE E., Kensington, Md.: Skin of a harlequin duck prepared by natives in Labrador (70481).

CLEVELAND-CLIFFS IRON CO., THE, Cleveland, Ohio: 8 charts showing uses of chemicals derived from wood (71788).

CLINTON, H. G. Manhattan, Nev.: 4 large exhibition specimens of minerals, and 1 plate of fossil sponges (70465, exchange); benjaminite and associations from the Outlaw mine, Nye County, Nev.; xonotalite from Isle Royale, Mich.; and miscellaneous minerals and ores from the White Caps mine, Manhattan, Nev.; also specimen of crystallized stibnite from the White Caps mine (70542; 71646); a small collection of fossils including graptolites from Nevada, bryozoans and plants from New South Wales (71601).

COBBOLD, E. S., Church Stretton, Shropshire, England: Collection of Lower and Middle Cambrian fossils from Comley, England (70667, exchange).

COCHEU, Maj. G. W., Manila, P. I.: Photograph of a map of Manila made in 1739 (70631).

COCKERELL, Prof. T. D. A., Boulder, Colo.: 50 bees representing holotypes of 48 species (70402); 8 named bees representing 8 species, 4 of which are represented by paratypes (70419); a small series of characteristic metalliferous ores from Tutihe, Maritime Province, Siberia (71063); 33 specimens, 16 species, of land shells from Japan and Siberia, including 2 cotypes of a new subspecies (71073); toad from Siberia; 21 type specimens of

COCKERELL, Prof. T. D. A.—Con. fossil insects from Siberia, collected and described by the donor (71092, 71117); 18 type specimens of fossils, chiefly plants, from Green River Eocene, Roan Mountains, Colo. (71136); 10 specimens of identified bees, including 2 paratypes, representing 9 species; also 9 miscellaneous specimens of unidentified insects (71308); 27 insects, including 11 named bees, new to the Museum collections (71413); 28 specimens of insects, including 9 species of named bees, 3 of which are represented by cotypes (71637); 54 specimens of insects, 46 representing unidentified beetles, and 8 representing paratypes of 6 new species of bees (71771).

(See also under Dr. Arnold Moltrecht.)

COFFIN, H. A. (See under Cadillac Motor Car Co.)

COFFIN, HOWARD E. (See under Earle Ovington.)

COKER, Prof. R. E. (See under North Carolina, University of.)

COLE, E. E., Washington, D. C.: Telegraph transmitting typewriter complete; also extra transmitter portion of this machine and 28 extra Morse character rings for this machine (71801, loan).

COLE, Dr. FRANK R., Redlands, Calif.: 5 flies representing 3 species, including 1 paratype (71951).

COLE, Miss GRACE M. (See under Agriculture, Department of, Bureau of Plant Industry.)

COLEGIO DEL SAGRADO CORAZÓN, Guantanamo, Oriente, Cuba (through Brother Hioram): Ferns (70609).

COLEY, L. B., Alexander City, Ala.: 2 samples of paper-shelled pecans and 3 samples of very large hickory nuts (71159).

COLLOM, Mrs. W. B., Payson, Ariz.: 6 plants from Arizona (71550, 71706); 2 plants (71606).

COLONIAL DAMES OF AMERICA, NATIONAL SOCIETY OF, Washington, D. C. (through Mrs. Carolyn Gilbert Benjamin): A French Red Cross decoration presented to Mrs. Mabel C. S. D'Olier for service rendered during the World War when a member of the American Friends Service Committee (70635); silver sugar tongs, tea caddy, and cream pitcher (71371). Loan.

COLONIAL DAMES OF AMERICA, WISCONSIN SOCIETY OF. (See under Victor Morris.)

COLORADO AGRICULTURAL COLLEGE, Fort Collins, Colo. (through Prof. C. P. Gillette): 1 fly (70321); 72 adults and 4 sets of galls of gall-making Cynipidae, being types of 43 species described by C. P. Gillette; also 35 adults, being types of 34 species of miscellaneous Hymenoptera (71950).

COLORADO COLLEGE, Colorado Springs, Colo.: Type specimens of invertebrate and vertebrate fossils, described chiefly by F. W. Cragin (71865, exchange).

COLORADO MARBLE & STONE CO., THE, Denver, Colo.: A sample of Colorado travertine (70278).

COLORADO MUSEUM OF NATURAL HISTORY, Denver, Colo.: Meteoric iron from near the common four corners of Colorado, New Mexico, Arizona, and Utah, and casts of same (71284, exchange).

COMMERCE, DEPARTMENT OF:

Bureau of Fisheries: 7 specimens of blue crabs taken in Catahoula Lake, Parish of St. Martin, La., collected and donated by Frank Delahoussaye, of New Iberia, La. (70618); 30 isopods, 6 earthworms, 15 lots of spiders, 2 lots of myriapods, 2 lots of insects, 2 lots of snakes, and 2 lots of frogs, collected on Penikese Island, Mass. (70668); 2 isopods found parsitic in the gills of weakfish taken in Long

COMMERCE, DEPARTMENT OF—Continued.

Bureau of Fisheries—Con.

Island Sound and Chincoteague Bay, Va., collected by H. F. Prytherch and B. H. Warren in July and September, 1923, respectively (70687); marine mollusk from Marco, Fla. (70689); over 90 specimens (9 lots) of marine invertebrates, 2 starfishes, 1 lot of fishes, and 1 lot of mussels from Morzhovoi Bay and Ikatan Bay, Alaska, collected in July, 1923, by Willis H. Rich (70966); 22 copepods, consisting of 1 male holotype, 1 female type, 10 male paratypes, and 10 female paratypes, collected at Seneca Lake, N. Y., by Messrs. Juday and Birge, August 10, 1910 (71330); 2 fishes (71504); 100 marine invertebrates, 4 lots of insects, 7 lots of mollusks, 4 lots of amphibians, collected in El Salvador, Central America, by Messrs. Hildebrand and Foster during January and February, 1924 (71512); crustaceans, insects, and amphibians collected from Rio Chirique, at Volcan, Chirique, Panama, on March 1, 1924, by Fred J. Foster (71640); plant collected in Lake Champico, El Salvador, by Hildebrand and Foster (71733); shrimp collected August 3, 1921, in Thomas Bay, Alaska, by E. M. Ball, with beam trawl, in 20 fathoms of water (71734); (through Bureau of Biological Survey, Department of Agriculture), 2,329 pinned insects, 83 vials, and 83 microscopic slides of insects from the Pribilof Islands, Alaska, many of them being types and uniques (70350); (through L. F. Shackell) over 50 specimens of ostracods taken from the reservoir of a flowing well at Gallants Point, Beaufort, N. C. (70688).

COMMITTEE ON MARINE PILING INVESTIGATIONS (through Col. William G. Atwood, director), New York City: 5 crabs taken from disintegrated concrete, Pier 4, Puget Sound Navy Yard (70873); 8 isopods from St. Augustine, Fla., and Port Eads, La. (70914); 2 pieces of shipworm infested timber from Pier No. 1, Northern Pacific Railway, Seattle, Wash. (71580).

CONZATTI, Prof. C., Oaxaca de Juarez, Oaxaca, Mexico: 5 plants from Mexico (71935).

COOK, Prof. O. F. (See under Agriculture, Department of, Bureau of Plant Industry.)

COOKE, Dr. C. W. (See under Earl Sloan.)

CORE, E. B., Yonkers, N. Y.: 2 framed portraits of children (70555).

CORLEY, W. A., Kellyton, Ala.: 2 cotton plants bearing open bolls of cotton (71320).

CORNING GLASS WORKS, Corning, N. Y. (through Dr. Arthur L. Day): Model of a glass tank melting furnace; model of a glass pot melting furnace; also 168 objects illustrating types of chemical, industrial, and domestic oven glassware (71549); an incandescent lamp bulb-blowing unit comprising 4 individual machines, mounted on a three-wheeled truck, illustrating the present method of manufacture (71641); 6 pieces of art glass work consisting of 3 vases, 1 plate, 1 candlestick, and 1 cologne bottle (71695).

CORONA CO., Bloemendal, Holland (through Dr. T. Wayland Vaughan): 9 specimens of echinoids, chiefly types (71180).

COULTER, Dr. JOHN M., Chicago, Ill.: Plant (70244).

COVILLE, Dr. FREDERICK V. (See under Agriculture, Department of, Bureau of Plant Industry, and under Forest Service.)

COWDRY, N. H., New York City; 7 Chinese ferns (71203).

COWLES, R. P. (See under Philippine Islands, Government of, University of the Philippines.)

CROS, Dr. A., Mascara, Algiers: 6 slides and 4 vials of coleopterous larvae (70905, exchange).

CRUMP, Shelly Godwin, Pittsford, N. Y.: Barbed harpoon of copper excavated in 1880 (71571).

CUDMORE, Francis A., Melbourne, Victoria, Australia (through Dr. T. Wayland Vaughan): Collection of Tertiary fossils from Australia (71443).

CULLEN, Joseph F., Midvale, Utah (through Victor C. Heikes): Specimen of furnace product of metallic arsenic, crystallized, from the Midvale smelter (71272).

CULP, C. Edward, Washington, D. C.: Charcoal burner's ax from Goldlauter, Upper Saxony, brought over in 1860 by Thomas Culp (71373).

CUMMINGS, Mrs. J. H., Wilmington, N. C.: King snake from North Carolina (71171).

CUMMINGS, Mrs. S. E. (through Paul E. Sleman, Washington, D. C.): Ethnological and historical specimens and a collection of India shawls, laces, etc. (71118); silver bread basket, silver pitcher, carved jade vase, and 2 Canton porcelain figures of women bearing vases (71365).

CURRAN, C. Howard. (See under Canadian Government, Department of Agriculture, Entomological Branch.)

CURTIS, Mrs. W. E., Champaign, Ill.: Collection of silver articles, a lot of mummy eyes, and an armadillo tail (71071).

CUTLER-HAMMER MANUFACTURING CO., THE, Milwaukee, Wis.: 53 specimens and 2 photographs illustrating the manufacturing processes and uses of two cold-molded plastics "Pyroplax" and "Thermoplax" (70327).

DAILEY, Howard B., Battle Creek, Mich.: A static electric engine designed by the donor and constructed by his father, Elijah M. Dailey, in 1880 (71309).

DALL, Marcus, Santa Barbara, Calif.: 19 mollusks, including 1 type, from Little Velientia Spring (Hot Sulphur Spring), Santa Barbara National Forest, Calif. (70982).

DALL, Dr. W. H. (See under E. P. Chace.)

DALTON, H. R., Boston, Mass.: Edison tin-foil phonograph record used on an Edison phonograph loaned to Dr. J. C. Dalton by Edison in 1878; also a memorandum made by Charles H. Dalton, uncle of the donor, dated April 8, 1878, and a letter identifying this record from the laboratory of Thomas A. Edison, dated June 3, 1920 (70320).

DANSKE ARKTISKE STATION, Disko, Greenland (through Morten P. Porsild): 121 plants from Greenland (70632, exchange).

DARLING, Dr. S. T., Leesburg, Ga.: Spider (70771).

DAUGHTERS OF THE AMERICAN REVOLUTION, NATIONAL SOCIETY OF, Washington, D. C.: Chair owned by Gen. George Washington at Mount Vernon, and a chair owned by Commodore Joshua Barney (71644, loan).

DAVIDSON, Dr. A., Los Angeles, Calif.: 8 plants (70248, 70250, 70274, 70711, 70729, 70869); 5 plants from California (71605, 71642, 71654, 71727).

DAVIS, Hon. Dwight F. (See under War Department, Shiloh National Military Park.)

DAWSON, Elmer J., Lodi, Calif.: 4 human skulls from a mound in California (70971).

DAY, Dr. Arthur L. (See under Corning Glass Works.)

DEAM, C. C., Bluffton, Ind.: 36 plants from Indiana (71424); 54 plants (71799).

DENAUT, Dr. M. S., Walkerton, Ind. (through Dr. M. W. Lyon, jr.): Skin and skull of a ground squirrel from Indiana (70712).

DENSMORE, Miss FRANCES, Red Wing, Minn.: Piece of dried seal meat from the Makah Indians of Neah Bay (70494).

DEPPEN, R. O., Louisville, Ky.: Butterfly chrysalis (70508).

DE RUSSY, Mrs. LAURA R., New York City: Gold snuffbox set with diamonds, presented about 1836 by the Prince de Joinville to Col. René E. De Russy, United States Army (71901).

DIAMOND STATE FIBER CO., Bridgeport, Pa.: 97 specimens illustrating the use of "Celoron," a phenolic condensation laminated product (71150).

DICKEY, DONALD, Pasadena, Calif.: 5 skins and skulls of rodents from California, all hitherto unrepresented in the Museum collections (70439).

DISTRICT OF COLUMBIA, BOARD OF COMMISSIONERS OF, Washington, D. C. (through Hon. Cuno H. Rudolph, president): Cross section of one of the limbs of the elm tree under which Gen. George Washington took command of the American Army in Cambridge, July 3, 1775 (71932).

DODDS, CLIFFORD T., Santa Paula, Calif.: 19 insects (70725, 71872).

DONOVAN, WILLIAM O'BRIEN, St. George, Grenada, B. W. I.: 7 bats, 2 fishes and 1 scorpion (71761).

DORSEY, Dr. GEORGE A. (See under Dr. William Clemmons.)

DRAKE PROCESS (INC.), Cleveland, Ohio: 36 containers and other articles from wood pulp (71446).

DRUSHEL, Prof. J. ANDREW, St. Louis, Mo.: Collection of Ordovician and Mississippian fossils from the Ohio and Mississippi Valleys (71041).

DUCE, JAMES TERRY, New York City (through Dr. T. W. Stanton): Small collection of Eocene and Cretaceous invertebrates from the western shore of Lake Maracaibo, Venezuela (71329).

DUCE, JAMES TERRY—Continued.

DUKES, W. C., Mobile, Ala.: 6 hesperid butterflies, topotypes (70594).

DUMONT, W. H., Bivalve, N. J.: 8 shipworms from Maurice River Cove, Delaware Bay (71752).

DUNLAP, V. C., Alimirante, Panama (through United Fruit Co.): 250 plants from Panama and Costa Rica (71451).

DU PONT DE NEMOURS & CO. (INC.), Fabrikoid Division, Newburgh, N. Y.: 13 specimens showing the application of Fabrikoid, a leather substitute (71115).

DURY, CHARLES, Cincinnati, Ohio: 7 specimens of beetles, including 2 cotypes and 5 specimens of a related new genus and new species (71523, exchange).

DUTCH GUIANA, AGRICULTURAL EXPERIMENTAL STATION, Paramaribo, Dutch Guiana (through A. Reyne): 2 specimens of tropical bees (70643).

DUVAL, HUGH H., Bastrop, Tex.: 56 plants (70604, 70895).

DYAR, Dr. H. G. (See under Museo Nacional.)

DYER, FRANCIS J., Coblenz, Germany: 10 specimens, 6 species, of land and fresh-water mollusks, and a lot of larval insects from Bad Kissingen, Germany (70800).

EAST, CHARLES S., U. S. National Museum: 9 snakes from Washington, D. C., and vicinity (71670); 3 snakes and 6 lizards from the United States (71949).

EASTWOOD, Miss ALICE. (See under California Academy of Sciences.)

ECKERMANN, Dr. HARRY VON, Ljusne, Sweden: 34 specimens of minerals from Langban, Sweden (71461, exchange).

EDSON, WILLIAM L. G. (See under Rochester Park Department.)

EGGLESTON, W. W. (See under Agriculture, Department of, Bureau of Plant Industry.)

ELAESON, JOHN, Coulee City, Wash. (through Kirk Bryan): Foot bones of a fossil camel from a well 2 miles east of Coulee City (70312).

ELLIS, LEONIDAS W., Cherrydale, Va.: 25 specimens of Eocene shells from Stafford County, Va. (70462).

ELLIS, Prof. M. M., Columbia, Mo.: Over 500 crayfishes collected by the donor in the course of a transcontinental automobile trip from Columbia, Mo., to Twin Falls, Idaho, during the summer of 1923 (71433).

EMERY, D. L., St. Petersburg, Fla.: 8 specimens, 4 species, of landshells from the West Indies (71355).

ENGLE, Dr. EARL THERON, Boulder, Colo.: 7 toad tadpoles from Grand Mesa, Colo. (71402); skull, mandible, cranial vault and cervical vertebra from an Indian mound in Bon Homme County, S. Dak. (70744).

ENGLISH, GEORGE L., Rochester, N. Y.: Specimen of the mineral carminite from Cornwall, England (71000, exchange).

ERDIS, ELLWARD C., Newhall, Calif.: Lizard, commonly known as the fence lizard (70642).

ERLANGER, BLUMGART & CO. (INC.), N., New York City; 27 specimens of "Everfast" cotton dress and drapery fabrics (71971).

ESHNAUR, Mrs. W H., Bellflower, Calif.: 30 specimens, 6 species, of marine shells from St. Petersburg, Fla., and San Pedro, Calif. (70307).

ESSIG, Prof. E. O., Berkeley, Calif. (through Dr. L. O. Howard): Over 15 specimens, 1 species, of isopods collected by the donor (71444).

EVANS, VICTOR J., Washington, D. C.: Pottery stove with three holes, from Luzon, P. I. (70987); 88 specimens of Casas Grandes pottery (71664, loan).

EVERMANN, Dr. BARTON W. (See under California Academy of Sciences.)

EYERDAM, WALTER, Seattle, Wash.: 11 specimens, 4 species, of marine shells from Drier Bay, Knight Island, Prince William Sound, Alaska, including types of 2 new species (71335).

FABER, CHARLES L., Cincinnati, Ohio: 5 specimens of Ordovician (Fulton) fossils from Cincinnati, Ohio (70949).

FAIRCHILD, ARTHUR S., Louisenhoj, St. Thomas, Virgin Islands of the United States: 5 plants (71619, exchange).

FAIRCHILD, GRAHAM, Washington, D. C.: 2 butterflies, one from Trinidad and the other from Panama, new to the Museum collections (70295).

FAIRLIE, M. F., Cobalt, Ontario, Canada (through Frank L. Hess): Specimen of native silver on argentite, from Frontier mine, Cobalt, Ontario (70544).

FALCOZ, Dr. LOUIS, Vienne, Isère, France: 22 specimens of parasitic Diptera (71356, exchange).

FALK, B. J., New York City: Magazine plate camera invented by S. C. Nash, April 7, 1885 (70588).

FAUST, Prof. ERNEST CARROLL, Baltimore, Md.: 5 specimens, 2 species, of fresh-water mollusks from China, including the type of a new species and a new subspecies which have not yet been named (71146); 20 specimens, 4 species, of fresh-water shells from Canton and Shachsing, Chekiang Province, China (71165).

FAZ, Señor ALFREDO, Santiago, Chile: 67 specimens of Diptera from South America (70294); 31 specimens of flies, several species of which are new to the Museum collections (70394).

FELIPPONE, Dr. FLORENTINO, Montevideo, Uruguay: 21 specimens of land, fresh-water, and marine mollusks from Uruguay, and 8 lots of crustaceans and 18 lots of insects (70828); 5 specimens, 3 species, of land, fresh-water, and marine mol-

FELIPPONE, Dr. FLORENTINO—Con. lusks, and 1 alcyonarian from South America (71620); 23 specimens, 13 species, of land and marine mollusks from South America (71650).

FENTON, CARROLL LANE, Chicago, Ill.: 93 casts of type specimens of invertebrate fossils from the Hackberry group of Iowa (70440, exchange).

FENTON, Dr. F. A., Ames, Iowa: 7 specimens, representing 4 species of dryinid wasps, all new to the Museum collections (71219).

FERGUSON, H. G., Washington, D. C.: Large chert reject found partially buried on a ridge of Pleistocene gravel a few miles south of Hawthorne, Nev. (71615).

FERGUSON, WILLIAM C., Hempstead, N. Y.: 3 plants (70880).

FERRISS, JAMES H., Joliet, Ill.: 41 specimens, 10 species, topotypes of mollusks from Arizona (71162); 21 plants (71487, 71744); 108 plants from Texas (71570, 71609, 71681, exchange); 13 plants from Texas (71666, 71782); 20 specimens of cacti (71546, exchange); seeds of a plant (71578).

FIELD MUSEUM OF NATURAL HISTORY, Chicago, Ill.: 2 specimens of meteorites, Homestead, Iowa, and Barratta, Australia (71332); 207 specimens of plants collected in Peru by J. Francis Macbride (71442, 71457); 341 plants chiefly from Peru (71497); 276 ferns from Peru 71558); 22 specimens of plants Compositae and Urticaceae (71659). Exchange.

FIGGINS, FRANK B., Washington, D. C.: Bird from Maryland (70760).

FILER, M. F., Key West, Fla.: Plant from Florida (71103).

FINN, JOHN J., Harrisburg, Pa. (through R. W. Stone and Interior Department, U. S. Geological Survey): Specimen of a fossil starfish from a quarry near Rockville, Dauphin County, Pa. (71135).

FISH, CHARLES J., Woods Hole, Mass.: Shipworm from Woods Hole, Mass. (70992).

FISHER, A. H., Washington, D. C.: Skeleton of a river porpoise from Santarem, Brazil (70579); lower jaw of a river porpoise from Brazil (70621).

FISHER, F. L. (See under National Geographic Society.)

FISHER, GEORGE L., Houston, Tex.: 73 plants (70611).

FISHER, Prof. W. K., Pacific Grove, Calif.: 7 starfishes (71079).

FLEBUT, A. J. (See under Agriculture, Department of, Bureau of Entomology.)

FLORIDA STATE MUSEUM, THE, Gainesville, Fla. (through T. Van Hyning): 110 specimens, 16 species of crustaceans from Florida, collected by Messrs. J. B. Clark, J. H. Dodges, and T. Van Hyning (71471); 2 sirens from Florida (71909).

FLORIDA, UNIVERSITY OF, agricultural experiment station, Gainesville, Fla. (through J. R. Watson, entomologist): 17 slides of thrips, including paratypes of 12 species and a cotype of 1 variety (70340, exchange).

FOLLETT, HARRY L., New York City: Original model of the rotary lock stitch shuttle invented by Joseph L. Follett and patented February 4, 1873 (71093).

FORD, Prof. WILLIAM E., New Haven, Conn.: Specimen of the mineral chalcophyllite from Chile (70502).

FOUKE FUR COMPANY, St. Louis, Mo. (through Agriculture, Department of, Bureau of Biological Survey): 3 specimens illustrating the dressing and dyeing of Alaskan seal skins (70365).

FOWLER, Dr. H. W., Philadelphia, Pa.: Water snake from near Glenn Dale, Md. (70815).

FOX, JASPER M., Shoshone, Nev.: Small collection of fossils from near Shoshone (71031).

FOYE, W. G., Middletown, Conn.: Specimen of spherulitic tuff from the anterior lava sheet of Connecticut (71236).

FREELAND, Mrs. MARY W., Washington, D. C.: A brown silk basque worn about 1860 by Mary Josephine Fisher, of New Hampshire (70684).

FREEMAN, EDWARD B., jr., Seccondee, Gold Coast Colony, British West Africa: Beetle from British West Africa (70967).

FREEMAN, Dr. GEORGE F., Port-au-Prince, Haiti: 2 plants from Cambodge (71657).

FREEMAN, O. M., Washington, D. C.: Plant from Maryland (71725).

FREEMAN, Mrs. O. M., Washington, D. C.: Plant from Maryland (71700).

FRENCH, FRANCIS F., Cynwyd, Pa.: Darlot lens no. 7195, and a view camera (70685).

FRIC, A. V., Mexico, D. F., Mexico: 4 plants from South America, 2 packages of seeds, and 1 photograph (70784); 25 plants (71160); 50 plants (71435, exchange).

FRISON, Dr. THEODORE H., Urbana, Ill.: 8 specimens of Diptera from South America (71954).

FROST, C. A., Framingham, Mass.: About 400 insects (71749).

GAGE, F. B., Trenton, N. J.: Specimen (type) of the mineral chlorophoenicite from Franklin Furnace, N. J. (71751); 4 specimens of minerals from Franklin Furnace, N. J. (70937). Exchange.

GAILLARD, Miss LE CLAIR, Washington, D. C.: Guitar over 100 years old (71810).

GALLAGHER, JOHN ADAMS, Washington, D. C.: Hess-Ives color print (71831).

GARBER, Mrs. MARGARET T., Washington, D. C.; 2 candle molds of the colonial period (71906, loan).

GARDNER, Miss ELIZA, Washington, D. C.: An exquisitely embroidered India muslin christening robe made in Ireland in 1847 and used at the christening of Lawrence and Eliza Gardner (71557).

GARO, JOHN H., Boston, Mass.: 44 gum prints for special exhibition (71914, loan).

GARRETT, C., Cranbrook, British Columbia, Canada: 2 flies, paratypes of 1 species (70879).

GATES, Rev. SEBASTIAN, Grenada, B. W. I.: Snake tick from Grenada (71382).

GAUMER, Dr. GEORGE F., Izamal, Yucatan, Mexico: 9 plants (71127, 71480).

GENERAL INSULATE CO., Brooklyn, N. Y.: 64 specimens illustrating the manufacture and uses of "insulate," a shellac hot-molded plastic (71168).

GEOLOGICAL INSTITUTE, REGIA UNIVERSITA DEGLI STUDI, Pisa, Italy (through Prof. Mario Canavari): 15 casts of trilobites studied by Professor Menechini (70680, exchange).

GEOLOGISK — MINERALOGISKA INSTITUTIONEN, Lund, Sweden (through Dr. Karl A. A. Grönwall): 25 species represented by 20 fossils and 41 casts of specimens from the Upper Cambrian and lowermost Ordovician of Sweden (70665).

GEORGE WASHINGTON LIFE INSURANCE CO., Charleston, W. Va.: Wood engraving, by Timothy Cole, of Conrow's portrait of George Washington (70356).

GEORGIA, UNIVERSITY OF, Athens, Ga. (through Prof. J. H. Miller): 193 plants (70662, 71001, 71125). Exchange.

GERRARD, ERNEST, Logansport, Ind.: Fossil fern in clay-iron-stone (71337).

GILLETTE, Prof. C. P. (See under Colorado Agricultural College.)

GINKENS, HOWARD, Newtown, Mo.: 2 skins and 1 skull of moles from Newtown (70548).

GIVENWILSON, Miss IRENE M. (See under American Red Cross.)

GODING, Frederic W., American Consul General, Guayaquil, Ecuador: Plant, 5 frogs, and a small turtle from Guayaquil (71298, 71530).

GOLDMAN, Henry, New York City (through Treasury Department, Washington, D. C.): Emergency paper currency issued during the period of the World War by the Soviet Russian Government and by various Russian states and municipalities (70449).

GORE, Herbert C., Washington, D. C.: Specimen of refined maltose crystallized from sweet potatoes (70483).

GORRELL, Oscar, Sutherlin, Oreg.: A fossil crab from Judkins Ridge, near Eugene, Oreg. (71367).

GOSSWEILLER, J., Loanda, Angola, Portuguese West Africa (through U. S. Department of Agriculture, Bureau of Plant Industry): 275 African plants (71738).

GRAHAM, Rev. David C., Suifu, Szechwan, China: 453 birds, 15 mammals, 24 reptiles, 65 fishes, 84 mollusks, 200 shrimps, 3 leeches, 3 isopods, 1 earthworm, 1 crab, and a collection of insects, from Szechwan Province, China (70338); a large collection of miscellaneous biological material, 3 human skulls (two with lower jaws and one without), and 10 specimens of rocks (71166); collection of insects, 41 mollusks, 1 nematode and a large number of shrimps, 25 fishes, 5 frogs and 2 toads, 3 skins and 2 skulls of mammals (71419); 429 birds, 29 mammals, and a collection of insects from West China (71940).

(See also under Dr. Angus J. Barter.)

GRANT, Mrs. Adele Lewis, Ithaca, N. Y.: 40 plants (71076).

GRANT, Robert J. (See under Treasury Department, U. S. Mint.)

GRASS FIBRE PULP AND PAPER CORPORATION, Leesburg, Fla.: 32 specimens and 4 photographs showing the manufacture of paper from Florida sawgrass (71098).

GRASSÉ, Prof. Pierre P. (See under Laboratoire de Zoologie, Faculté des Sciences.)

GRAY, Fred W., Cass, W. Va.: Fern from West Virginia (70672).

GRAY, L. J., Iron City, Tenn.: Samples of phosphate minerals from Iron City (70309).

GRAYBILL, Dr. H. W., Berkeley, Calif.: Several specimens, including the type, of nematodes from the rabbit (71387).

GREEN, M. M., Ardmore, Pa.: 10 skins and skulls of small mammals from Colorado (71064).

GREENE, Frank C., Tulsa, Okla.: 95 specimens, 16 species, of land shells from Oklahoma, Kansas, and Texas (70990); about 40 specimens, 11 species, of land and fresh-water shells from Oklahoma (71061).

GREENE, George M., Harrisburg, Pa.: 2 beetle larvae (70593); 53 beetles from Chaco Santa, Pesino, Argentina, collected by W. H. Schlanditz (71113).

GREGG, Rev. J. W., Bennington, Okla.: Stone artifacts from Oklahoma (70525).

GRIMWOOD, Mrs. J. L., and Chancellor Goold LEVISON, Brooklyn, N. Y.: Motion-picture camera invented by Wallace Goold Levison; 3 negatives and 6 prints made with this camera and a quantity of printed and pictorial matter relative to Mr. Levison's life and works (71834, 71900).

GRISCOM, Ludlow, New York City: 72 plants collected in British Guiana by Herbert Lang (71391, exchange).

GRIZZLE, Miss Lucile. (See under Southern California, University of.)

GRÖNWALL, Dr. Karl A. A. (See under Geologisk-Mineralogiska Institutionen.)

GUATEMALA, GOVERNMENT OF, DIRECCION GENERAL DE AGRICULTURA (through Señor Don J. G. Salas): 180 plants (70273, 70281, 70358); packet of seeds from Guatemala (70400).

GUNNELL, BRUCE C., Washington, D. C.: Red-tailed hawk in immature plumage, from Virginia (71086).

GURNEY, ROBERT, Stalham, Norfolk, England: 4 specimens of Apodidae, new to the collections, from England and Tunisia, collected by the donor (71437, exchange).

GUSTAFSSON, C. E., Trolleborg, Sweden: 37 plants from Sweden (71389, exchange).

GUTTAG BROTHERS, New York City: Austrian 10 heller note issued in 1921; German 1,000 mark note issued in 1922, and a Russian 1 ruble note issued in 1898 (71588).

HABERER, Dr. JOSEPH V., Utica, N. Y.: 225 plants from central New York (71610).

HAIGHT, F. E., New York City: Wood engraved portrait of the Haight family, by Timothy Cole (71696).

HALL, Prof. H. M. (See under Carnegie Institution of Washington.)

HALL, Miss JOSEPHINE B., Short Hills, N. J. (through Dr. Marcus Benjamin): Continental paper currency issued 1776–1779, and 3 visiting cards of 1849 (71947).

HAMILTON, A. L., Detroit, Mich.: Knapsack carried during the World War by a member of the Belgian Civic Guard (70415).

HAMILTON, GEORGE, Cockburn Town, Watling Island, Bahamas: 2,000 specimens, 94 species, of marine shells from Watling Island (70946).

HAMLIN, J. C., Uvalde, Tex.: Plant (70693).

HAMLIN, JOHN C., Washington, D. C.: 8 specimens representing types and paratypes of cactus bugs (71376).

HAMMOND, CHARLES, El Paso, Tex.: 2 specimens of cacti (71163); 5 plants from Texas (71275, 71354); 4 plants (71826).

HANSON, HERBERT C., Lincoln, Nebr.: 110 plants from Arizona (71062).

HARDING, Mrs. FLORENCE KLING, Washington, D. C. (through Mrs. R. G. Hoes): White satin evening gown worn by Mrs. Harding during the administration of her husband, President Warren G. Harding, 1921–1923 (70493).

HARDWOOD MANUFACTURERS INSTITUTE, Chicago, Ill. (through American Hardwood Manufacturers Association, Memphis, Tenn.): Photograph showing plain sawing of a gum log (70405).

HARGREAVES, H., Kampala, Uganda, British East Africa: 3 flies from British East Africa (70396).

HARPER, Dr. R. M., Tallahassee, Fla.: 18 plants from Florida (71781).

(See also under Alabama, Geological Survey of.)

HARRINGTON, Dr. J. P. (See under Charles O. Roe.)

HART, F. K., Albany, Ga.: 3 fossil horse teeth (70391).

HART, GEORGE O., Coytesville, N. J.: 5 etchings printed in colors, 4 lithographs colored by hand, and 12 etchings and 7 lithographs printed in black and white (70988).

HARTFORD FIRE INSURANCE CO., Hartford, Conn.: Wood engraving by Timothy Cole, entitled "Monarch of the Glen" (71922).

HARUKAWA, Dr. C., Kurashiki, Okayama-Pref., Japan: 7 adults and 4 larvae of a new species of sawfly (71486).

HARVARD UNIVERSITY, Cambridge Mass.:

Arnold Arboretum, Jamaica Plain: 399 plants (71383, exchange).

Division of Mineralogy and Petrography: 23 minerals, chiefly from South Africa (70886); a fragment weighing 72 grams of meteroic iron from Sierra Sandon, Chile (71585). Exchange.

HARVARD UNIVERSITY—Con.

Geological Museum (through Prof. Chas. Palache): 3 pieces of the New Concord meteoric stone (71206, exchange).

Gray Herbarium: 83 plants from eastern Canada (70786); 306 specimens of ferns from the Davenport Herbarium (71039); fragments from a plant specimen (71531); 208 plants from Quebec (71554); 2136 plants (71818). Exchange.

Museum of Comparative Zoology (through Dr. Thomas Barbour): 3 lizards, 1 a paratype, from Haiti (71757, exchange).

HASKELL, Ernest, New York City (through Mr. Will Simmons): A canceled plate engraved by the "Flick" method and print from it, the work of the donor (71719).

HASKIN, Leslie L., Brownsville, Oreg.: 6 plants (70872, 71065).

HASSOLD, Frederick C., Philadelphia, Pa.: 2 camera shutters (70570).

HAWAII, BOARD OF COMMISSIONERS OF AGRICULTURE AND FORESTRY, Honolulu (through L. A. Whitney, division of plant inspection): Fly from Hawaii (71322).

HAWAIIAN SUGAR PLANTERS' ASSOCIATION EXPERIMENT STATION, Honolulu, Hawaii (through Frederick Muir): 6 specimens of Homoptera, including 2 paratypes, and representing 6 species; also a Mexican fly, new to the Museum collection (70292, 71056); (through P. H. Timberlake) 24 paratypes of chalcid-flies and 6 specimens, 2 species, of parasitic copepods (70363, 71254); 7 flies (type and allotype in 2 species) (71675).

HAWKINS, Alfred C., Rochester, N. Y.: Examples of 3 minerals, apatite, bornite, and the type specimen of canbyite, from Wilmington, Del. (70500).

HAYCOCK, Arthur Whitby, Bailey's Bay, Bermuda: 11 species of land shells from Bermuda (71957).

HEALD, K. C., Washington, D. C. (through Dr. E. O. Ulrich): 50 specimens of Devonian fossils from Bolivia (70939).

HEBARD, Morgan. (See under Academy of Natural Sciences.)

HEIGHWAY, A. E., Hoboken, N. J. (through F. L. Hess): Landshell from a point 40 miles northwest of Zapotiltic, State of Jalisco, Mexico (71193).

HEIKES, Victor C., Salt Lake City, Utah: Samples of the mineral argentojarosite from the Tintic Standard mine, Utah County, and scorodite crystals from Gold Hill mine, Tooele County, Utah (70384); specimen of crystallized barite from the fluorite mines in the Wildcat Mountains, Tooele County, Utah (71271).

(See also under Robert N. Bell, Joseph F. Cullen, and Samuel M. Soupcoff.)

HEITMULLER, Anton, Washington, D. C.: German foot warmer of ornamental cast iron (70352).

HEMSLEY, Mrs. Tilton, Stockbridge, Mass.: Japanese lacquered chest (70413).

HENDERSON, Prof. Junius, Boulder, Colo. (through Dr. T. W. Stanton): 10 specimens of invertebrate fossils from Fergus County, Mont. (71636).

HERNDON, A. P., Corpus Christi, Tex.: Portion of a tooth of a mastodon (70802).

HERRERA, Dr. A. L., Mexico, D. F. Mexico: Starfish (71409).

(See also under Mexico, Government of, Direccion de Estudios Biologicos.)

HERRERA, Prof. Fortunato L., Cuzco, Peru: 182 plants (70246, 70499, 71007).

HESS, Frank L., Washington, D. C.: Large specimens of nickel ore from Sudbury, Ontario, and 3 corundum crystals from the Transvaal (71213).

(See also under M. F. Fairlie, A. E. Heighway, International Nickel Co., H. T. Koenig, Dr. A. T. Roos, and Virginia Alberene Corporation).

HIBBARD, Raymond R., Buffalo, N. Y.: 300 specimens of Middle Devonian fossils from western New York (70625, exchange).

HIGGINS, Mortimer L. J., Hartford, Conn.: 10 beetles from Rhodesia (70386); 9 moths from Ceylon (70466); 75 beetles (71152); 62 unidentified Chinese insects (71715); 91 insects from northern Rhodesia (71772); 5 moths belonging to the family Saturniidae, from South Africa (71933); 27 beetles, including 22 specimens from Paraguay and 5 specimens from Rhodesia (71958).

HILL, Dr. Arthur W. (See under British Government, Royal Botanic Gardens.)

HILL, Mrs. C. (See under Mrs. Burton Thompson.)

HILL, R. B., Arecito, Porto Rico: 4 sharks' teeth from Porto Rico (71189).

HILLEBRAND, Dr. W. F., Washington, D. C.: Sample of uranium acetate (71862).

HIORAM, Brother, Guantanamo, Oriente, Cuba: 22 ferns from Cuba (71374).

(See also under Colegio del Sagrado Corazon.)

HITCHCOCK, Prof. A. S. (See under Agricultue, Department of, Bureau of Plant Industry.)

HODGE, F. W. (See under Museum of the American Indian, Heye Foundation.)

HOES, Mrs. R. G., Washington, D. C.: Red silk sash owned by James Monroe, President of the United States, 1817–1826, also a ribbon badge commemorating the removal of his remains from New York City to Virginia, 1858 (70675, loan); a small collection of miscellaneous minerals (70843).

(See also under Mrs. Florence Kling Harding.)

HOFFMAN, William A., Baltimore, Md.: 4 flies, 2 species represented by types and paratypes (71937).

HOLGATE, Henry. (See under Dr. C. A. Matley.)

HOLLANDER & SON (INC.), A., Newark, N. J. (through Agriculture, Department of, Bureau of Biological Survey): 28 muskrat skins to illustrate the 14 principal steps in the production of Hudson seal (70506).

HOLLINS COLLEGE, Hollins, Va. (through Miss Ida Sitler): Salamander and some fishes from Hollins, Va. (71718).

HOLMES, Dr. W. H.. Washington, D. C.: 2 old Pennsylvania Dutch dishes of tulip ware, dated about 1790 and 1801 (71556).

HOPKINS, Dr. Alfred F., Washington, D. C.: Collection of American and foreign swords, bayonets, and a pair of epaulettes of the War of 1812 (71258, loan).

HOPKINS, Joseph, Price, Utah: 3 plants from Utah (71817).

HOPPÉ, E. O., London, England: 8 photographs (71501).

HOSHINO, J., Wakayama-ken, Japan (through Dr. David Starr Jordan): 5 fresh-water crustaceans, representing a new species, collected by the donor near Tanabe, south of Wakayama-ken, Japan (70526).

HOUARD, Prof. C., Strassburg, Alsace, France: 113 specimens of galls of the family Cynipidae, representing 25 species from the Palearctic region (71532, exchange).

HOUGH, A. F., Las Cruces, N. Mex.: Archeological material from New Mexico, and a smoothing stone or muller and a stone pestle collected in New Mexico (70562, 71729).

HOUGH, Dr. Walter, U. S. National Museum: Pot torch from British Columbia (71927).

HOUSE, Dr. Homer D. (See under New York State Museum.)

HOUSHOLDER, V. H., Phoenix, Ariz.: Plant (70256).

HOWARD, Dr. L. O. (See under E. O. Essig.)

HOWES, S. WYLDE, Montserrat, British West Indies: Collection of animal remains (mammals, birds, reptiles, crabs, and shells), from Carib kitchenmiddens in Montserrat (71658).

HRDLIČKA, Dr. A., U. S. National Museum: Skin and skull of a mole (70717); 3 lower jaws of ancient man, 2 lower jaws of ancient man from Ehringsdorf and the Sipka, jaw of ancient man from Moravia (71020); collection of prehistoric antiquities from France, Belgium, and Germany, comprising 162 stone implements and 22 casts of bone tools and animal bones (71514).

HUCKEL, EARLE W., Germantown, Philadelphia, Pa.: 77 specimens of engravings, photogravures, lithographs, etc. (70479); 7 halftones, 1 photogravure, 9 lithographs, 3 collotypes, 3 line cuts, and 4 French medals (70514).

HUCKEL, Mrs. EARLE W., Germantown, Philadelphia, Pa.: 10 bookbinding tools, said to be of the 18th century or earlier (70700).

HUDDLESTON, Hon. GEORGE, Washington, D. C.: A "chunky stone" found about 7 miles southwest of Columbus, Ga. (70790).

HUNGARIAN NATIONAL MUSEUM, botanical section, Budapest, Hungary: 500 plants from Hungary (Flora Hungarica Exsiccata, centuries 2–6) (71917, exchange).

HUNGERFORD, Prof. H. B., Lawrence, Kans.: 12 bugs of the family Nepidae, representing 5 species, 3 of which are paratypes (71399).

HUNT, FOREST J., Ketchikan, Alaska: Fossil tooth of a horse from Duke Island, Alaska (71190).

HUNTER, Prof. JOHN I. (See under Sydney, University of.)

HUNTSMAN, Prof. R. G. (See under Canadian Government, Biological Board of Canada.)

HYDE, FREDERIC BULKELEY, Miami, Fla.: Spider (70980).

HYLAND, JACK, Pazna, Bolivia: 12 lots of minerals from Bolivia (70328, 70778, 71353).

IDAHO, UNIVERSITY OF, Moscow, Idaho (through Claude Wakefield): 7 specimens of Lepidoptera (70827).

ILLINOIS, UNIVERSITY OF, Urbana, Ill. (through Prof. F. L. Stevens): 32 plants from Panama and Costa Rica (70681); 99 plants (70735).

INSTITUTO DE LA SALLE, Bogota, Colombia (through Brother Niceforo Maria): 56 mammal skins, 4 turtle shells, and 4 bird skins from Colombia (71447); skin, 2 skulls and scalp of deer (71555, 71798); skins and skulls of 10 mammals (71903). Exchange.

INSTITUTO DE LA SALLE, Santiago, Chile (through Brother Claude Joseph): Collection of miscellaneous insects (70664); insects, including 24 spiders, 10 neuropteroids, and 11 Orthoptera (71238).

INTERIOR, DEPARTMENT OF:

Bureau of Mines: Miscellaneous minerals and ores from various localities (71183); 38 pamphlets and 1 set of Reports of Investigations of the Bureau of Mines, relating to sanitation and safety in the mineral industries (71583); (through Rare Precious Metals Experiment Station, Reno, Nev.): 8 specimens of chemicals (71688).

Geological Survey: The petrographic reference collection of the Survey consisting of approximately 2,000 specimens, with thin sections, and 3 trays of miscellaneous rock and mineral specimens (70441); collection of serendivite and miscellaneous specimens from New York collected by E. S. Larsen (70540); rock specimens, fossils, and rock sections, from various localities (70587); samples of drill cuttings from

INTERIOR, DEPARTMENT OF—Con.
Geological Survey—Continued.
various oil wells in Texas (70634); 24 specimens of silver ores from the vicinity of Chloride and Kingman, Ariz., collected and described by Prof. E. S. Bastin (70638); 2 boxes of Ducktown Special, Tenn., material collected by F. B. Laney and others (70644); small collection of Champsosaurus bones collected by A. E. Perry in the Fort Union formation near Melstone, Mont. (70839); collection of rock specimens from the Riddle quadrangle, Oreg., used by J. S. Diller in preparation of the Riddle folio (71033); 22 specimens of silver ores from the Aspen district, Colo., collected and described by E. S. Bastin (71069); manganese ores and minerals from Virginia, Georgia, and Alabama (71099); a large specimen of rhodochrosite from Butte, Mont., and 1 of manganese oxide from Philipsburg, Mont. (71184); a fossil turtle from the Wasatch Plateau, Utah (71247); collections of Tertiary and Quaternary invertebrates chiefly from the Gulf Coastal Plain and the West Indies (71292); 10 typical ore and rock specimens used in the preparation of Bulletin 741, U. S. Geological Survey (71492); rowboat used by the Grand Canyon Expedition of the U. S. Geological Survey during the trip of that expedition through the Grand Canyon of the Colorado, August 1 to October 15, 1923 (71541); samples of ore said to represent the regular grade of ore from a mine located in the valley of the Jaina River, near Santo Domingo, Dominican Republic (71673); lithologic specimens collected by D. F. Hewett during progress of work in various quadrangles in the West (71674); collection of rocks and minerals illustrating Bulletin 384 of the U. S. Geological Survey by F. C. Calkins (71813); the skeleton of a fossil elephant, lacking the skull, collected by Mr. Kirk Bryan in Franklin County, Wash. (71928); a small collection of Eocene mammal teeth, fish scales, and fragmentary reptilian remains collected by J. B. Reeside, jr., northwest of Baggs, Wyo. (71946).

(See also under John J. Finn.)

INTERNATIONAL AGRICULTURAL CORPORATION, phosphate rock department, New York City: Portion of the skull of a fossil porpoise, from phosphate pit in Florida (71301).

INTERNATIONAL HEALTH BOARD New York City (through Dr. Fred. F. Russell): 8 specimens of top minnows collected in Porto Rico (71364); 6 fishes collected by Dr. C. Hale, Bahai, Brazil (71930).

INTERNATIONAL NICKEL CO., THE, New York City (through Frank L. Hess): Nickel ore, slag, and matte (71274).

IOWA, STATE UNIVERSITY OF, Iowa City, Iowa (through Prof. C. C. Nutting): 5 sponges, 9 fragmentary alcyonarians, 1 anemone, 18 worms, 291 crustaceans, 103 mollusks, and 2 ascidians secured by the Barbados-Antigua Expedition of the University (71534).

ISELY, DWIGHT (See under Arkansas, University of.)

ISHIKAWA, Dr. C., Tokyo, Japan: Skeleton of a porpoise from the coast of Korea (71518).

JACOBI, Mrs. MARION A. T., New York City: 5 drawings in India ink and 1 pencil sketch by Col. Francis Titcomb, U. S. Army (71809).

JACOT, ARTHUR P., Tsinan, Shantung, China: Fern from China (71515).

(See also under Shantung Christian University.)

JAHN, Dr. ALFREDO, Caracas, Venezuela (through Dr. H. Pittier): 78 plants from Venezuela (70468).

JAHN, Prof. Dr. JAROSLAV J., Brno, Czechoslovakia: Examples of bauxite, alunite, and radioactive minerals from Czechoslovakia (71908, exchange).

JAHN & OLLIER ENGRAVING CO., Chicago, Ill.: 4 "Linen Screen" finish half tones (2 prints each of 2 subjects) (70517).

JAMES, Mrs. JULIAN (through J. H. Carpenter, executor, Washington, D. C.): 2 oil paintings, music box and stand, Chinese carved ivory chess set and lacquer chessboard, 2 Chinese lacquer-work boxes, and an ivory checker game (78062, bequest).

JOHANNSEN, Prof. O. A., Ithaca, N. Y.: 2 flies representing 2 species, one a paratype (71261).

JOHANSEN, FRITS, Ottawa, Canada: Miscellaneous collection of freshwater plankton organisms from St. Johns and Ottawa, Canada, collected by the donor (70251); 9 specimens, 3 species, of amphipods collected by the donor on Anticosti Island (71591).

JOHANSEN, HOLGER, Balboa Heights, Canal Zone: 49 plants from Panama (70395, 70461); 26 plants (70727).

JOHNCK-BERAN & KIBBEE, San Francisco, Calif.: 4 specimens of letterpress printing (70557).

JOHNSON, BART, Comanche, Tex. (through Dr. G. R. Wieland): Section of a fossil cycad from near Comanche (70416).

JOHNSON, CHARLES, Key West, Fla.: 20 birds from Dry Tortugas, Fla. (70846).

JOHNSON, C. W., Boston, Mass.: Specimen of a fly from the Bahamas (71817).

JOHNSON, H. V., Washington, D. C.: 2 specimens of silicified wood from the Fossil Forest, Ariz. (71483); 2 wood engraved portraits by Timothy Cole (71628).

JOHNSON, J. C., Washington, D. C.: Fish from Rock Point, Md. (71589).

JOHNSON, WILLIAM, Washington, D. C.: 3 line cuts in colors (71208).

JOHNSTON, Miss FRANCES BENJAMIN, New York City: A complete set, volumes 1 to 50, of "Camera Work" (71762); 24 numbers, "Camera Notes," July, 1897, to December, 1903 (71804); 4 publications, namely, Kodak Portfolio, published in 1897, American Pictorial Photography, volumes 1 and 2, and A Visit to the Cabinet of the United States Mint at Philadelphia, Pa., in 1876 (71819). Loan.

JONES, CHARLES C., Washington, D. C.: Ambrotype and tintype, in cases (70361).

JONES, LELAND J. W., Bainbridge, N. Y.: 3 specimens, 2 species, of Neuroptera (70301).

JONES, MARCUS E., Salt Lake City, Utah: 3 plants (70491).

JORDAN, Dr. DAVID STARR, Stanford University, Calif.: Type specimen of a fossil sculpin from Nevada (71092).

(See also under J. Hoshino.)

JULIO, Brother, La Paz, Bolivia: 163 plants, a small collection of miscellaneous insects, 28 specimens, representing 7 species of invertebrate fossils, and 8 specimens, 5 species, of marine shells, all from Bolivia (71456).

KANSAS STATE AGRICULTURAL COLLEGE, Department of Entomology, Manhattan, Kans. (through Prof. Roger C. Smith): A fly (70456, exchange).

KARNOFSKY, Dr. HENRY E., Minneapolis, Minn.: Swiss watch movement (70324).

KEARNEY, T. H., Washington, D. C.: Plant from the District of Columbia (70639).

KEASBEY & MATTISON CO., Ambler, Pa.: 12 grades of asbestos fiber, produced by the Bell asbestos mines at Thetford, Province of Quebec, Canada (70656).

KEATON, BUSTER, Los Angeles, Calif.: Reproduction of the bicycle known as the "Hobby Horse" (71392).

KEBLER, Dr. LYMAN F., Washington, D. C.: Brockedon's specification for British patent No. 9977, A. D. 1843, on invention for dies and in shaping pills and lozenges; and 76 specifications covering United States patents for pill, tablet, capsule and lozenge machines, since 1874 (70460); 16 portfolios containing committee reports, circulars, and correspondence relating to the ninth revision of the U. S. Pharmacopœia (71632).

KEISSLER, Dr. KARL. (See under Naturhistorisches Museum.)

KELLERS, Lieut. H. C., U. S. Navy, New York City: 100 specimens of marine invertebrates, 5 lots of mollusks, 1 lot of fishes, 1 living tortoise, 2 lots of algae, collected by the donor at Constantinople, Turkey, Medway River and Cowes, Isle of Wight, England, during the months of September and October, 1923 (70891).

KELLOGG, Dr. C. R., Foochow, China: 110 crustaceans from China, collected by the donor (71850).

KEMP, Dr. STANLEY J., Calcutta, India: 69 specimens, 10 species, of crustaceans, all new to the Museum collections (71207, exchange).

KENTUCKY, UNIVERSITY OF, Lexington, Ky.: 8 plants (70438).

KERSHAW, JAMES. (See under F. S. Mann.)

KETCHEM, Hon. JOHN C. (See under Dr. F. G. Sheffield.)

KEYSER, E. W., Washington, D. C.: Ethnological specimens from the Eskimo (70915, exchange).

KIDWELL, GEO. P., Washington, D. C.: Wing and head of a hybrid duck, from the Potomac River (70257).

KILLOUGH, D. T. (See under Texas Agricultural Experiment Station.)

KILMER, Dr. T. W., New York City: 4 multiple gum prints (70724).

KING, Mrs. HORATIO, Washington, D. C.: Parian pitcher with cupids made by Copeland, probably about 1840 (71774).

(See also under Mrs. Laura Osborn Talbott.)

KINSEY, Dr. ALFRED C., Bloomington, Ind.: 126 adults and 72 galls of gall-flies including 32 species, 19 of which are represented by paratypes of adults (70912).

KIRCHEN, JOHN J. (See under White Caps Mining Co.)

KIRKWOOD, Prof. J. E. (See under Montana, University of.)

KITHIL, K. L. (See under A. H. Bunker.)

KITTREDGE, Miss E. M., Proctor, Vt.: Fern from Vermont (70906).

KLECKNER, MARTIN E., Tiffin, Ohio: Small collection of minerals, chiefly from the vicinity of Tiffin, Ohio (71807, exchange).

KNOWLTON, GEORGE F. (See under Utah Agricultural College.)

KOBER, Dr. GEORGE M., Washington, D. C.: 10 illustrations and 1 pamphlet concerning the history and development of the housing movement in Washington, D. C., also 5 pamphlets relating to hygiene and sanitation (71633).

KOCHIBE, Dr. T., Tokyo, Japan (through Department of State): Examples of the radioactive mineral puktolite (71091).

KOENIG, H. T., Denver, Colo. (through F. L. Hess): 5 specimens of radioactive minerals from Belgian Congo (70401).

KOGANEI, Dr. YOSHIKIYO. (See under Tokyo Imperial University.)

KOSLOWSKI, KARL, Detroit, Mich.: Postage stamps of Latvia, issued 1919–1921, and 3 specimens of unfinished paper currency with stamps printed on the back (76 specimens) (70531).

KUSCHEL, RICHARD, Chicago, Ill.: 5 specimens of cacti and 1 plant (70799, 70899).

LABORATOIRE DE ZOOLOGIE, FACULTE DES SCIENCES, Montpellier, Herault, France (through Prof. Pierre P. Grassé): 29 specimens of named Orthoptera (71841, exchange).

LABOR, DEPARTMENT OF:

Women's Bureau, Washington, D. C. (through National Committee on Exhibits Showing Advances in Sanitary Science): A model of a factory showing ideal conditions for women workers (71370).

LACROIX, Prof. A., Paris, France: 2 specimens of nepheline syenite containing villaumite and other minerals (71704, exchange).

LA FLESCHE, FRANCIS, Bureau of American Ethnology, Washington, D. C.: Cake of persimmon bread made by the Osage Indians, Okla. (70353); copy in catlinite of ceremonial pipe in form of a buffalo foot made by the Omaha Indians (70694); prepared root of the water chinquapin used as food by the Sioux Indians (70876).

LANGWORTHY, Dr. CHARLES F. (See under Mrs. Burton Thompson.)

LANKESTER, C. H., Cartago, Costa Rica: 179 plants (71563, 71756).

LARSELL Prof. OLAF, Portland, Oreg.: A series of tadpoles from Oregon (70730).

LASSIMONNE, S. E., Moulins, Allier, France: Plant from France (71293).

LATIMER, H. A., Boston, Mass.: 6 multiple gum prints (71138).

LAWTON, MANLEY, Washington, D. C.: Silver watch owned by Maj. Gen. Henry W. Lawton, U. S. Volunteers, during the Spanish American War and the Philippine Insurrection, 1898–1899 (70941, exchange).

LEE, DANA, Washington, D. C.: Plant (70406).

LEE, HENRY E., Rapid City, S. Dak.: 10 fossil plants from South Dakota (71232).

LEE, W. T., Washington, D. C.: 20 plants (70636, 70753).

LEFEVRE, H. F., Westfield, Mass.: Fern from Panama (70612).

LENHER, Prof. VICTOR, Madison, Wis.: Specimen of selenium oxychloride (71943).

LEVISON, CHANCELLOR GOOLD. (See under Mrs. J. L. Grimwood.)

LEVY, Miss BEATRICE S., Chicago, Ill.: Exhibit illustrating the aquatint three-color process, consisting of 3 plates, one for yellow, one for red, and one for blue, a print from each in its respective color, and one completed print, entitled "White House by the Sea" by the donor (71595).

LEWTON, F. L., U. S. National Museum: Wood specimens of the goat willow (70979).

LIEBER, Mrs. G. NORMAN (through Mrs. Charles F. Stearns, Providence, R. I.): Collection of ethnological specimens from the Indians of the western United States (70893).

LIGHT, Prof. S. F., Amoy, China: Fishes and marine invertebrates (71777).

(See also under Amoy, University of.)

LILLY & CO., Indianapolis, Ind.: A series of specimens and illustrations showing the progressive steps in the manufacture of insulin (71542).

LIST, MAX, U. S. Soldiers' Home, Washington, D. C.; Moro kris with scabbard from Mindanao, P. I. (71624).

LITTLETON, F. C., Aldie, Va.: Slab and several isolated pieces containing fossil footprints, from near Aldie, Loudoun County, Va. (71211).

LIVERPOOL SCHOOL OF TROPICAL MEDICINE, University of Liverpool, Liverpool, England (through Prof. B. Blacklock): 5 vials of immature stages and 2 adults of the Tumbu fly (70976, exchange).

LLOYD BROS., Cincinnati, Ohio: 179 specimens of materia medica selected by Dr. John Uri Lloyd, and representing plants introduced and employed in the practice of physicians of the eclectic section of American practitioners (71753).

LLOYD, Prof. FRANCIS E., Montreal, Canada: 2 photographs of plants (71698).

LLOYD, Dr. JOHN URI, Cincinnati, Ohio: 2 plants (71690, 71779); photograph of a plant (71820).

LONG, Miss EMMA M., Athens, Ga.: Cup and saucer and a cut-glass goblet used by Dr. Crawford W. Long during the middle of the nineteenth century (70968).

LOOKOUT, FRED, Osage Reservation, Okla.: Skin of a mole from Oklahoma (70435).

LOWRY, Dr. J. S., Smyrna, Tenn.: Tooth of a mastodon (71009, loan).

LUDLOW, Dr. CLARA S. (See under War Department, Army Medical Museum.)

LUEDERWALDT, Dr. H., Sao Paulo, Brazil: Wasp (71678).

LUMMIS, STANDLEY B., Fort Myers, Fla.: 2 orchids from Florida (71934).

LUNDBECK, Dr. WILLIAM. (See under Universitetets Zoologiske Museum).

LUSTRON COMPANY, THE, South Boston, Mass.: 2 samples of cellulose acetate, and 6 specimens of "Lustron," a silk substitute made therefrom (71114).

LYON, Dr. M. W., Jr., South Bend, Ind.: 45 small mammals and 2 birds from Porter County, Ind. (70924). (See also under Dr. M. S. Denaut.)

MACCALLUM, Dr. G. A., Baltimore, Md.: 420 specimens of helminths representing 65 species, including 7 types, some cotypes and many species new to the Museum collections; 65 specimens, 18 species of copepods, and 1 barnacle, principally from Woods Hole, Mass., and the New York Zoological Park (71047).

MACDOUGAL, Dr. D. T. (See under Carnegie Institution of Washington.)

MACMILLAN, J. B., Monterey, Mexico (through A. S. Stalmach, Laredo, Tex.): 2 plants from Mexico (71710).

MAGILL, F. B., Gaylord, Mich.: 11 skins and skulls of rodents (71890).

MAHONEY, J., Mullan, Idaho: Skink from the western United States (70452).

MALLY, FRED W., Laredo, Tex.: Horsehair worm (70359).

MALONE, J. G., Portland, Oreg.: 12 crustaceans and a sea urchin collected by the donor along the coasts of Washington and Oregon (70706).

MANN, F. S., Karamut, Victoria, Australia (through James Kershaw and Dr. T. Wayland Vaughan): Collection of fossils mainly from the Grange Burn, Hamilton, Victoria, Australia (70973).

MANN, Mrs. JAMES R., Washington, D. C.: Silver tureen and platter presented to Hon. James R. Mann, Republican leader, by members of the U. S. House of Representatives, Sixty-fifth Congress, March 3, 1919 (70676).

MANN, Dr. WILLIAM M., U. S. National Museum: Turtle from British Honduras (71537); 8 bird skins from Costa Rica, including a scarce paroquet (71918).

MARSHALL, BYRON C., Imboden, Ark.: 3 specimens of "carpenter" ants (70335); 2 specimens, male and female, of a chalcid fly and 22 spiders (70863); caddis fly (70981); 6 grasshoppers, 1 specimen of Orthoptera, and 6 crickets (71010, 71109, 71300); 2 specimens of Lepidoptera (71438); 16 flies and a dragonfly (70470, 71574).

MARSHALL, ERNEST B., Laurel, Md.: Mourning dove from Maryland (71090); mole and 2 pine mice (71156, 71616); 5 crows from Maryland (71397, 71623); 5 birds from Maryland (71560, 71586).

MARSHALL, GEORGE, U. S. National Museum: 9 birds from Laurel (71083, 71096); meadow jumping mouse from Laurel (71852); skeleton of a tree sparrow from Maryland (71094); eyes of a red fox and skeleton of an opossum (71270); 23 birds from Wilson, N. C. (71084).

MARTIN, GEORGE C., San Antonio, Tex.: Stone implements found in the vicinity of Asbury Park, N. J. (71711).

MARTIN, G. HAMILTON, Jr. (See under Agriculture, Department of, Bureau of Plant Industry.)

MARTIN, Dr. HENRI, Paris, France: 5 Mousterian flint scrapers; 2 phalanges of horse, used by man, and 1 astragal of a deer, all from La Quina, France (71635, exchange).

MASARYK ACADEMY OF LABOR, Prague, Czechoslovakia: Collection of minerals and ores from Czechoslovakia (71188).

MASON, FRANK R., Philadelphia, Pa.: 122 specimens of Congo Coleoptera, including 4 species (70283); 13 beetles from Argentina (70806). Exchange.

MATHENY, C. M. (See under Agriculture, Department of, Bureau of Plant Industry.)

MATLEY, Dr. C. A., Kingston, Jamaica (through Henry Holgate, Montreal, Canada): 13 samples of marble from Jamaica (70554).

MATTHEWS, RANSOM, Selma, Calif.: Universal sun dial "Sun Watch" and 25 spark plugs (71357, loan).

MAUGHAN, WALTER. (See under Canadian Pacific Railway Co.)

MAY, D. W., Mayaguez, Porto Rico: Human skeleton from Porto Rico (71074).

MAZE, Mrs. CATHERINE R., Chicago, Ill.: 2 silk dresses and a pair of slippers of the early part of the nineteenth century (70823).

McATEE, W. L., Washington, D. C.: 16 plants from the District of Columbia and vicinity (70383).

McDONALD, R. E. (See under Texas, Department of Agriculture.)

McDUNNOUGH, Dr. J. (See under Canadian Government, Department of Agriculture, Entomological Branch.)

McEVOY, C. H., Lyme, N. H.: Skin and skull of a black rat (70921).

McFARLAND, Prof. FRANK T., Lexington, Ky.: 370 plants from Kentucky (71299, 71479, 71820).

McGEE, Dr. ANITA H., Woods Hole, Mass.: Portrait of Simon Newcomb made by C. H. L. MacDonald (70284, loan).

McGREGOR, R. C. (See under Philippine Islands, Government of, Bureau of Science.)

McKEE, Mrs. JAMES ROBERT, New York City: Gray silk dress worn by Mrs. Benjamin Harrison at the inaugural ball in 1889, on the occasion of the inauguration of President Benjamin Harrison (71685, loan).

McKINNEY, J. R., Nacogdoches, Tex.: Pupa of a moth (70332).

McLAURIN-JONES CO., Brookfield, Mass.: 4 rotogravures on gold paper entitled "The Heart of the Nation" (70674).

McMILLAN, ROBERT F., Washington, D. C.: The shell of a young box turtle (71410).

McPHEETER, CLARENCE, Melba, Idaho: Left pharyngeal, with teeth, of a fossil fish (71533).

MEARNS, ESTATE OF COL. EDGAR A. (through Dr. C. W. Richmond): About 350 specimens of land and fresh-water shells, mostly from Fort Snelling, Minn. (71805).

MELANDER, Prof. A. L., Pullman, Wash.: 28 specimens of flies, including 10 species, 2 types representing 1 species, and 14 paratypes of 5 species (70723); 10 specimens of two-winged flies (paratypes of 3 species, type of 1) (71109). Exchange.

MENOZZI, CARLO, Modena, Italy: 30 ants from Italy (70289, exchange).

MERGENTHALER LINOTYPE CO., New York City: 4 photographs of linotype machines (71482).

MERRIAM, Dr. J. C. (See under Carnegie Institution of Washington.)

MERRIAM, Prof. P. R. (See under Richmond, University of.)

MERRILL, Dr. ELMER D. (See under Philippine Islands, Government of, Bureau of Science.)

MERRILL, Dr. GEORGE P., U. S. National Museum: Photograph of a portrait of George F. Becker (71848).

MESSINGER, ROBERT G., Tatamy, Pa. (through John L. Baer, U. S. National Museum): 32 stone implements found at Tatamy, Pa. (70782).

METCALF, Dr. MAYNARD, Oberlin, Ohio: 23 frogs, mostly from India (71608).

MEXICO, GOVERNMENT OF: DIRECCION DE ESTUDIOS BIOLOGICOS (through Dr. A. L. Herrera, director): A small collection of miscellaneous insects (70454); photograph of a glass model of a protozoan (70550); plant (70737, exchange); over 15 leeches (71187); package of seed pods of a plant from Mexico (71493, exchange).

MEYER, Dr. W. E., Beni, Bolivia, via Para, Brazil: 11 plants (70259, 71860).

MEYEROWITZ, WILLIAM, New York City: 73 etchings, black and white and in color, for special exhibition (70940, loan).

MICKEL, C. E., St. Paul, Minn.: 4 velvet ants of the family Mutillidae, being paratypes of 3 species (70412).

MILLER, Mrs. FLORENCE G., Washington, D. C.: Ethnological materal collected by her husband, Capt. E. Y. Miller, in Borneo, Java, and the Philippine Islands (70890).

MILLER, Prof. J. H. (See under Georgia, University of.)

MILLIGAN, BENNERS, Washington, D. C.; A small collection of copepods, 5 amphipods, and a shrimp from Nova Scotia (71244).

MIRGUET, C. E., U. S. National Museum: Rattlesnake oil (70482).

MISER, H. D., Washington, D. C.: Examples of the diamond-bearing rocks from Arkansas diamond mines (70809).

MISSOURI BOTANICAL GARDEN, St. Louis, Mo.: 113 specimens, chiefly grasses (70840); 146 plants (70983). Exchange.

MISSOURI GEOLOGICAL SURVEY, Rolla, Mo. (through Dr. E. O. Ulrich): Specimen of Lower Ozarkian calcareous alga (Cryptozoon) (70504).

MITCHELL, Mrs. GEORGE F., Washington, D. C.: Shoe buckle owned by James Madison, a slipper owned by Mrs. Madison, and a silk basque owned by Frances Madison (71388, loan).

MITCHELL, HOWARD D., Quincy, Mass.: 2 ear bones of a whale (71380).

MOELLER, A. F., San Pedro, Coahuila, Mexico: 28 plants (70695, 71455, 71748); 17 specimens of cacti (71548, 71822); 14 plants from Mexico (71827).

MOIR, J. REID, Ipswich, England: 30 supposed eoliths from the environment of Ipswich (71310, exchange).

MOLTRECHT, Dr. ARNOLD, Vladivostok, Siberia, Russia (through Prof. T. D. A. Cockerell): 75 specimens, representing 50 species, of named Siberian Lepidoptera (70934).

MONTANA, UNIVERSITY OF, Missoula, Mont.: (Through Prof. J. E. Kirkwood) 18 specimens of ferns from Montana (71040); (through E. J. Bell, jr., Agricultural Experiment Station, Bozeman) 4 plants from Montana (71131).

MOORE, D. MCFARLAN, Harrison, N. J.: Vacuum rotator, developed in 1897–98 by the donor and used in conjunction with the Moore vacuum tube electric light of that date, and also at the same time for producing radio emanations (71891).

MOOREHEAD, WARREN K. (See under Phillips Academy.)

MOREIRA, Prof. CARLOS, Rio de Janeiro, Brazil: 2 flies (70583).

MORGAN, BRENT M., Washington, D. C.: American golden-eye duck (71080); 2 ducks (71222); 13 birds from Virginia (71361, 71386, 71648); 2 song sparrows, a Mallard duck, and a rusty blackbird, all from Virginia (71426, 71505, 71529); watersnake from the vicinity of Washington, D. C. (71604).

MORRILL, Dr. A. W., Los Angeles, Calif.: Small collection of miscellaneous insects (71283).

MORRIS FERTILIZER CO., Atlanta, Ga.: 10 samples of land pebble phosphate rock showing characteristics of rock in place, washed rock of several grades and the several varieties of finished marketed grades, all from the company's property and plant at Bartow, Fla. (70377). (See also under Smithsonian Institution, National Museum, made in the Museum laboratories.)

MORRIS, VICTOR, Milwaukee, Wis. (through Wisconsin Society of the Colonial Dames of America, Mrs. Charles M. Morris, president): Pair of pistols and a holster owned by Maj. Gen. Charles Lee, Continental Army; pair of pistols, 3 epaulettes, and a sword owned by Maj. Jacob Morris, Continental Army; broken saber, aiguillette, revolver, bullet mold, machete, and ivory cane of the nineteenth century (71476).

MORRISON, Dr. D. M., Duluth, Minn.: 2 photographs of a whale's jaw (70286).

MORSE, EDWARD LIND (through Mrs. Edward Lind Morse, Pittsfield, Mass.): Water-color drawing made by S. F. B. Morse in 1810, showing the Morse family grouped about a table (70832, bequest).

MOXLEY, GEORGE L., Los Angeles, Calif.: 7 plants (70253).

MUIR, FREDERICK. (See under Hawaiian Sugar Planters' Association Experiment Station.)

MUIRHEAD, A. B., Washington, D. C.: Caterpillar (70616).

MULFORD BIOLOGICAL EXPLORATION OF THE AMAZON BASIN, Care H. K. Mulford Co., Philadelphia, Pa. (through Dr. H. H. Rusby, New York City): 235 plants from South America (70490).

MULFORD CO., H. K., Philadelphia, Pa.: 5 charts mounted with specimens showing the preparation of bacterins and serobacterins (71857).

MUNDER & CO., NORMAN T. A., Baltimore, Md.: Book entitled "Compensation," by Ralph Waldo Emerson (70658).

MUNZ, Dr. PHILIP A. (See under Pomona College.)

MURPHY, WILLIAM, jr., Bolivar Heights, W. Va. (through M. K. Brady): Lizard from the cliffs near Harpers Ferry, W. Va. (71431).

MURRAY, W. A., East Falls Church, Va.: Young mourning dove from Virginia (70844).

MUSEO NACIONAL, San Jose, Costa Rica: 222 mosquitoes (70520); (through Dr. H. G. Dyar) 10 flies (70534).

MUSEO NACIONAL DE CIENCIAS NATURALES, Madrid, Spain (through Prof. Lucas F. Navarro): A cast of the complete individual and a fragment weighing 1,185 grams of the Molina meteorite (71460, exchange).

MUSEUM OF THE AMERICAN INDIAN, HEYE FOUNDATION, New York City (through F. W. Hodge): 3 human skeletons from Hawikuh, N. Mex. (71050).

MYER, W. E., Washington, D. C.: An adult human skeleton (70467).

NANKING, UNIVERSITY OF, College of Agriculture and Forestry, Nanking, China (through Prof. Albert N. Steward): 29 specimens of Chinese ferns (70972, exchange).

NASH, JOHN HENRY, San Francisco, Calif.: 18 specimens of printing, broadsides, folders, title pages, etc., and a separate halftone (71477).

NATIONAL BOOT & SHOE MANUFACTURERS' ASSOCIATION OF THE UNITED STATES (INC.), New York City (through United Shoe Machinery Corporation, Boston, Mass.): 119 specimens and cut-out figures illustrating the mnaufacture of a woman's shoe (71969).

NATIONAL COMMITTEE ON EXHIBITS SHOWING ADVANCES IN SANITARY SCIENCE, Washington, D. C.: 2 exhibits of the American Child-Health Association, New York City, entitled "Your Baby is about to start on a long trip" and "A museum within a museum" (71333); 3 Life Extension Institute models, charts, and pamphlets, emphasizing the necessity of periodic physical examination (71369); 6 American Red Cross miniature theaters; 6 first-aid packages, and 8 Upjohn child-welfare posters (71381); model of 1 sanitary and 1 insanitary outhouse furnished by R. A. Deal, Emporia, Va., for rural sanitation exhibit (71665); a series of 6 small models illustrating the work of a public-health nurse, prepared by the National Organization for Public Health Nursing, New York City (71845); a series of 5 models furnished by the National Tuberculosis Association, New York City (71846). Deposit.

(See also under Labor, Department of, Women's Bureau.)

NATIONAL GEOGRAPHIC SOCIETY, Washington, D. C.: Anthropological specimens collected by the San Juan (Utah) Expedition of the Society, Neil M. Judd, leader (71178); (through F. L. Fisher) photograph of a plant (71745); a large collection of zoological specimens collected by the society's central China expedition under F. R. Wulsin (71893).

NATIONAL RESEARCH COUNCIL, Washington, D. C. (through Dr. Wm. F. Clapp): 17 specimens, 15 lots, of shipworms from the West Indies, Bermuda, Florida, Panama, Hawaiian Islands, and Philippine Islands (70848); shipworm from St. Thomas, Virgin Islands of the United States (70996).

NATIONAL SOUTHEASTERN UNIVERSITY, Nanking, China (through Dr. C. Ping): 4 lots of marine invertebrates, 36 mollusks, and 4 echinoderms collected by Prof. Ping from various Chinese localities (70268); 20 specimens, 20 species, of fresh-water and marine mollusks, and a collection of crustaceans; also 5 insects, 3 echinoderms and a worm from China (71323, 71366). Exchange.

NATIONAL WOOD CHEMICAL ASSOCIATION, Bradford, Pa.: 43 photographs and 9 blue prints descriptive of the hardwood distillation industry (71055).

(See also under Penn Formaldehyde Manufacturing Co.)

NATURHISTORISCHES MUSEUM, Vienna, Austria: 3 specimens of ferns from Europe (70935); (through Dr. Karl Keissler) 100 plants (century 27, Kryptogamae Exsiccatae) (70962); 224 specimens of adults, representing 79 species, and 115 specimens of galls, representing 83 species, all belonging to the gall-making family Cynipidae (71468); (through Dr. H. Zerny) 5 specimens of Diptera from South America, representing 4 species, types of 3 (71854). Exchange.

NAVARRO, Prof. Lucas F. (See under Museo Nacional de Ciencias Naturales.)

NAVY DEPARTMENT: (Through Theodore Roosevelt, Assistant Secretary) autographed photograph of President Theodore Roosevelt presented by him to the chief petty officers' mess of the U. S. S. *Louisiana* in 1906 (71823).

Bureau of Aeronautics: 28 aircraft photographs (71360).

Bureau of Yards and Docks (through R. F. Bessey): 18 annelids from Parris Island, S. C. (71888).

NEBRASKA, UNIVERSITY OF, Lincoln, Nebr. (through Prof. Erwin H. Barbour): 7 mollusks from Russell County, Kans. (70407).

NEERGAARD, Miss ELNA M. DE, New York City: 3 looms for handweaving (71968).

NEILSON, N. V., Rupert, Idaho: Fossil fish remains belonging to an extinct species of the Cyprinidae (70775).

NELSON, C. Z., Galesburg, Ill.: 2 plants (70595, exchange); 2 plants (70812).

NELSON, ELIAS, Yakima, Wash.: 37 plants (70994).

NELSON, Prof. J. C., Salem, Oreg.: Plant from Oregon (71582).

NESSEL, HERMAN. (See under Pflanzenphysiologisches Institut der Universitat Berlin.)

NEWCOMBE, C. F., Vancouver, British Columbia: 4 plants (70476, 70578).

NEW JERSEY ZINC CO., Franklin, N. J.: A series of concentrates illustrating the company's mill products (70845).

NEWPORT CHEMICAL WORKS (INC.), Passaic, N. J.: 202 specimens of dyestuffs (71966).

NEW YORK BOTANICAL GARDEN, Bronx Park, New York City: 25 plants (70245, 70290, 70686, 70892, 70936, 71240, 71747); 5 plants from Florida (70260, 70489); 35 plants from Cuba (70387, 71030, 71243, 71878); 2 plants from Panama (70446); plant from Haiti (71408); 78 West Indian mosses (through Dr. S. F. Blake); 5 plants from the West Indies; 2 fragments of type specimens of plants from the West Indies (70571, 71070, 71411); 42 plants from the Galapagos Islands (70539, 70745, 71068); moss (70603); 157 ferns from Porto Rico (70646, 70795, 71617, 71652); 5 plants from Porto Rico and St. Thomas (71576); 6 South American plants (70702); 165 plants chiefly from St. Croix (71229, 71737). Exchange.

NEW YORK CAMERA CLUB, New York City (through Floyd Vail, chairman print exhibition): 70 pictorial photographs for exhibition from October 13 to December 1, 1923 (70734, loan).

NEW YORK CITY BOARD OF WATER SUPPLY, Grand Gorge, N. Y. (through Engineering Bureau): Fossil tree stump of the Devonian period, from the Galboa Dam, Schoharie County, N. Y. (70478).

NEW YORK STATE MUSEUM, Albany, N. Y. (through Dr. Homer D. House): Fern from New York State (70610, exchange).

NEW YORK ZOOLOGICAL SOCIETY, THE, New York City (through Dr. William Beebe): 122 specimens, 31 species, of crustaceans from the Atlantic Ocean and the Galapagos Islands (70957).

NICEFORO MARIA, Brother, Bogota, Colombia: Turtle from Villavicencio (71759).

(See also under Instituto de la Salle, Bogota.)

NICOLAY, ALAN S., Upper Montclair, N. J.: Beetle, paratype (70986).

NIESS-WANER, E. G., Everglade, Fla.: 3 pottery fragments from a shell mound near Naples, Lee County, Fla. (70766).

NININGER, Prof. H. H., McPherson, Kans.: One-fourth of an oxidized meteorite from Comanche County, Kans. (71242).

NOAH, H. E., Conception Junction, Mo.: 2 amphipods taken from a 50-foot well (70854).

NORTH CAROLINA DEPARTMENT OF AGRICULTURE, Raleigh, N. C. (through C. S. Brimley): 11 flies (71599).

NORTH CAROLINA, UNIVERSITY OF, Chapel Hill, N. C. (through Prof. R. E. Coker): Beetle and larva (70897).

NORTH DAKOTA, UNIVERSITY OF, University Station, N. Dak. (through Dr. R. T. Young): 40 specimens of water mites (71185).

NORTON, Arthur H., Portland, Me.: Plant from Maine (70605).

NORTON, Miss Elizabeth, Palo Alto, Calif.: 18 wood block prints (71449).

NOTMAN, Howard, Brooklyn, N. Y.: 3 insects from Michigan and 1 from New York (71876).

NOVOGRABLENOF, P. T., Petropavlovsk, Kamchatka, via Vladivostok, Siberia: 25 specimens of plants from Kamchatka (70808).

NUTTING, Prof. C. C. (See under Iowa, State University of.)

OLDROYD, Mrs. Ida S., Stanford University, Calif.: Marine mollusk from the Red Sea (71218); 11 specimens, 4 species of fresh-water and marine mollusks from various localities (71253, exchange); 31 specimens, chiefly fresh-water shells from South America, including the types of 4 new species (71294).

OLMSTED, A. J., U. S. National Museum: Camera shutter (old style flop) (70584); line cut after drawing by C. D. Gibson (71205).

OLSSON, Dr. R. A., Gloversville, N. Y.: About 20 species of marine shells partly subfossil, from Peru and the Santa Elena peninsula of Ecuador (71186)); 14 species of mollusks from Santa Elena Bay, Ecuador, containing 14 types (71195).

ORCUTT, C. R., La Jolla, Calif.: 44 specimens, 5 species, of land and fresh-water mollusks from Mexico (71257); 23 specimens, 6 species, of land shells from California and 3 lots of scale insects (71313); 2 specimens of mollusks from Punta Banda, Lower California (71422); plant from Arizona (71587); 9 living cacti and 12 herbarium specimens of plants from Arizona and New Mexico (71736); 9 plants from Texas (71743, 71769); carboniferous fossils from the Franklin Mountains, Tex. (71638).

ORCUTT, Theo. Tecnor, Calif.: 2 large specimens of obsidian from California (71511).

ORTEGA, Jesus G., Mazatlan, Mexico: 97 plants (70445, 71567); 38 specimens, 15 species, of marine mollusks; 62 specimens, 34 species, of land and marine mollusks and 1 lot of barnacles; shrimp and 1 lot of oysters collected by the donor, all from Mazatlan (70572, 71260, 71667); (through W. E. Chapman, American Consul) over 75 specimens of shrimps collected by the donor from Sabalo estuary in the municipality of Mazatlan, and the Caimanero estuary in the municipality of Rosario, Sinoloa (71266); 8 specimens of shrimps collected by the donor from the west coast of Mexico (71929).

OSHIMA, Dr. M., Taihoku, Formosa: 100 specimens, 35 species, of crabs, and a collection of shrimps and hermit crabs from Formosa, China, and Japan (70926); 9 bats (71843).

OSTERHOUT, George E., Windsor, Colo.: 4 plants (70699, exchange).

OVER, Prof. W. H. (See under South Dakota, University of.)

OVINGTON, Earle, Santa Barbara, Calif. (through Howard E. Coffin, Detroit, Mich.): A full size Hendee airplane engine (71200).

OWEN, Prof. E. T., Madison, Wis.: 248 moths from Madagascar, mostly new to the Museum collections (71148); 97 specimens of Lepidoptera, many new to the Museum collections (71712).

OWEN, George H., Washington, D. C.: 2 postage stamp envelopes of the period of the Civil War (71564).

PADILLA, Señor Dr. Sisto Alberto, Ahuachapan, El Salvador: 485 plants (70315, 70757, 71806).

PAINE LUMBER CO. (LTD.), Oshkosh, Wis.: 2 veneered doors (71945).

PAINTER, Reginald H., Austin, Tex.: 5 bird parasites, and 100 plants from Texas (70322, 71707).

PALACHE, Prof. Charles. (See under Harvard University, Geological Museum.)

PALEONTOLOGISK MUSEUM, Christiania, Norway: 31 specimens, representing 11 species, of trilobites from the Christiania territory (70703, exchange).

PALMER, Ernest J., Jamaica Plain, Mass.: Fern (71126); fern from Arkansas (71201).

PARDOE, Dr. J. B., Bound Brook, N. J. (through Floyd Vail): A bromide print, "In the Doorway" (71049).

PARKER, Dr. A. C., Altmar, N. Y.: Beetle (70389).

PARMELEE, J. H., East Falls Church, Va.: Barred owl from Virginia (71495).

PARSONS, Dr. C. L. (See under A. H. Bunker).

PARSONS, Donald S., Washington, D. C.: 4 watch movements (71173, loan).

PARSONS, H. de B., Livingston PARSONS, and Miss Katharine de B. PARSONS, New York City: Gold locket containing a lock of the hair of Napoleon I (71682).

PARSONS, T. W. (See under Charlotte Harbor & Northern Railway Co.)

PATTISON, Mrs. S. L., El Paso, Tex.: 5 plants (70255, 71767); plant from New Mexico (71297, exchange).

PAUL, Mrs, D. L., Baltimore, Md.: White cockatoo (70801).

PAYNE, Hon. John Barton. (See under American Red Cross, The.)

PAYNE, Thomas W., St. George, Grenada, British West Indies: Lizard and 2 insects from Grenada (71875).

PAYSON, Prof. Edwin B. (See under Wyoming, University of.)

PECKHAM, Charles W., Washington, D. C.: Very fine specimen of a moth (70299).

PELLOUX, Prof. A., Genoa, Italy: 21 specimens of minerals from Italy (71176, 71481); specimen of the mineral speziaite from Piedmont, Italy (71796). Exchange.

PENN FORMALDEHYDE MANUFACTURING CO., East Smethport, Pa. (through the National Wood Chemical Association, Bradford, Pa.): 56 products of the hardwood distillation industry (71054).

PENNSYLVANIA DEPARTMENT OF AGRICULTURE, Bureau of Plant Industry, Harrisburg, Pa.: 126 specimens of insects, representing 57 species, of which 14 are holotypes, 35 paratypes and 6 cotypes (70793); 14 muscoid flies (71684); 2 beetles (71814).

PETERSEN, H. P., Washington, D. C.: A string of coral (70853).

PETROCELLI, Joseph, Brooklyn, N. Y. (through Floyd Vail): 3 resinopigmentipia prints entitled, respectively, "Faith," "A Bit of Venice," and "Nocturno" (71122).

PETTIGREW, R. F., Sioux Falls, S. Dak.: 2 fossil logs from the Fossil Forest of Arizona (70598, exchange).

PFLANZENPHYSIOLOGISCHES INSTITUT DER UNIVERSITAT BERLIN, Berlin-Dahlem, Germany (through Herman Nessel): 11 fragmentary specimens of plants from tropical America (70875); 2 plants (71022); plant from Ecuador (71328). Exchange.

PHILIP, Hon. Hoffman, Washington, D. C.: 2 rhinoceros horn cups, royal gifts of the Emperor of Abyssinia (71794, loan); 2 ear plugs mounted in silver, worn by unmarried men of the Choco Indians, Colombia (71902).

PHILIPPINE ISLANDS, GOVERNMENT OF:

Bureau of Science, Manila, P. I.: (through Dr. Elmer D. Merrill, director) 1,364 plants (70347 and 70978, exchange); (through R. C. McGregor) collection of insects; about 50 specimens, 3 species, of mollusks, 7 marine invertebrates, 3 lizards, and 1 shrew from the Philippine Islands (70781,

PHILIPPINE ISLANDS, GOVERNMENT OF—Continued.

Bureau of Science—Continued. 71406); 19 bird skins of 8 species from the Philippines, including 3 genera new to the Museum collections (71677, exchange).

University of the Philippines, Manila, P. I.: (through R. P. Cowles) 53 frogs collected near Manila (70590); (through Prof. P. B. Sivickis) 8 spiders (70651).

PHILLIPS ACADEMY, Andover, Mass. (through Warren K. Moorehead): A lot of human remains from a mound in Jefferson County, Miss., 23 miles north of Natchez (71427).

PHILLIPS, E. PERCY. (See under Union of South Africa Department of Agriculture.)

PING, Dr. C. (See under National Southeastern University, and Science Society of China, The.)

PIPER, Dr. C. V., Washington, D. C.: Collection of insects from north Idaho, comprising 200 specimens (71228); insects collected in Seattle, Wash. (71384).

(See also under Agriculture, Department of, Bureau of Plant Industry, and James Zetek.)

PITTIER, Dr. H., Caracas, Venezuela: 118 insects (70369); 40 miscellaneous insects from Venezuela (71110); 448 plants from Venezuela (70430, 70817, 71288, 71415, 71566); 69 specimens, 26 species, of land, fresh-water and marine mollusks from northern Venezuela and the island of Curacao (70596); small collection of miscellaneous insects (71717); 56 butterflies and moths, and a cocoon, all from South America (70731); 4 plants (70898, 70977); about 50 specimens, 22 species, of mollusks from Venezuela; also 2 scorpions (71910).

(See also under Dr. Alfredo Jahn, and J. Saer.)

PLUMMER, Mrs. J. H., Miami, Fla.: Set of carved ivory chessmen and a lacquered chessboard from China (70932).

POHL, ERWIN R., U. S. National Museum: 300 specimens of Ordovician fossils from the Rysedorph conglomerate at Albany, N. Y. (71378).

POLAK, RICHARD, Sunn Matt, Gstaad, Switzerland: 65 photogravures by Hanfstaengl after photographs of Dutch costumes by the donor, in a portfolio with an introduction by F. J. Mortimer (70925).

POLLARD, Miss AGNES L. (See under Staten Island Institute of Arts and Sciences, Public Museum of the.)

POMONA COLLEGE, Department of Botany, Claremont, Calif. (through Dr. Philip A. Munz): 2 plants (70252).

POMPECKJ, J. F., Berlin, Germany: Trilobites (70769, exchange).

POOLE, A. J., U. S. National Museum: Bat (70551); 10 turtles and 2 snakes from Vineland, N. J. (71087).

POPENOE, W. P., Topeka, Kans.: Herbarium of the late Prof. E. A. Popenoe, consisting of 3,820 plants (70477).

PORSILD, MORTEN P. (See under Danske Arktiske Station.)

PORTER BROS., Petersburg, Alaska: 2 specimens of alcyonarians from Petersburg (71683, 71913).

POST OFFICE DEPARTMENT: 16 sets of specimen stamps, etc., in triplicate, with the exception of a portion of one lot which is in duplicate (3,614 specimens) received from the International Bureau of the Universal Postal Union, Berne, Switzerland (70279, 70366, 70761, 70861, 70947, 70948, 71223, 71279, 71404, 71538, 71593, 71874, 71944); 66 specimens of United States postage stamps issued 1922–23 (70448); 2 specimens of the Canadian $1 postage stamp issued 1923 (70807);

POST OFFICE DEPT.—Continued.
3 specimens of the Harding memorial 2-cent stamp, and 9 specimens of air-mail stamps issued 1923 (71217); 9 specimens of United States Huguenot-Walloon Tercentenary postage stamps issued 1924 (71792).

POWELL, A. W. B., Auckland, New Zealand: 2 mollusks, paratypes, from off Whakatane, Bay of Plenty, New Zealand, (71147).

POWELL, C. W., Balboa, Canal Zone: Alcoholic specimen of cactus flower and 8 plants from Panama (70545, 71764); cultivated orchid from Nicaragua (70721).

POWERS REPRODUCTION CORPORATION, New York City: Double surface halftone plate and print from it (70522).

PREBLE, E. A., Washington, D. C.: Plant (70716).

PRICE, Prof. GEO. MCCREADY, College View, Nebr.: 36 fossil invertebrates from India (71106).

PRIM, Mrs. M. W., Brooksville, Me.: Moth (70434).

PRINT MAKERS' SOCIETY OF CALIFORNIA. (See under American Federation of Arts.)

PURINGTON, C. W., Yokohama, Japan (through the Department of State): Specimen of gold ore from mine of the Taio Gold Mining Co., Island of Kyushu, Japan; 6 specimens of metamorphic rocks from the valley of the upper Usatonai River, North Hokkaido, Japan; and beach pebbles and rocks from Okhotsk, Siberia (70408).

PURPUS, Dr. C. A., Huatusco, Veracruz, Mexico: 6 plants (70831).

RAFFÉ, W. G., Lucknow, United Provinces, India: 3 wood engravings (71032).

RAND, NATHANIEL D., Wilmington, Del.: 2 watches (71815).

RANSON, ROBERT, Canal Point, Fla.: 114 specimens, 3 species, of land and fresh-water mollusks from the Everglades, Fla. (70414).

RATHBUN, SEWARD H., Washington, D. C.: 6 plants (70498).

REAL INSTITUTO DI GEOLOGIA E PALEONTOLOGIA, Florence, Italy: Collection of Tertiary fossils from Italy, including corals, echinoids, and foraminifera (70718, exchange).

RECORD, Prof. SAMUEL J., School of Forestry, Yale University, New Haven, Conn.: 2 plants from Panama (70530, exchange).
(See also under Yale University, School of Forestry.)

REESIDE, J. B., jr. (See under Ariste Joseph, Brother.)

REGIA UNIVERSITA DEGLI STUDI, Pisa, Italy. (See under Geological Institute).

REICHE, Dr. CARL, Mexico, Mexico: 4 plants (70270, 71221).

REID, E. D., U. S. National Museum: 4 fishes and 1 worm collected in Tayman Branch, near Forestville, Md. (70296); skin of a catfish from the Potomac River (71590); 7 birds representing 3 species from Maryland (71649).

REINHARD, E., Buffalo, N. Y.: About 100 specimens of Devonian conodonts from western New York (71401, exchange).

REINHARD, EDWARD G., New York City: Robber-fly (70613).

REINHARD, H. J., College Station, Tex.: 28 flies (70549); 2 flies (70740, exchange); 21 flies (19 a gift, including types of 4 new species, and 2 in exchange) (71306); 20 flies from Texas (71441).

REKO, Dr. B. P., Guadalajara, Jalisco, Mexico: 45 plants and 2 photographs of plants (70241, 70264, 70276, 70317, 70357); 45 plants from Colima (70824).

REYNE, A. (See under Dutch Guiana, Agricultural Experiment Station.)

RICHARDS, W. L. (See under American Telephone & Telegraph Co.)

RICHARDSON, ESTATE OF WILLIAM D. (through the Virginia Trust Co., executor, Richmond, Va.): A small collection of beetles, about 1,000 specimens, mostly of the family Parnidae (71233, deposit).

RICHMOND, Dr. C. W. (See under Mearns, Estate of Col. Edgar A.)

RICHMOND, UNIVERSITY OF, Department of Biology, Richmond, Va. (through Prof. P. R. Merriam): 125 plants (70669).

RICKER, M., Donna, Tex.: 10 specimens, 1 species, of land shells from Texas (71235).

RILEY, J. H., U. S. National Museum: Bat from Falls Church, Va. (70437).

RITTER, Mrs. GERTRUDE D., Washington, D. C.: Collection of objects representing the interior furnishings of an American colonial room, including wall panels, fireplace, tables, corner cupboard, chairs, chinaware, glassware, pewter, and miscellaneous household material of the eighteenth century (50 specimens) (71679).

ROBINSON, JOHN, Bridgetown, Barbados: 4 photographs of plants from Barbados (71668).

ROBINSON, KARL SPIESS, La Jolla, Calif.: A small collection of invertebrate fossils from the Carboniferous of Texas (71645).

ROBINSON SILK CO., New York City: 4 specimens of silk dress fabrics and 3 specimens of crêpe silk dress fabrics (70955, 71036).

ROBINSON, Col. WIRT, U. S. Army, West Point, N. Y.: 2 pigeons from tropical America (70459).

ROCHESTER PARK DEPARTMENT, Rochester, N. Y. (through W. L. G. Edson): 3 plants (71825, 71858). Exchange.

ROE, CHARLES O. (through Mrs. Charles O. Roe, Summerland, Calif., and Dr. J. P. Harrington): Portion of a skull of an extinct whale (71359).

ROEBLING, Col. W. A., Trenton, N. J.: Specimen of the mineral carminspath (70313); a large mass of calamine crystals from Sterling Hill, N. J. (70733); 4 mineral specimens (71016); a group of selenite crystals from Saxony, a crystal of struverite from Madagascar, and a polished jadeite from Burma (71025); a group of zincite crystals and a specimen of axinite from Franklin Furnace, N. J. (71028, 71462); 2 crystals of kunzite (71181); 8 specimens of minerals from Langban, Sweden (71214); 6 specimens of epidote collected in Alaska by C. B. Ferguson (71344).

ROEWADE, K., New York City: Postage stamp of Iceland, 20 aur, blue error, issued 1902–1904 (70297).

ROGERS, Miss JESSIE B., Springfield, Mo.: An old brass mortar and pestle (70447).

ROIG, Dr. MARIO SANCHEZ, Habana, Cuba: 2 fossil crab hands and 9 specimens of Tertiary echinoids from Cuba (71470, 71625).

ROJAS, Prof. RUBÉN TORRES, Cartago, Costa Rica: 180 specimens of ferns, 7 plants, and 2 salamanders, all from Costa Rica (70954, 71626, 71742, 71754).

ROOS, Dr. A. T., Keystone, S. Dak. (through Frank L. Hess): Specimen of columbite from the Etta Mine, near Keystone (71722).

ROOSEVELT, Hon. THEODORE. (See under Navy Department.)

ROOT, Dr. F. M., Baltimore, Md.: 8 flies (71519).

ROOT, LLOYD L., San Francisco, Calif.: 2 samples of native arsenic from the Alcalde Gold Mine, Grass Valley, Calif. (71488).

ROSE, Dr. J. N., U. S. National Museum: 3 specimens of seaweeds from Atlantic City, N. J. (70923).

ROSENBERG, E., Copenhagen, Denmark (through Dr. A. G. Böving): Larvae and pupae of 9 species of beetles (71686).

ROSENBERG, W. F. H., London, England: Skin of a parrot from Celebes (71559).

ROSENSTOCK, Dr. E., Gotha, Germany: 535 ferns from Colombia and Ecuador (71808, exchange).

ROSER, Rev. THEO., Brookland, D. C.: 3 species of marine shells (71864).

ROST, E. C., Alhambra, Calif.: 3 plants (70275, exchange).

ROUNDY, P. V., Washington, D. C.: 7 specimens, 6 species, of land shells from Kentucky, Oklahoma, and Texas (71140).

ROWE, CHARLES H., Worcester, Mass.: 27 specimens, 7 species, of land and fresh-water mollusks from South America and the East Indies (70507).

ROYAL ONTARIO MUSEUM OF MINERALOGY, Toronto, Canada: 8 specimens of minerals from Ontario, and a series of silver ores from Cobalt, Ontario (71057, 71191). Exchange.

RUBBER ASSOCIATION OF AMERICA, THE, New York City: 507 specimens of rubber, rubber articles, chemicals, and appliances used in various branches of the rubber industry (71478, 71967).

RUDGE, WILLIAM EDWIN, New York City: 37 specimens of letter-press printing in the form of broadsides, folders, pamphlets, booklets, books, wood cut, halftones, line cuts, etc., and an example of typographical printing "Honor Roll" (71019. 71832).

RUDOLPH, Hon. CUNO H. (See under District of Columbia, Board of Commissioners of.)

RUNYON, ROBERT, Brownsville, Tex.: 241 plants (70310, 70349, 70649, 71828); 150 plants from Texas and Mexico (70388); multispeed camera shutter (70764, loan); 112 plants from Texas (70902, 71839); package of plant seeds (70951); photograph of a plant (71789, exchange).

RUSBY, Dr. H. H. (See under Mulford Biological Exploration of the Amazon Basin.)

RUSCHKA, Dr. FRANZ, Weyer, Austria: 8 specimens of chalcid flies representing 5 species, 1 species represented by cotypes (71639, exchange).

RUSSELL, Dr. FRED. F. (See under International Health Board.)

RUSSELL, L. S., Edmonton, Alberta, Canada: Dorsal vertebra of an extinct lizard from the Belly River formation of Alberta (70630).

RUSSIA CEMENT CO., Gloucester, Mass.: A series of 94 specimens illustrating the manufacturing processes and uses of fish glue, bone glue, hide glue, and vegetable glue (70713).

RUTH, Prof. ALBERT, Polytechnic, Tex.: 23 plants (70373, 71703); 36 plants from Texas (70788, 70900, 70999).

RYAN, EVERETT R., Milroy, Ind.: 12 specimens, 9 species, of marine mollusks from Peru (70325).

SAER, J., Caracas, Venezuela (through Dr. H. Pittier): 111 plants from Venezuela (70813, 71326, 71521, 71568).

SALAS, Señor Don J. G. (See under Guatemala, Government of, Direccion General de Agricultura.)

SALVADOR, GOVERNMENT OF, DIRECCION GENERAL DE AGRICULTURA (through Dr. Salvador Calderon): 178 specimens of plants and 1 marine invertebrate (70515); 53 plants (70629, 70842); 588 plants from Salvador (70404, 70709, 70847, 71776, 71911); 49 bird skins from Salvador (70927); 42 plants collected by Señor Choussy (70748).

SANDHOUSE, Miss GRACE, Boulder, Colo.: 410 undetermined specimens of insects of all orders (210 mounted and 200 unmounted) (71196, exchange).

SARGENT, F. H., Graford, Tex. (through Dr. J. K. Small): 3 specimens of ferns from Texas (71502).

SAUNDERS, D. A., Greenville, Tex. (through Dr. L. W. Stephenson): A small lot of vertebrate fossil remains from Texas (70379).

SCHALLERT, Dr. P. O., Winston-Salem, N. C.: 24 plants and 20 ferns, chiefly from Nicaragua (70789, 70818).

SCHAUS, William, U. S. National Museum: 209 moths, including 150 species, 104 of which are new to the Museum collections, mostly from South Africa (70300); 200 moths from Ceylon; 50 specimens of Lepidoptera, 165 moths from Rhodesia, and 457 specimens of Lepidoptera from Nyassaland (71714); 148 species of Noctuidae from Rhodesia, collected by Rev. J. O'Neil, mostly new to the Museum collections (71145).

SCHLESCH, Hans, Copenhagen, Denmark: About 180 specimens, 38 species, of Pliocene fossils from the Crag of Iceland, Tjornes, North Iceland (70752); about 18 specimens of mollusks from Greenland (71006).

SCHMID, Edward S., Washington, D. C.: Skin and skull of a European red squirrel (70436); 6 parrots and a great blue heron (70444, 70541); 17 birds (70759, 71089, 71503); specimen of a black-poll warbler (70855).

SCHOTT, Fred. M., Brooklyn, N. Y.: Flies (71362, 71472).

SCHRADER, F. C. (See under United Mercury Mines Co.)

SCHRAMM, Rev. F. E., Bluefields, Nicaragua: 87 plants from Nicaragua (71896).

SCHULTZ, Dr. Adolph H., Baltimore, Md.: Mouse and 24 bats from Nicaragua, also head of an opossum and 3 bats collected for the Museum (70661, 70705).

SCIDMORE, Miss E. R., Washington, D. C.: 61 negatives of Japanese subjects (70640); 5 specimens of Chinese, Japanese, and Korean porcelain (70770, loan).

SCIENCE SOCIETY OF CHINA, THE, Nanking, China (through Dr. C. Ping): Mollusks, marine invertebrates, fishes, scorpion, insects, snakes, turtle, and frogs (71416).

SCOFIELD, Kendrick, Washington, D. C.: Catlinite treaty pipe and 2 teeth necklaces, brass candle snuffer, and brass lamp and tinderbox (71124, exchange); camphine lamp (71938).

SEBASTIEN, E., St. Thomas, Virgin Islands of the United States: 5 snakes and a stomatopod from St. Thomas (70904).

SEDGWICK MUSEUM, Cambridge, England: 3 specimens and 4 casts of types of Cambrian fossils from the south end of the Dead Sea (71237).

SEGER, Prof. Wilbur James, Milford, Mich.: 2 arrowheads, or knives, 2 scrapers, and a lot of arrowheads from a mound on the banks of Copneconic Lake, Genesee County, Mich. (70792).

SENEFELDER CLUB OF LONDON, THE (through The American Federation of Arts, Washington, D. C.): 77 lithographs for special exhibition (70768, loan).

SETCHELL, Prof. W. A. (See under California, University of.)

SHACKELL, L. F. (See under Commerce, Department of, Bureau of Fisheries.)

SHAMEL, H. H., U. S. National Museum: Salamander from Glen Echo Heights, Md. (70660); song sparrow from Maryland (71577).

SHANNON, R. C., U. S. National Museum: 6 plants from Panama (70597); 2 specimens of flies collected in Washington State (71547).

SHANTUNG CHRISTIAN UNIVERSITY, Tsinan, China (through Arthur P. Jacot): 21 species of marine mollusks from Tengchowfu, west of Chefoo, Shantung, China (71621).

SHAUGHNESSY, Miss Leona, Washington, D. C.: Eskimo chow dog (71924).

SHEARER, Dr. A. R., Mont Belvieu, Tex.: 6 specimens of Tertiary fossils found in the Alum Creek Oil Company's test, 31 miles east of San Antonio, Tex. (70510); 4 worms (70993).

SHEFFIELD, Dr. F. G., Hastings, Mich. (through Hon. John C. Ketchem): A china cup and a saucer (71964, loan).

SHERWOOD, Miss GRACE, Jefferson, Ohio: 2 humming birds (70280, 70370).

SHIPMAN, R. W., Waldo, Fla.: Wooden canteen of the Colonial period (71919).

SHOEMAKER, CLARENCE R., U. S. National Museum: 8 brachiopods, 8 copepods, 8 amphipods, and 10 isopods collected by the donor near Great Falls, Va. (71539).

SHREVE, Dr. FORREST, Tuscon, Ariz.: 3 plants from Mexico (71573).

(See also under Carnegie Institution of Washington.)

SHUFELDT, Dr. R. W., U. S. Army (retired), Washington, D. C.: A small lot of lice collected from the body of a screech owl (71955).

SIGGERS, Dr. PAUL V., Port Limon, Costa Rica: Tocard toucan from Costa Rica (71702).

SIMMONS, WILL, New York City: 75 etchings of birds and animals and 3 plates for special exhibition (71528, loan); 8 intaglio prints showing various technics, dry point, etching, engraving, and aquatint and combinations and work of the multiple-toothed tool (71723).

(See also under Ernest Haskell.)

SIMONS, Mrs. CARRIE L., San Diego, Calif.: About 50 specimens, 3 species, of marine mollusks from Turtle Bay, Lower California, including the type of a new species (70393); 13 specimens, 11 species, of marine mollusks from the west coast of America (71407).

SIMPSON, C. B., Samville, Fla.: Shell amulet, fragment of a shell celt and a lot of potsherds found in a shell mound on the Caloosahatchee River, Fla. (70803).

SINE, FRANK, Maurertown, Va.: Abnormal egg of a domestic fowl (71164).

SITLER, Miss IDA. (See under Hollins College.)

SIVICKIS, Prof. P. B. (See under Philippine Islands, Government of, University of the Philippines.)

SLATER, Mrs. H. D., El Paso, Tex.: 2 plants from Texas (70269); and a plant collected by Mr. Hammond (71153, exchange).

SLEMAN, PAUL E. (See under Mrs. S. E. Cummings.)

SLOAN, EARL, Charleston, S. C. (through Dr. C. W. Cooke): A cephalopod type from the Eocene of South Carolina (70787).

SMALL, Dr. J. K. (See under F. H. Sargent.)

SMITH, Mrs. FREDERICK MORGAN, New London, Conn. (through Nathan H. Smith, Houston, Tex.): Copy of the hymn America written and signed by the author, S. F. Smith (70715).

SMITH, Dr. HUGH M., Washington, D. C.: A comprehensive collection of crustacea and other marine invertebrates; 26 birds, 1 mammal skin and skull; 1 lot of deposits from a bird cave; a collection of reptiles and batrachians, insects, mollusks, and plants, and 4 pieces of weathered limestone, all from Siam (71873).

SMITH, Capt. JOHN DONNELL, Baltimore, Md.: 4 plants (71861).

SMITH, Dr. MALCOLM, Bangkok, Siam: 5 frogs and 11 tadpoles from Siam (70933).

SMITH, MAXWELL, Hartsdale, N. Y.: 14 specimens, 3 species of land and fresh-water shells (70563); 30 specimens, 2 species of land shells (70804, exchange); 6 specimens, 6 species of land and fresh-water mollusks from the Philippine Islands (70722, 70758).

SMITH, NATHAN H. (See under Mrs. Frederick Morgan Smith.)

SMITH, ORMOND VICKERS, Fruitland Park, Fla.: Head and skin of a young cottonmouth mocassin from Florida (70882).

SMITH, R. J., Lutz, Fla.: 2 moths (71859).

SMITH, Prof. ROGER C. (See under Kansas State Agricultural College.)

SMITH, Dr. STANLEY, Bristol, England: A small collection of English Paleozoic bryozoans (71059).

SMITHSONIAN INSTITUTION:

Bronze medal commemorating the twentieth International Congress of Americanists, held at Rio de Janeiro, Brazil, August 20–30, 1922 (70566); lot of negro skeletal material (71264). Deposit.

(See also under Mrs. Edgar E. Teller.)

Bureau of American Ethnology: Collection of 95 specimens of picture pottery from the Mimbres Valley, N. Mex. (70367); blanket on which is woven an elaborate representation of the Yeibichi dance of the Navaho Indians, presented to the bureau by Chee Dodge, St. Michaels, Ariz. (70553); collection of archeological specimens made by John L. Baer during the summer of 1923 in the Susquehanna Valley region (71026); California Mission Indian water basket collected by J. P. Harrington during the summer of 1922 (71278); collection of archeological specimens secured in Tennessee by the late William E. Myer (71347); four prehistoric objects presented to the bureau through the late Mr. Myer, by J. G. Braecklein, Kansas City, Kans. (71691); three lots of stone implements from prehistoric village sites near Goodlettsville, Tenn., presented to the bureau through the late Mr. Myer, by Mr. Meadow, John Bell Cartwright, and Capt. James Roscoe, all of Goodlettsville (71692); three lots of archeological specimens presented to the bureau through the late Mr. Myer, by C. O. Chapman and A. B. Moore, Mrs. Lee Colin, and A. T. Sweet, respectively (71694); collection of archeological specimens from Pipe Shrine House in the Mesa Verde National Park, Colo. (71430); collection of Indian implements and fossil animals found in Garrard County, Ky., along the Old Wilderness Trail, and presented to the bureau by Mrs. S. H. Burnside, of Wichita Falls, Tex. (71614); collection of archeological specimens from the Painted Kiva House, Mesa Verde National Park, Colo. (71697); skull and five parts of jaws of dog from Weeden Mound Cemetery, St. Petersburg, Fla. (71925).

SMITHSONIAN INSTITUTION—Con.

Bureau of Amer. Ethnology—Con.

National Museum, collected by members of the staff: Aldrich, J. M.: About 100 specimens, 2 species, of fresh-water shells from Walker Lake, Nev. (70602). Aschemeier, C. R.: 36 mammals, collection of birds and shells, and 96 bird skins, all from Brazil (70422, 71038). Baer, John L.: 12 shrimps, a scorpion, and an insect collected while a member of the Marsh Darien Expedition (71655). Bartsch, Paul: A large collection of mollusks and a few mammals, birds, reptiles, batrachians and fishes collected on the island of San Salvador, Bahamas (70671). Bassler, R. S.: 2,000 specimens of invertebrate fossils from the Ordovician and Mississippian periods of Tennessee and Kentucky (70385). Boss, Norman H.: Cetacean material collected from the Miocene deposits at Chesapeake Beach, Md. (71926). Gilmore, C. W.: 22 reptiles and batrachians and 1 bat from Utah; also portions of 2 skeletons of a fossil dinosaur, and miscellaneous fossils representative of the Morrison fauna, from the Dinosaur National Monument, Utah (70472, 70568). Maxon, William R.: About 4,500 plants

SMITHSONIAN INSTITUTION—Con.

National Museum, etc.—Continued.

collected in Panama, Nicaragua, and Costa Rica (70888). Merrill, George P.: Miscellaneous rocks, minerals, and ores from various localities in Maine (70560). Miller, Gerrit S., jr.: Plants, mammals, birds, reptiles, fishes, mollusks, marine invertebrates, and insects from the Virgin Islands of the United States and Lesser Antilles (71765). Poole, A. J.: 13 skins and skulls of bats; 15 alcoholic bats, all from Virginia (70473); 3 skulls of deer from New Jersey (71269). Resser, C. E.: 500 specimens of Cambrian and Ordovician fossils from the Appalachian Valley of southern Virginia (70496); collection of Cambrian and Ordovician invertebrates from ranges in eastern Nevada and the Wasatch Mountains in Utah, collected in the summer of 1923 (71882). Shannon, Earl V.: 30 specimens of rocks and minerals illustrating the geology at Goose Creek, Va. (70463). Standley, Paul C.: 17,000 plants from Panama and Costa Rica and 3 land shells from Panama (71721). Stirling, M. W.: Collection of skeletal and archeological material from mounds near Mobridge, S. Dak. (70503). Vaughan, T. Wayland: Tertiary fossils collected in New Zealand during July, 1923 (70960). Walcott, Charles D.: Skin and skull of a black bear from British Columbia, and skins and skulls of a goat and kid from Alberta (70783). Watkins, W. M. N.: Specimens of white and yellow pine, yellow poplar, black cherry, red cedar, and hickory (70833).

National Museum, obtained by purchase: 214 plants from Mexico, collected by C. A. Purpus (71941); 769 plants collected in Venezuela by W. E. Broadway (70648); collection of South American Indian silver (70559); 140 specimens of Bolivian ferns collected by Herzog (71116); prehistoric stone plummet found in North Carolina (71724); 16-blade knife (70487); six species of frogs from South America (70965); 490 plants from British Guiana (70287); 763 plants collected in British Guiana by de la Cruz (70867); 619 plants from British Guiana collected by de la Cruz (71552); square-shouldered stone ax found near Holstone, Va. (71551); 25 North American mosses (Fascicle 20, Musci Acrocarpi) (70756); 50 lantern slides of horses, made by Muybridge (70626); 3 facsimiles (2 halftones and 1 collotype) of oil paintings on canvas (71045); 75 specimens of grasses (70267); 283 plants from Ecuador (70666, 71018, 71289); 4 specimens of minerals (71102); Penrose's Process Year Book for 1896 (71885); 20 specimens of cacti (70453); 136 plants (71024); skin of a bird (71179); 640 plants from Mexico (71139); 2 specimens of anhydrite from Germany (71251); chalcopyrite replacing fish impression (70533); 4 loose crystals of anglesite, and 1 specimen showing brown anglesite crystals in gypsum (71811).

National Museum, made in the Museum laboratories: Three casts of Grave Creek stone (70739); 7 photographs of early etchings and drypoints (70913); 8 transparencies of views connected with Florida land pebble phosphate industry, from negatives furnished by Morris Fertilizer Co. (70928);

SMITHSONIAN INSTITUTION—Con.
National Museum, etc.—Continued.
model, 16 feet by 30 inches, visualizing land pebble phosphate industry as conducted in Florida, made in cooperation with the Morris Fertilizer Co. (70929); exhibit showing the process of making aquatints in line, comprising "touching stuff," plate prepared for the acid and a finished etched plate with six prints from it (71252); colored plaster casts of a bird stone in the possession of Charles H. Marshall, Nanton, Alberta, Canada (71281); 6 models showing mechanical movements (71296); 2 casts of a stone pestle found by Mrs. Mary V. Walcott on an old Indian camp site at Harrogate, on the east side of the Columbia River Valley, British Columbia (71307); a model showing wood preservation on the farm (71311); 4 photographs showing the printing of an etched plate (71325); 2 casts of the type specimen of a fossil crab (71653); technical exhibit showing 14 steps in the making of a mezzotint engraving from the ungrounded copper plate to the finished print, comprising 14 specimens and 18 duplicate prints (71887); 4 models of power transmission (71921).

National Zoological Park: Spider monkey and a capybara (70311); skin of panda (70326); 6 birds, namely snowy egret, condor, 2 specimens of sooty shearwater, red-tailed hawk, and Laysan finch (70342); two-toed sloth, and a Siberian tiger (70372); skin and skeleton of a sun bear, skin and skull of a Manchurian tiger (70427); 3 birds (70431); 4 birds (70536); skin and skull of a Mexican agouti (70552); mongoose (70589); skin and skull of a monkey from Bolivia (70622); 6 birds, comprising a merganser, mountain lory, Laysan finch, wedge-tailed eagle, chuck-will's-widow, and Amazonian caique (70826); flying phalanger (71013); 8 birds (71101); skin and skeleton of an East African leopard (71111); tapir (71453); 11 birds, viz, Laysan finch, Australian thick-knee, road-runner, American egret, white-backed trumpeter (2 specimens), short-tailed parrot, white-eyed duck, lapwing, sarus crane, anhinga (71516); skeleton of a Magellan fox (71543); monkey (71618); skin of an Indian water buffalo (71627); Rocky Mountain sheep (71699); ocelot (71802); ocelot (71838); 3 eggs of the cinereous vulture (71871); 12 birds (71881); black-faced kangaroo, Titi monkey, and a pale Capuchin (71923); 3 birds and 3 eggs (71939).

SNYDER, Dr. T. E., Washington, D. C.: 2 blocks of teak wood and several fragmentary shipworms from the Naval Aircraft Factory, U. S. Navy Yard, Philadelphia, Pa. (71137).

SOCIETY OF MOTION PICTURE ENGINEERS, Harrison, N. J.: An historical exhibit illustrating the methods and improvements in the production of colored motion picture films (71052).

SOLIS, Señor Don Octavio, Mexico City, Mexico: Seeds of a plant and a photograph of plants (71833).

SOMMER, Dr. H. C., Chevy Chase, D. C.: 2 feather paintings and a bottle-shaped vase with saucer and cup (71172).

SOSA, Prof. Francisco R., Cardenas, Cuba: 26 specimens, 9 species, of crustaceans collected at Cardenas, by the donor (70919).

SOTH, Mrs. M. E., Pocatello, Idaho: 10 plants (70679).

SOUPCOFF, SAMUEL M., Salt Lake City, Utah (through Victor C. Heikes): Cluster of scorodite crystals, and 5 specimens of arsenic ore, all from Gold Hill Mine, Tooele County, Utah (71034, 71134, 71273).

SOUTH DAKOTA, UNIVERSITY OF, Vermilion, S. Dak. (through Prof. W. H. Over): 55 plants from South Dakota and Minnesota (70747).

SOUTHERN BIOLOGICAL SUPPLY CO. (INC.), New Orleans, La. (through Percy Viosca, jr.): 3 lots of echinoderms, 6 lots, 17 specimens of marine invertebrates, 2 lots of mollusks, and 1 plant collected along the Louisiana coast from Chandeleur to Ship Island during January, February, and March, 1923, and in Taylor's Pass during the fall of 1921 (71797).

SOUTHERN CALIFORNIA, UNIVERSITY OF, Marine Biological Station, Los Angeles, Calif. (through Miss Lucile Grizzle): 5 specimens of lancelets (71220); 11 specimens, 2 species, of crustaceans (71784).

SPALDING & BROS., A. G., Washington, D. C.: Miniature vaulting and jump standard, a miniature "Official Olympic" hurdle, and a "Kro-Bat," Permatite tennis racket (70887).

SPEER, J. T., La Grange, Ky.: Beetle (70390).

SPERRY, Prof. A. B., Manhattan, Kans.: One-half of a meteoric stone from Anthony, Kans. (71077, exchange).

SPRINKLE, J. W., Brightwood, Va.: Beetle (71962).

STALMACH, A. S. (See under J. B. MacMillan.)

STANDARD OIL CO. (N. J.), New York City (through C. F. Bowen and Dr. T. W. Stanton): 6 specimens of mollusks from Peru, collected by Bela Hubbard and C. P. Moore (71268).

STANDLEY, PAUL C., U. S. National Museum: 16 bird skins from Costa Rica (71701).

STANGL, P. L., Cebu, P. I.: Small collection of insects, including Orthoptera, Hymenoptera, Lepidoptera, Coleoptera, Hemiptera, and Diptera, 118 in all (71012).

STANTON, Dr. T. W. (See under Dr. G. H. Chadwick, James Terry Duce, Prof. Junius Henderson, and Standard Oil Co. (N. J.).

STARR, DOUGLAS N., Washington, D. C.: Massachusetts silver twopence; United States silver dollar, 1840; and 2 U. S. Monroe Doctrine Centennial half-dollars, 1923 (70319, loan); war prison camp and token currency issued by Australia, Belgium, Germany, and Poland during the period, 1915–1922 (57 specimens) (70323); inlaid wooden cigar holder owned by William McKinley, President of the United States, 1897–1901 (70663).

STATE, DEPARTMENT OF. (See under Brother Ariste Joseph, Brother Claude Joseph, Dr. T. Kochibe, and C. W. Purington.)

STATEN ISLAND INSTITUTE OF ARTS AND SCIENCES, PUBLIC MUSEUM OF THE, Staten Island, N. Y. (through Miss Agnes L. Pollard, curator): 2 phosphorescent shrimps collected in the Arabian Sea by Capt. Takamiza, during the summer of 1923 (70442).

STEARNS, Mrs. CHARLES F. (See under Mrs. G. Norman Lieber.)

STEBBINS, A. B., Canisteo, N. Y.: 2 camera shutters, and a daguerreotype camera used about 1850 (70577, 70751).

STEELE, E. S., Washington, D. C.: 164 specimens of plants from Maryland and West Virginia (71766).

STEPHENS, J. E., Rumford Falls, Me.: A flax hetchel of the period of 1772 (71327).

STEPHENSEN, Dr. K. (See under Universitetets Zoologiske Museum.)

STEPHENSON, Dr. L. W., U. S. Geological Survey, Washington, D. C.: 2 specimens of the ancient cypress taken in 1922 from new Walker Hotel excavation, Washington, D. C. (70364); 3 land shells from the State of Zulia, District of Bolivas, Venezuela (71496).

(See also under D. A. Saunders.)

STEVENS, Miss BELLE A., Friday Harbor, Wash.: 23 hermit crabs, collected by the donor at Friday Harbor (70455, 70707, 71822).

STEVENS, Prof. F. L. (See under Illinois, University of.)

STEWARD, Prof. ALBERT N. (See under Nanking, University of.)

STILES, Dr. C. W., Southport, N. C.: Marine mollusk from Fort Caswell, Southport, N. C. (70512).

STILLINGER, C. R., Spokane, Wash.: 65 plants from Idaho (70858, 70998).

STIRN, L. & E., New York City: 7 specimens of cotton dress goods "Voivelle" (71972).

STONE, R. W. (See under John J. Finn.)

STORK, Prof. H. E., Northfield, Minn.: 385 plants from Panama and Costa Rica (70829).

STRAIT, H. H., Overland, Mo.: Mortised block with halftone and two lines of type held in position by Strait's reversible quoins; also 2 quoins and 2 keys (70614).

STRINGFIELD, Mrs. ANNA M., New York City: Lace insert representing the crown of England, which design was used in making the so-called "Mary" dress of Queen Mary, by all the women named Mary in England (70772).

STRONG, A. M., Los Angeles, Calif.: 24 specimens, 5 species, of marine shells from California (71350).

STRONG, Mrs. WILLIAM M., Washington, D. C.: Gold medal and bound volume presented to Henry B. F. MacFarland, as president of the Board of Commissioners of the District of Columbia, on the occasion of the celebration of the centennial of the District in 1900 (70909).

STROUD, Mrs. M. W., Villanova, Pa.: 3 silver camp cups owned during the War of the Revolution by Brig. Gen. Anthony Wayne, of the Continental Army (71484, loan).

SUNDLER, BERTHOLD, Boras, Sweden: 336 specimens, 40 species, of nonmarine shells from Sweden (70984).

SWALES, B. H., U. S. National Museum: 21 bird skins from various localities representing species mostly new to the Museum collections (70344); 74 bird skins from Africa, Asia, and the East Indies, representing species new to the Museum collections (70585); bird skin from Madagascar (70918); 6 bird skins from the Cape Verde Islands, including 1 form new to the collections (71227); 12 bird skins from the East Indies, including 1 genus and 12 species new to the Museum collections (71255); 64 bird skins from various parts of the world, representing as many species new to the Museum collections (71263); skin of a hornbill from East Africa (71739); 3 specimens of Reeves' pheasant from China (71840); 8 birds, chiefly from Madagascar, repsenting 5 species and 2 genera new to the Museum collections (71863); 11 birds from Madagascar, including 9 species and 1 genus new to the Museum collections (71868).

SWANN, H. KIRKE, Thorncombe, Lyonsdown, New Barnet, Herts., England: 10 skins of hawks from various localities (70277, exchange).

SYDNEY, UNIVERSITY OF, Anatomy Department, Sydney, New South Wales, Australia (through Prof. John I. Hunter): 2 casts of a Talgai skull (71498, exchange).

SYMES, CHRISTOPHER JAMES, Birkenhead, England: 3 pictorial photographs (71915).

TALBOTT, Mrs. LAURA OSBORN, Washington, D. C. (through Mrs. Horatio King): Specimen of flexible sandstone from Georgia (71629).

TALBOTT, Mrs. THOMAS, Upper Marlboro, Md.: Hercules beetle (71107).

TANNERS PRODUCTS CO., Chicago, Ill.: 5 samples of Mexican fibers (71536).

TAYLOR INSTRUMENT COMPANIES, Rochester, N. Y.: 31 historical and modern thermometers and barometers, such as used in the professions, in industry, and in the household (70532).

TAYLOR & TAYLOR, San Francisco, Calif.: 9 specimens of their letterpress printing, consisting of folders and a pamphlet (71395).

TELL, WILLIAM, Austin, Tex.: Plant and plant lice (71452).

TELLER, Mrs. EDGAR E., Buffalo, N. Y. (through Smithsonian Institution): The Edgar E. Teller geological library, collection of Paleozoic fossils, and cabinet (71824).

TEXAS AGRICULTURAL EXPERIMENT STATION, Temple Tex. (through D. T. Killough, superintendent): 49 plants (70397).

TEXAS DEPARTMENT OF AGRICULTURE, Division of Entomology (through R. E. McDonald) Austin, Tex.: Fly (71002).

TEXAS, UNIVERSITY OF, Department of Botany, Austin, Tex. (through Prof. B. C. Tharp): 203 plants (71058); 51 plants, Cyperaceae, from Texas (71170).

THAANUM, D., Honolulu, Hawaii: About 60 specimens, 25 species, of marine shells from Japan, collected by J. B. Langford (71014); 41 specimens, 13 species, of marine shells from Japan, collected by Mr. Langford, and 56 minute shells from Palmyra Island, collected by the donor (71892).

THARP, Prof. B. C. (See under Texas, University of.)

THAXTER, Dr. ROLAND, Cambridge, Mass.: 7 beetles from Sumatra (71520).

THERY, Dr. A., Rabat, Morocco: 11 specimens of Coleoptera, including 7 species (70871, exchange); 22 beetles (71959).

THOMAS, BOB, Globe, Ariz.: 2 beetles (70732).

THOMPSON, Mrs. BURTON, New York City, and Mrs. C. HILL, Middlebury, Vt. (through Dr. Charles F. Langworthy, Washington, D. C.): 2 dolls of the latter part of the nineteenth century (71249).

THOMPSON, Mrs. MARY C., Le Mt. Fenouillet, Hyeres, Var, France: Miscellaneous insects, comprising 562 specimens (70777).

THOMSEN-ELLIS CO., Baltimore, Md.: 3 copies of Canterbury Book, with illustrations by the "Photo-Art" five color process (70714).

THORNE, HAROLD C., Washington, D. C.: Bat, alcoholic (71144).

THRONE, G. W., Rocheport, Mo.: Skeleton of a young adult Indian woman and fragments of the skull of a child (70523).

THUROW, F. W., Houston, Tex.: 63 plants from Texas (71728).

TILTON, JOHN L., Morgantown, W. Va.: Examples of a peridotite dike from Gates, Pa. (71262).

TIMBERLAKE, P. H. (See under Hawaiian Sugar Planters' Association Experiment Station.)

TOBLER, Dr. AUGUST, Basel, Switzerland: 15 specimens of fossil foraminifera from the Eocene of Venezuela (71210, exchange); (through Dr. T. Wayland Vaughan) 2 specimens of fossil foraminifera from near San Fernando, Trinidad (71693).

TOHOKU IMPERIAL UNIVERSITY, INSTITUTE OF GEOLOGY AND PALEONTOLOGY, Sendai, Japan (through Prof. H. Yabe and Dr. T. Wayland Vaughan): 5 lots of foraminiferal material (70963).

TOKYO IMPERIAL UNIVERSITY, Tokyo, Japan (through Dr. Yoshikiyo Koganei, College of Medicine): 4 adult human skeletons with skulls, 1 adolescent female skeleton with skull, and 5 adult skulls (70271, exchange).

TOLMAN, R. P., U. S. National Museum: Oil painting by Edmund Clarence Messer (1842–1919) (71029).

TOMPKINS, Dr. C. W., Washington, D. C.: Miniature wooden model of a book inscribed "Siege of Vicksburg" made during the Civil War by Surg. Charles Brown Tompkins, Seventeenth Illinois Volunteers (70334).

TORRE, Dr. CARLOS DE LA, Habana, Cuba: Type specimen of a fossil mollusk from the Tertiary of Mantanzas, Cuba (70697); 3 specimens, 3 species, of very rare marine shells from Argentina (70750).

TOTHILL, Dr. JOHN, Entomological Laboratory. Fredericton, New Brunswick: Fly (70339).

(See also under Canadian Government, Entomological Laboratory.)

TREASURY DEPARTMENT:

U. S. Mint (through Robert J. Grant, director): 2 Chinese silver coins; 1 Turkish silver coin, and 3 German tokens (71141); silver coins issued in Yunnan Province, China, 2 specimens each of the denominations $1, $0.50, $0.20, and $0.10 (71154); 14 gold and bronze coins of Mexico issued 1905–1920 (71209).

U. S. Public Health Service: Miscellaneous series of specimens, models, and publications illustrating various phases of public health and sanitation (71596).

(See also under Henry Goldman.)

TRENHOLM, LEONARD, Chattanooga, Tenn.: 5 fishes (71276).

TRUITT, Prof. R. V., College Park, Md.: 65 specimens of crustaceans and 1 leech collected by the donor in Paint Branch, Prince Georges County, Md., and Chincoteague Bay, Va., in the summer of 1922 and autumn of 1923 (71522).

TURNER, Dr. M. L., Berwyn, Md.: 5 silver teaspoons and 13 silver tablespoons of the nineteenth century; pair of old English brass candlesticks; Chinese puzzle carved from pearl; small carved wooden box, 3 brass candlesticks, and a cast brass candle dish; stone ax excavated in Montgomery County, Md. (70569, 70599, 71078, 71622).

TURNEY, Dr. OMAR A., Phoenix, Ariz.: A lot of reed offerings (ceremonial cigarettes) and a shell (70443).

TYLOR, E. S., Washington, D. C.: 2 skins of squirrels from the Eastern Shore of Maryland (71412).

ULRICH, Dr. E. O., Washington, D. C.: 7,000 specimens of Ordovician and Silurian fossils from northern Michigan and St. Joseph Island, Ontario (70501); 200 specimens of Lower Paleozoic fossils from the drift of Germany (71375).

(See also under K. C. Heald, Missouri Geological Survey, and Wisconsin Geological Survey.)

UNION MINERE DU HAUT-KATANGA, Brussels, Belgium: Radioactive minerals from the Belgian Congo (70944).

UNION OF SOUTH AFRICA DEPARTMENT OF AGRICULTURE, Division of Botany, Pretoria (through E. Percy Phillips): 148 plants from South Africa (70849, 71643) Exchange.

UNITED FRUIT CO. (See under V. C. Dunlap.)

UNITED MERCURY MINES CO., Yellow Pine, Idaho (through F. C. Schrader): Specimen of antimony ore (stibnite) from the company's antimony mine near Yellow Pine (71607).

UNITED SHOE MACHINERY CORPORATION. (See under National Boot & Shoe Manufacturers' Association of the United States (Inc.).)

UNIVERSITETETS BOTANISKE MUSEUM, Copenhagen, Denmark (through Dr. Carl Christensen): Specimen of fern from Colombia; fern from Brazil; 2 ferns from Mexico (70243, 71315, 71425) Exchange.

UNIVERSITETETS ZOOLOGISKE MUSEUM, Copenhagen, Denmark (through Dr. K. Stephenson): Over 341 specimens, 55 species, of arctic amphipods, and 32 specimens, 2 species, of arctic isopods (70798); (through Dr. William Lundbeck) 169 specimens, 80 species, of Diptera, from Greenland, 11 of which are types (71429); (through Dr. A. G. Böving) collection of rare beetle larvae belonging to the family Elateridae, from Venezuela and Nicobar Island (71662) Exchange.

UNSWORTH, Colin J., Manchester, England: 100 pictorial photographs for special exhibition (71385, loan).

URBAN, Dr. I. (See under Botanischer Garten und Museum.)

URIBE, Dr. Cesar, Valera, Venezuela: 82 insects from South America (70627).

URITA, C. T., Tsingtau, North China: 15 specimens, 11 species, of crustaceans collected in North China (71341).

UTAH AGRICULTURAL COLLEGE, Logan, Utah (through George F. Knowlton): 4 specimens of insects (1 Hymenoptera and 3 Neuroptera) (70741); 3 beetles (70881); a slide containing a specimen of Psocid (71440).

VAIL, Floyd, New York City: A bromide pictorial print of Eighth Avenue (71042).

(See also under New York Camera Club, Dr. J. B. Pardoe, and Joseph Petrocelli.)

VAIL, Floyd Eugene, New York City: 2 pictorial bromoils entitled "Pennsylvania Station, N. Y." and "A Mountain Home," and a portrait of Floyd Vail (71123).

VALERIO, Prof. Juvenal, San Jose, Costa Rica: 150 plants from Costa Rica (71758).

VAN CLEEF, Mrs. F. C., Hudson, Ohio: Mole from Warm Springs, Va. (71469, exchange).

VAN DER HORST, Dr. C. J., Amsterdam, Holland: 22 specimens of shrimps collected by Hippolyte Lamp in 1924 from Spanish Harbor, Curaçao (71855).

VANDEWEGHE FUR CO., New York City (through Agriculture, Department of, Bureau of Biological Survey): 10 specimens of rabbit skins illustrating the four processes in the conversion of a rabbit skin into "Sealine" or "Arctic seal" (70375).

VAN DUZEE, E. P. (See under California Academy of Sciences.)

VAN DUZEE, M. C., Buffalo, N. Y.: Type specimen of a fly, and 17 specimens of Diptera, including types of 7 species, allotypes of 3 and paratypes of 5 (70513, 71291).

VAN HYNING, T., Gainesville, Fla.: 4 larval salamanders from Florida (71324).

(See also under Florida State Museum, The.)

VAN SCHAICK, Mrs. John, Washington, D. C.: Collection of art textile and art metal specimens, and 5 geological specimens (70654).

VAN SEVERIN, Dr. Andres, Tela, Honduras: 61 plants (70262, 70450).

VAUGHAN, Dr. T. Wayland, La Jolla, Calif.: Invertebrate fossils acquired from various sources in Australia collected for the Museum in 1923 (71790).

(See also under Corona Co., Francis A. Cudmore, F. S. Mann, Dr. August Trobler, and Tohoku Imperial University, Institute of Geology and Paleontology.)

VERREES, J. Paul, New York City: 2 etchings entitled "Wayside Shrine, Fiesole," and "The Swans, Bruges" (70341).

VIERECK, Henry L., Ottawa, Canada: 61 plants from Santa Marta, Colombia (70794); 4 bees representing types of 2 species (70974).

VIOSCA, PERCY, Jr. (See under Southern Biological Supply Co., (Inc.).)

VIRGINIA ALBERENE CORPORATION, Schuyler, Va. (through F. L. Hess): A slab of soapstone from Virginia (71785).

VIRGINIA TRUST CO., THE. (See under Richardson, Estate of William D.)

WAKEFIELD, CLAUDE. (See under Idaho, University of.)

WALCOTT, Dr. CHARLES D., Smithsonian Institution: Autographs of 13 famous Americans, namely, Robert Anderson, P. T. Barnum, Park Benjamin, William Cullen Bryant, J. Fennimore Cooper, Edward Everett, Horace Greeley, Henry W. Longfellow, B. J. Lossing, S. F. B. Morse, Wendell Phillips, Benjamin Silliman, and S. Wells Williams, collected by Ellis P. Walcott, and presented by his wife to the donor (70943).

(See also under Smithsonian Institution, National Museum, collected by members of the staff.)

WALCOTT, Mrs. CHARLES D., Washington, D. C.: 10 specimens of locusts (70302); plant from the Columbia River Valley (70576); examples of pyritiferous shale from Mt. Monica, above Starbird Glacier, Selkirk Mountains, British Columbia (70841).

WALEN, E. D., Boston, Mass.: A series of 49 photographs illustrating technical processes in cotton spinning and finishing (71844).

WALKER, Dr. JAMES W., Chicago, Ill.: Mollusk and a sponge from the beach at Castine, Me. (70738).

WALTON, C., Peterhead, South Australia: Collection of hydroids and algae taken by the donor at Corney Point, Spencer's Gulf, South Australia (71889).

WAR DEPARTMENT:

Adjutant General, Office of: Three United States distinguished service crosses with citations awarded respectively to Pvt. Frank Arkman, Sergt. Carl C. Carter, and Sergt. Edward G. Mason, in recognition of special services during the World War (71883).

Air Service: 83 photographs illustrating aerial activities (70600); aerial camera D. R–4, and 3 lenses (71198); full-size Fokker monoplane, *T–2* (71224); aerial camera with lens (71231); aerial mapping camera, an aerostigmat lens with Wollensak shutter, and 2 rolls of 6 inch by 18 feet film (71239); aerial camera type F 3, and an E. Krauss Tessar lens (71245); aerial camera type L; B. & L. lens, 2 magazines, and a suspension cradle (71259); aerial camera gun, with lens (71282); 4 magazines for plates with septums and plates (71287); 16 photographs of aircraft (71348).

Army Medical Museum: (Through Dr. Clara S. Ludlow) toad from Nogales, Ariz. (71241); bat (71340); a model each of the yellow-fever mosquito, a South American dwelling proofed against mosquitoes, and a Kropf's window tent; also 12 charts on the spread and prevention of disease (71372).

Chemical Warfare Service: 15 specimens of chemicals for the Loeb collection of chemical types (71689).

Public Buildings and Grounds: 2 American holly logs; 13 pieces of oriental plane-tree wood; 2 white pine logs, and 1 cross-section of a white pine limb showing the ravages of the carpenter ant, fresh material taken from trees in Potomac Park and the Mall (71312).

WAR DEPARTMENT—Con.

Shiloh National Military Park, Pittsburg Landing, Tenn. (through Hon. Dwight F. Davis, Assistant Secretary of War): Hornet's nest found on the Shiloh battle field near the battle line position of Prentiss's division in the "Hornets' Nest" section (71346).

Signal Corps, (meteorological section): 43 meteorological instruments including instruments for air pressure, wind velocity, rain accumulations, etc. (70852); French telephone exchange, one position type, in old French omnibus (71305).

WARD, R. (See under Botanic Gardens, Georgetown.)

WARD, WILFRED B., Richmond, Ind.: 3 hand taps and 2 hand dies for cutting threads in wood, used in Philadelphia between 1790 and 1828 by Thomas Barnitt, grandfather of the donor (71631).

WARD'S NATURAL SCIENCE ESTABLISHMENT, Rochester, N. Y.: 25 specimens of Early Silurian fossils from Manitoba (70409, exchange); Middle Triassic invertebrates from Forest Hill, Nev. (71082); a nearly complete individual of the Mejillones, Chile, meteoric iron, weighing 14,530 grams (71363, exchange); specimen of the mineral weinschenkite (71509, exchange).

WARDWELL BRAIDING MACHINE CO., Central Falls, R. I.: A "Wardwellian" braiding machine with platform and operating motor (70360).

WARNER, S. R., Huntsville, Tex.: Plant from Texas (70528).

WATERSTON, JAMES. (See under British Government, British Museum (Natural History).)

WATSON, B. J., Chincoteague, Va.: Plant (71161).

WATSON, C. O., U. S. National Museum: Skin and skull of a bat from Washington, D. C. (70433).

WATSON, J. R. (See under Florida, University of.)

WATSON, LESTER, Boston, Mass.: Ribbon of the British Crimean War medal (71043).

WEATHERBY, C. A., East Hartford, Conn.: 61 plants from Connecticut and Massachusetts (71351).

WELD, L. H., Washington, D. C.: Collection of adults and galls produced by gallwasps of the family Cynipidae, including 11 paratypes of 5 species, and 4 cotypes of 1 species (70650).

WENDLER, C., Chene Bourg, Switzerland: A fragment weighing 197 grams of the Cabezzo de Mayo meteoric stone (70537, exchange).

WETMORE, Dr. A., Takoma Park, Md.: 3 birds from the eastern United States (70901); skeleton of a bird, Cape May warbler (71770).

WETMORE, Mrs. CHARLES, Washington, D. C.: 5 Javanese bamboo musical instruments, and a harpback piano, maker unknown (71545, 71651).

WETMORE, J. A., Washington, D. C.: Stone pipe of the Atlantic coast type, found in Takoma Park, Md. (71579).

WHARRAM, S. V., Austinburg, Ohio: 4 specimens, 1 species, of freshwater mollusks from Grand River, Ohio (70615).

WHEELER, G. C., Syracuse, N. Y.: Type specimen of parasitic Hymenoptera (71880).

WHERRY, Dr. EDGAR T., Washington, D. C.: 3 plants from Maryland (70380, 70655); 2 ferns collected in Wisconsin (70637); tree frog from New Alexandria, Va. (70657); fern from Georgia (71197).

WHITE CAPS MINING CO., Tonopah, Nev. (through John J. Kirchen, president and general manager): Sample of crystallized stibnite from the White Caps Mine, Manhattan, Nev. (71961).

WHITE, Mrs. JOHN JAY, New York City: Head of an elk mounted, and 2 heads of African antelope (71304, deposit).

WHITNEY, L. A. (See under Hawaii, Board of Commissioners of Agriculture and Forestry.)

WHITTELSEY, LEWIS G., Seattle, Wash.: Photograph showing President Warren G. Harding in the University of Washington stadium, Seattle, on the occasion of his last formal public appearance, July 27, 1923 (70529).

WHITTLE, W. O., Knoxville, Tenn.: 108 specimens, 9 species, of freshwater mollusks from the junction of the Holston and French Broad rivers, Tenn. (71459).

WIELAND, Dr. G. R. (See under Bart Johnson.)

WILCOX, Misses JANE and MARCIA, Fort Humphreys, Va.: Killdeer in immature plumage from Virginia (70247).

WILCOX, Brig. Gen. TIMOTHY E., Washington, D. C.: Plant collected by Mrs. D. D. Gaillard (70330).

WILLARD, Miss MARY BANNISTER, Polacca, Ariz.: Perforated bone strip for wrist guard from the Hopi Indians of Arizona (71680).

WILLET, A. W., Birmingham, England: Colored drawing by the donor of a pumping engine built by James Watt about 1776 for the Birmingham Canal Navigations (70285).

WILLETT, G., Craig, Alaska: 12 specimens, 5 species, of marine mollusks from Alaska (70261).

WILLIAMS-ARVONIA SLATE CORPORATION, Richmond, Va.: 2 examples of "Buckingham" Virginia roofing slate (70524).

WILLIAMSON, E. B., Bluffton, Ind.: 10 specimens of Lepidoptera and 6 of Diptera (70519, 71151).

WILLIS, CHARLES F., jr., Trappe, Md.: 13 blind amphipods taken from a well (70420, 70776).

WILSON, Dr. C. B., Westfield, Mass.: A comprehensive collection of parasitic copepods, including 15 types of new species (70836).

WILSON, HERBERT, Port Limon, Costa Rica: 2 tarantulas (71428).

WILSON, J. W., Cold Spring Harbor, N. Y.: 12 specimens of marine invertebrates collected by the donor (70556).

WILSON, Mrs. LESTER GODFREY, Washington, D. C.: Handkerchief of fine point de gaze and a 1-yard flounce of point de gaze, Belgium (71773, loan).

WINTER, G. E., Leesburg, Fla.: Turkey vulture (71088): 2 East Indian bronze coins (71212).

WISCONSIN GEOLOGICAL SURVEY, Madison, Wis. (through Dr. E. O. Ulrich): 2 large exhibition slabs and about 1,000 specimens of invertebrate fossils from the Upper Cambrian of Wisconsin (70376); 5,000 specimens of Upper Cambrian and Ozarkian fossils from southern Wisconsin (70505).

WISCONSIN SOCIETY OF THE COLONIAL DAMES OF AMERICA. (See under Victor Morris.)

WISNIEWSKI, TADEUSZ, Warsaw, Poland: 50 mosses from Poland, constituting Fascicle 3 of Bryotheca polonica (Nos. 101–150) (70878, exchange).

WOLCOTT, GEORGE N. (See under Agriculture, Department of, Bureau of Entomology.)

WOLCOTT, HORACE E., San Augustine, Tex.: Sharks' teeth representing several individuals and 10 specimens of invertebrates from the Tertiary of Texas (71569).

WOLF, Mrs. SIMON, Washington, D. C.: Japanese wood carving (mask) (70710).

WOOD, Dr. CASEY A., Chicago, Ill.: 229 bird skins from the Fiji Islands, including important additions to the Museum collections (71081, 71942).

WOOD, FRANKLIN T., Rutland, Mass.: 43 etchings and 26 lead-pencil drawings for special exhibition (71676, loan); 4 etchings (71835).

WOODRUFF, LEWIS B., New York City: 2 beetles (70805); 13 insects (11 flies and 2 water beetles, including paratypes of 7 species in the Diptera and topotypes of the Coleoptera) (71705).

WORCH, Hugo, Washington, D. C.: Clavicord made in 1700 and 2 Italian spinets, one made in 1475 and the other in 1525 (70920).

WORMSER, Moritz. (See under American Numismatic Association.)

WORTHLEY, Harlan N., Amherst, Mass.: 2 flies and 2 puparia (70538).

WORTHY PAPER CO. ASSOCIATION, Mittineague, Mass.: Color print, combined zinc plate and linoleum blocks (71791).

WYOMING, UNIVERSITY OF, Department of Botany, Laramie, Wyo. (through Prof. Edwin B. Payson): 412 plants (71060, 71120) Exchange.

YABE, Prof. H. (See under Tohoku Imperial University, Institute of Geology and Paleontology.)

YALE UNIVERSITY, New Haven, Conn.: Plant (70527, exchange).

School of Forestry (through Prof. Samuel J. Record): Plant from British Honduras (70305, exchange).

YOST, Bartley F., American Consul, Guaymas, Sonora, Mexico: 40 specimens of crustaceans, an annelid worm, 3 starfishes, 8 mollusks, and 2 fishes collected at Guaymas (70480).

YOUNG, Dr. R. T. (See under North Dakota, University of.)

ZERNY, Dr. H. (See under Naturhistorisches Museum.)

ZETEK, James, Ancon, Canal Zone: Plant (70575); (through Dr. C. V. Piper) 20 plants (70623); plant from Panama (70922); 15 specimens representing 2 species of annelids from a dry dock at Canal Zone (71787).

(See also under Agriculture, Department of, Bureau of Entomology.)

ZOOLOGISCH MUSEUM EN LABORATORIUM, Buitenzorg, Java: Skin and skull of a Javan rat (70567).

LIST OF PAPERS BASED ON THE NATIONAL COLLECTIONS PUBLISHED DURING THE FISCAL YEAR 1923–24 [1]

Aldrich, J. M.

Synonymy in the genus Cetema (Diptera): Bull. Brooklyn Ent. Soc., vol. 18, no. 3, July, 1923, p. 80.

Descriptions of lantana gall-fly and lantana seed-fly (Diptera): Proc. Hawaiian Ent. Soc., vol. 5, no. 2, Sept., 1923, pp. 261–263.

The present status of Coquillett's Hypochaeta longicornis Schiner (Diptera): Proc. Ent. Soc. Washington, vol. 25, no. 7–8, Oct.–Nov., 1923, pp. 161, 162.

The genus Philornis; a bird-infesting group of Änthomyiidae: Ann. Ent. Soc. Amer., vol. 16, no. 4, Dec., 1923, pp. 304–309, fig. 1.

The muscoid genus Genea in North America (Diptera): Ent. News, vol. 35, no. 6, June, 1924, pp. 210–214.

A new genus and species of two-winged flies of the family Chloropidae injuring Manihot in Brazil: Proc. U. S. Nat. Mus., vol. 65, art. 21, no. 2534, June 7, 1924, pp. 1, 2.

——— and **Ray T. Webber.**

The North American species of parasitic two-winged flies belonging to the genus Phorocera and allied genera: Proc. U. S. Nat. Mus., vol. 63, art. 17, no. 2486, Feb. 29, 1924, pp. 1–90.

Amaral, Afranio do.

New genera and species of snakes: Proc. New England Zool. Club, vol. 8, Nov. 5, 1923, pp. 85–105.

New genus and species of South American snakes contained in the United States National Museum: Journ. Washington Acad. Sci., vol. 14, no. 9, May 4, 1924, pp. 200–202.

Ames, Oakes.

New or noteworthy orchids: Schedulae Orchidianae, no. 6, Nov. 3, 1923, pp. 1–99, illustrated.

Additions to the orchid flora of tropical America, with illustrations of Pleurothallis and observations on noteworthy species: Schedulae Orchidianae, no. 7, Mar. 27, 1924, pp. 1–36, pls. 1–20, figs. 1–6.

Anonymous.

An English exhibition in America: The Camera, Dublin, Ireland, Jan. 1924, p. 279.

Explorations and field-work of the Smithsonian Institution in 1923: Smithsonian Misc. Coll., vol. 76, no. 10, March 31, 1924, pp. 1–128, figs. 1–123.

Bailey, Florence Merriam.

Birds recorded from the Santa Rita Mountains in southern Arizona: Pacific Coast Avifauna no. 15. Cooper Ornithological Club. Berkeley, Calif. Nov. 8, 1923, pp. 1–60, figs. 1–4.

Baker, A. C.

An undescribed orange pest from Honduras: Journ. Agric. Res., vol. 25, no. 5, Aug. 4, 1923, pp. 253, 254, pls. 1, 2.

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[1] A few papers published prior to this fiscal year are included, having been inadvertently omitted from previous reports.

Barber, H. S.

A remarkable wingless glow-worm from Ecuador (Coleoptera, Lampyridae): Ins. Ins. Mens., vol. 11, nos. 10–12, Oct.–Dec., 1923, pp. 191–194, pl. 12.

Two new Conotrachelus from tropical fruits (Coleoptera, Curculionidae): Proc. Ent. Soc. Washington, vol. 25, no. 9, Dec., 1923, pp. 182–185, fig. 1.

New Ptiliidae related to the smallest known beetle: Proc. Ent. Soc. Washington, vol. 26, no. 6, June, 1924, pp. 167–178, pls. 7, 8.

Barbour, Thomas.

Two noteworthy new lizards from Panama: Proc. New England Zool. Club, vol. 9, Jan. 4, 1924, pp. 7–10.

Barnes, William, and F. H. Benjamin.

A new Sphingid from Nevada (Lepidoptera): Proc. Ent. Soc. Washington, vol. 26, no. 6, June, 1924, p. 166.

Bartsch, Paul.

The status of Teredo beachi and Teredo navalis: Nautilus, vol. 37, no. 1, July, 1923, pp. 31, 32.

A key to the family Terebridae: Nautilus, vol. 37, no. 2, Oct., 1923, pp. 60–64.

Lima hughi, new name: Nautilus, vol. 37, no. 2, Oct., 1923, pp. 69, 70.

Stenomorphi, a new term in taxonomy: Proc. Biol. Soc. Washington, vol. 36, Dec. 19, 1923, p. 199.

A new ship worm from Chile: Revista Chilena de Historia Natural, vol. 27, 1923, pp. 147–149.

Breeding experiments with Cerions: Carnegie Inst. of Washington, Year Book 22, 1924, pp. 157, 158.

Bassler, Ray S. (See under Ferdinand Canu.)

Bean, Barton A.

A curious fish trap: Copeia, no. 131, June 30, 1924, pp. 1, 2.

——— (See also under Henry W. Fowler.)

Belote, Theodore T.

The National numismatic collection: The Numismatist, vol. 36, no. 10, Oct., 1923, pp. 452–457.

Report on the division of history: Annual Report, U. S. Nat. Mus., 1923, Dec. 20, 1923, pp. 123–130.

Benjamin, F. H. (See under William Barnes.)

Benjamin, Marcus.

Spencer Fullerton Baird—a pioneer disseminator of science news: Science, vol. 58, no. 1494, Aug. 17, 1923.

Blake, S. F.

Two new composites from Florida: Bull. Torrey Bot. Club, vol. 50, no. 6, June, 1923, pp. 203–205.

The forms of Osmorhiza longistylis: Rhodora, vol. 25, no. 295, July, 1923, pp. 110, 111.

New American Connaraceae: Bull. Torrey Bot. Club, vol. 50, no. 8, Aug., 1923, pp. 273–275.

Erucastrum Pollichii in West Virginia: Rhodora, vol. 26, no. 301, Jan., 1924, pp. 22, 23.

Eight new Asteraceae from Mexico, Guatemala, and Hispaniola: Proc. Biol. Soc. Washington, vol. 37, Feb. 21, 1924, pp. 55–62.

Polygalaceae: N. Amer. Flora, vol. 25, pt. 4, Mar. 10, 1924, pp. 305–326.

Blake, S. F.—Continued.

New Polygalas from Colombia: Bull. Torrey Bot. Club, vol. 51, no. 3, Mar., 1924, pp. 83–89.

New American Asteraceae: Contr. U. S. Nat. Herb., vol. 22, pt. 8, May 22, 1924, pp. 587–661, pls. 54–63, fig. 87.

Blanchard, Frank N.

The snakes of the genus Virginia: Papers Michigan Acad. Sci., vol. 3, 1923, pp. 343–365.

Comments on ring-neck snakes (genus Diadophis) with diagnoses of new forms: Occ. Papers, Mus. Zool. Univ. Mich., July 9, 1923, no. 142, pp. 1–9.

A new snake of the genus Arizona: Occ. Papers Mus. Zool. Univ. Michigan, Apr. 26, 1924, no. 150, pp. 1–5.

Böving, Adam G.

Description of larva and pupa of Goes tesselatus: Journ. Agric. Res., vol. 26, no. 7, Nov. 17, 1923, pp. 315, 316.

Brackett, A.

Contributions from the Gray Herbarium of Harvard University. New series.—No. LXIX. I. Revision of the American species of Hypoxis.—II. Some genera closely related to Hypoxis: Rhodora, vol. 25, no. 296, Aug., 1923, pp. 120–147, figs. 1–13; no. 297, Sept., 1923, pp. 151–163, figs. 14–17.

Britton, N. L., and **J. N. Rose.**

The Cactaceae. Descriptions and illustrations of plants of the cactus family: Carnegie Inst. Washington, Publ. no. 248, vol. 4, Dec. 24, 1923, pp. i–vii, 1–318, pls. 1–37, figs. 1–263.

Canu, Ferdinand, and **Ray S. Bassler.**

North American Later Tertiary and Quaternary Bryozoa: Bull. U. S. Nat. Mus., no. 125, July 16, 1923, pp. i–vii, 1–302, pls. 1–47, figs. 1–38.

Caudell, A. N.

Change of a preoccupied generic name: Proc. Ent. Soc. Washington, vol. 26, no. 4, Apr., 1924, p. 92.

Amblycorypha brachyptera Ball (Orthoptera): Proc. Ent. Soc. Washington, vol. 26, no. 6, June, 1924, p. 180.

——— and **J. L. King.**

A new genus and species of the Notopterous family Grylloblattidae from Japan: Proc. Ent. Soc. Washington, vol. 26, no. 3, Mar., 1924, pp. 53–60.

Chamberlin, Ralph V.

Descriptions of new American and Chinese spiders, with notes on other Chinese species: Proc. U. S. Nat. Mus., vol. 63, art. 13, no. 2481, Feb. 8, 1924, pp. 1–38, pls. 1–7.

Champlain, A. B., and **J. N. Knull.**

Notes on Pennsylvania Diptera: Ent. News., vol. 34, no. 7, July, 1923, pp. 211–215.

A new species of Agrilus from Kansas (Buprestidae, Coleoptera): Ent. News, vol. 34, no. 9, Nov., 1923, p. 274.

Chapman, Frank M.

Descriptions of proposed new birds from Venezuela, Colombia, Ecuador, Peru, and Chile: Amer. Mus. Novitates, no. 96, Nov. 19, 1923, pp. 1–12.

Chittenden, F. H.

New species and variations of Sphenophorus with notes on certain forms: Proc. Ent. Soc. Washington, vol. 26, no. 6, June, 1924, pp. 145–159, pls. 5, 6.

Clark, Austin H. (Erroneously Augustin H. Clark).

Crinoidea: The Danish Ingolf-Expedition, vol. 4, pt. 5, Sept. 22, 1923, pp. 1–58, 58 figs., list of stations, and colored chart.

Clark, Hubert Lyman.

Echinoderms from Lower California, with descriptions of new species: Supplementary Report. [Scientific results of the expedition to the Gulf of California in charge of C. H. Townsend, by the U. S. Fisheries steamship *Albatross* in 1911, Commander G. H. Burrage, U. S. N., commanding]: Bull. Amer. Mus. Nat. Hist., vol. 48, art. 6, Oct. 5, 1923, pp. 147–163.

Cochran, Doris M.

Typhlops lumbricalis and related forms: Journ. Washington Acad. Sci., vol. 14, no. 8, Apr. 19, 1924, pp. 174–177.

Cockerell, T. D. A.

Some Colorado bees: Can. Ent., vol. 55, no. 9, Sept., 1923, pp. 205, 206.

A new genus of mayflies from the Miocene of Florissant, Colorado: Psyche, vol. 30, no. 5, Oct., 1923, pp. 170–172.

Fossil insects in the United States National Museum: Proc. U. S. Nat. Mus., vol. 64, art. 13, no. 2503, Feb. 2, 1924, pp. 1–15, pls. 1, 2, text figs. 1, 2.

Descriptions and records of bees: Ann. Mag. Nat. Hist., ser. 9, vol. 13, no. 77, May, 1924, pp. 523–530.

——— (See also under William Schaus.)

Cook, O. F.

Pseudophoenix insignis, a new palm from Haiti, and two other new species from the West Indies: Journ. Washington Acad. Sci., vol. 13, no. 18, Nov. 4, 1923, pp. 397–408, fig. 1.

Coville, Frederick V.

Grossularia echinella, a spiny-fruited gooseberry from Florida: Journ. Agr. Research, vol. 28, no. 1, June, 1924, pp. 71–74, pl. 1.

Cram, Eloise B.

Gongylonema ingluvicola Rans. from the undilated portion of the esophagus of the domestic fowl: Journ. Parasitol., vol. 9, no. 4, June, 1923, p. 238.

Specimen of Contracaecum osculatum from a sea lion: Journ. Parasitol., vol. 9, no. 4, June, 1923, pp. 238, 239, fig. 2.

A new nematode, Protospirura gracilis, from the cat: Journ. Amer. Vet. Med. Assoc., vol. 65, n. s., vol. 18, no. 3, June, 1924, pp. 355–357, figs. 1–3.

Cushman, Joseph Augustine.

The Foraminifera of the Atlantic Ocean. Pt. 4. Lagenidae: Bull. U. S. Nat. Mus. no. 104, pt. 4, Sept. 27, 1923, pp. 1–228, pls. 1–42.

The Foraminifera of the Atlantic Ocean. Pt. 5. Chilostomellidae and Globigerinidae: Bull. U. S. Nat. Mus. no. 104, pt. 5, May 20, 1924, pp. 1–45, pls. 1–8.

Cushman, R. A.

New genera and species of Ichneumon-flies: Proc. U. S. Nat. Mus., vol. 64, art. 4, no. 2494, Jan. 12, 1924, pp. 1–16.

On the genera of the Ichneumon-flies of the tribe Paniscini Ashmead, with descriptions and discussion of related genera and species: Proc. U. S. Nat. Mus., vol. 64, art. 20, no. 2510, May 9, 1924, pp. 1–48.

Dall, William Healey.

F. C. Meuschen in the Museum Gronovianum: Nautilus, vol. 37, no. 2, Oct., 1923, pp. 44–52.

Notes on Drupa and Morula: Proc. Phila. Acad. Nat. Sci., Nov., 1923, pp. 303–306.

Bering's voyages, an account of the efforts of the Russians to determine the relation of Asia and America: Amer. Hist. Review, vol. 29, no. 2, Jan., 1924, pp. 340, 341.

Notes on molluscan nomenclature: Proc. Biol. Soc. Washington, vol. 37, Feb., 1924, pp. 87–90.

On the value of nuclear characters in the classification of marine gastropods: Journ. Washington Acad. Sci., vol. 14, no. 8, Apr., 1924.

A new Alaskan Puncturella: Nautilus, vol. 37, no. 4, Apr., 1924, p. 133.

Dickey, D. R., and A. J. Van Rossem.

Description of a new grouse from southern California: Condor, vol. 25, no. 5, Oct. 3, 1923, pp. 168, 169.

A new race of the least bittern from the Pacific Coast: Bull. South. Calif. Acad. Sci., vol. 23, pt. 1, Feb. 20, 1924, pp. 11, 12.

Dietz, Harry Frederic, and T. E. Snyder.

Biological notes on the termites of the Canal Zone and adjoining parts of the Republic of Panama: Journ. Agric. Res., vol. 26, no. 7, Nov. 17, 1923, pp. 279–302, pls. 1–8.

Dobroscky, Irene D. (See under Raymond C. Shannon.)

Dodds, G. S.

Notes on Entomostraca from Colorado. The Shantz collections from the Pikes Peak region: Proc. U. S. Nat. Mus., vol. 65, art. 18, no. 2531, May 12, 1924, pp. 1–7, fig. 1.

Dunn, Emmett Reid.

Amastridium, a neglected genus of snakes: Proc. U. S. Nat. Mus., vol. 65, art. 11, no. 2524, Apr. 1, 1924, pp. 1–3.

Dyar, Harrison G.

Notes on American Culex (Diptera, Culicidae): Ins. Ins. Mens., vol. 11, nos. 7–9, July–Sept., 1923, pp. 118–121, pls. 6–8.

Mosquitoes described by Von Humboldt (Diptera, Culicidae): Ins. Ins. Mens., vol. 11, nos. 7–9, July–Sept., 1923, pp. 121, 122.

Food plant of Hyblaea puera Cramer (Lepidoptera, Noctuidae): Ins. Ins. Mens., vol. 11, nos. 7–9, July–Sept., 1923, p. 148.

The mosquitoes of Panama (Diptera, Culicidae): Ins. Ins. Mens., vol. 11, nos. 10–12, Oct.–Dec., 1923, pp. 167–186.

A new Culex from Mexico (Diptera, Culicidae): Ins. Ins. Mens., vol. 11, nos. 10–12, Oct.–Dec., 1923, pp. 186, 187.

On some of the American subgenera of Culex (Diptera, Culicidae): Ins. Ins. Mens., vol. 11, nos. 10–12, Oct.–Dec., 1923, pp. 187–190, pl. 10.

Dyar, Harrison G.—Continued.

New Lepidoptera from Mexico and from Argentina: Ins. Ins. Mens., vol. 12, nos. 1–3, Jan.–Mar., 1924, pp. 15–21.

A new Noctuid from Louisiana (Lepidoptera, Noctuidae): Ins. Ins. Mens., vol. 12, nos. 1–3, Jan.–Mar., 1924, pp. 21, 22.

Notes on Aedes punctor Kirby (Diptera, Culicidae): Ins. Ins. Mens., vol. 12, nos. 1–3, Jan.–Mar., 1924, pp. 24–26.

The mosquitoes of Colorado (Diptera, Culicidae): Ins. Ins. Mens., vol. 12, nos. 1–3, Jan.–Mar., 1924, pp. 39–46.

American references in the catalogue of Indian Culicidae (Diptera): Ins. Ins. Mens., vol. 12, nos. 4–6, Apr.–June, 1924, pp. 57–60.

A new Sabethid from Brazil (Diptera, Culicidae): Ins. Ins. Mens., vol. 12, nos. 4–6, Apr.–June, 1924, p. 92.

Note on Culex tarsalis Coquillett (Diptera, Culicidae): Ins. Ins. Mens., vol. 12, nos. 4–6, Apr.–June, 1924, pp. 95, 96.

——— and **Raymond C. Shannon.**

New Culex from Panama (Diptera, Culicidae): Ins. Ins. Mens., vol. 12, nos. 1–3, Jan.–Mar. 1924, pp. 46–48.

Notes on Sabethid from Panama (Diptera, Culicidae): Ins. Ins. Mens., vol. 12, nos. 4–6, Apr.–June, 1924, pp. 85–91.

Edmondson, Charles Howard.

Crustacea from Palmyra and Fanning Islands: Bull. Bernice P. Bishop Mus., no. 5, 1923, pp. 3–37, pls. 1, 2, text figs. 1–3.

Ewing, H. E.

The generic and specific name of the orange rust mite: Florida Ent., vol. 7, no. 2, Oct., 1923, pp. 21, 22.

Our only common North American chigger, its distribution and nomenclature: Journ. Agric. Res., vol. 26, no. 9, Dec. 1, 1923, pp. 401–403.

Holosiro acaroides, new genus and species, the only New World representative of the mitelike Phalangids of the suborder Cyphophthalmi: Ann. Ent. Soc. Amer., vol. 16, no. 4, Dec., 1923, pp. 387–390, fig. 1, pl. 39.

Bird-infesting Mallophaga, collected by the Williams Galapagos Expedition: Zoologica, vol. 5, no. 7, Feb. 27, 1924, pp. 81–84, fig. 12.

Florida Proturans: Ent. News, vol. 35, no. 2, Feb., 1924, pp. 44–46.

On the taxonomy, biology, and distribution of the biting lice of the family Gyropidae: Proc. U. S. Nat. Mus., vol. 63, art. 20, no. 2489, Mar. 4, 1924, pp. 1–42, pl. 1.

New tarsonemid mites (order Acarina, family Tarsonemidae): Proc. Ent. Soc. Washington, vol. 26, no. 3, Mar., 1924, pp. 66–69.

A new mite from the lung sac of a rattlesnake: Proc. Ent. Soc. Washington, vol. 26, no. 6, June, 1924, p. 179.

Fisher, W. K.

A remarkable new sea star from Japan: Proc. U. S. Nat. Mus., vol. 64, art. 3, no. 2493, Mar. 18, 1924, pp. 1–6, pls. 1, 2.

Fisher, W. S.

A change of name in Buprestidae: Proc. Ent. Soc. Washington, vol. 25, no. 9, Dec., 1923, p. 190.

A new species of Brachys from Arizona (Coleoptera, Buprestidae): Proc. Ent. Soc. Washington, vol. 26, no. 1, Jan., 1924, pp. 12, 13.

New buprestid beetles from the Philippine Islands, I: Philippine Journ. Sci., vol. 24, no. 1, Jan., 1924, pp. 45–52.

Foshag, W. F.

Priceite from Furnace Creek, Inyo County, Calif.: Amer. Mineralogist, vol. 9, no. 1, Jan., 1924, pp. 11–13.

Note on lavendulan from Joachimstal, Bohemia: Amer. Mineralogist, vol. 9, no. 2, Feb., 1924, pp. 29, 30.

Freirinite: a new mineral species. Amer. Mineralogist, vol. 9, no. 2, Feb., 1924, pp. 30, 31.

Centrallasite from Crestmore, Calif.: Amer. Mineralogist, vol. 9, no. 4, Apr., 1924, pp. 88–90.

Fouts, Robert M.

New bethylid and serphoid parasites from North America (Hymenoptera): Proc. Ent. Soc. Washington, vol. 26, no. 6, June, 1924, pp. 159–166.

Revision of the North American wasps of the subfamily Platygasterinae: Proc. U. S. Nat. Mus., vol. 63, art. 15a, no. 2484, June 30, 1924, pp. 1–145, pl. 1, figs. 1–10.

Fowler, Henry W., and Barton A. Bean.

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