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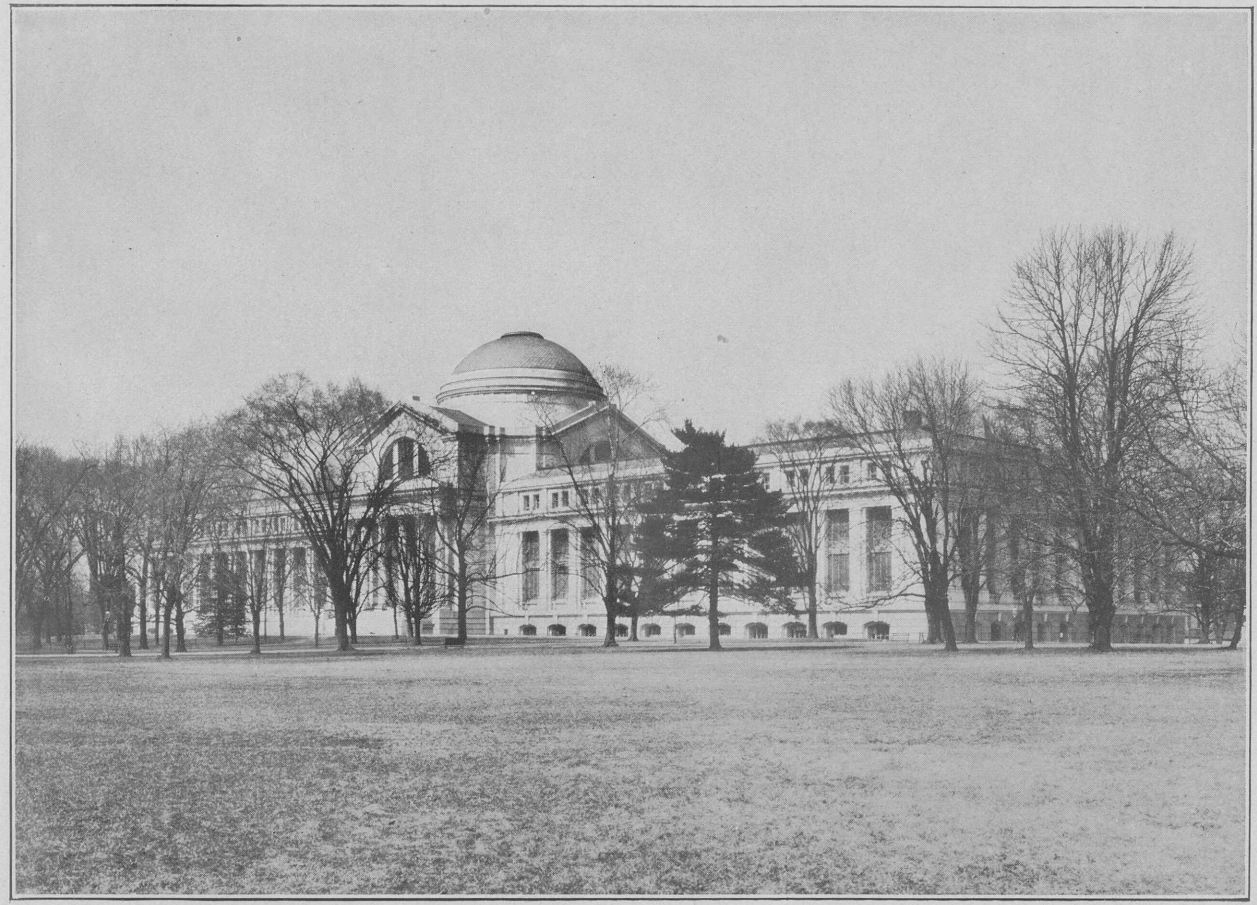

SOUTH FRONT OF NATURAL HISTORY BUILDING, UNITED STATES NATIONAL MUSEUM.

66TH CONGRESS
2d Session
HOUSE OF REPRESENTATIVES
DOCUMENT
No. 710

ANNUAL REPORT OF THE BOARD OF REGENTS OF THE SMITHSONIAN INSTITUTION

SHOWING THE OPERATIONS, EXPENDITURES AND CONDITION OF THE INSTITUTION FOR THE YEAR ENDING JUNE 30

1919

REPORT OF THE U. S. NATIONAL MUSEUM



WASHINGTON
GOVERNMENT PRINTING OFFICE
1920

UNITED STATES NATIONAL MUSEUM,
UNDER DIRECTION OF THE SMITHSONIAN INSTITUTION,
Washington, D. C., October 7, 1919.

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 ending June 30, 1919.

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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REPORT ON THE PROGRESS AND CONDITION OF THE UNITED STATES NATIONAL MUSEUM FOR THE YEAR ENDING JUNE 30, 1919.

By WILLIAM DEC. RAVENEL,

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

INCEPTION AND HISTORY.

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 large-minded design of Smithson, to provide for the custody of the museum of the Nation. To this new establishment was therefore intrusted the care of the national collections, a course that time has fully justified.

In the beginning the cost of maintaining the museum side of the Institution's work was wholly paid from the Smithsonian income; then for a time the Government bore a share, and during the past 40 years Congress has voted the entire funds for the expenses of the Museum, thus furthering one of the primary means " for the increase and diffusion of knowledge among men " without encroaching upon the resources of the Institution.

The museum idea was inherent in the establishment of the Smithsonian Institution, which in its turn was based upon a 10 years' discussion in Congress and the advice of the most distinguished scientific men, educators, and intellectual leaders of the Nation of 70 years ago. It is interesting to note how broad and comprehensive were the views which actuated our lawmakers 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 stamping 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.

If the wisdom of Congress in so fully providing for a museum in the Smithsonian law challenges attention, the interpretation put upon this law by the Board of Regents within less than six months from the passage of the act can not but command admiration. In the early part of September, 1846, the Regents took steps toward formulating a plan of operations. The report of the committee appointed for this purpose, submitted in December and January following, shows a thorough consideration of the subject in both the spirit and letter of the law. It would seem not out of place to cite here the first pronouncement of the board with reference to the character of the Museum:

"In obedience to the requirements of the charter,[1] which leaves little discretion in regard to the extent of accommodations to be provided, your committee recommend that there be included in the building a museum of liberal size, fitted up to receive the collections destined for the Institution. * * *

"As important as the cabinets of natural history by the charter required to be included in the Museum, your committee regard its ethnological portion, including all collections that may supply items in the physical history of our species, and illustrate the manners, customs, religions, and progressive advance of the various nations of the world; as, for example, collections of skulls, skeletons, portraits, dresses, implements, weapons, idols, antiquities, of the various races of man. * * * In this connexion your committee recommend the passage of resolutions asking the cooperation of certain public functionaries and of the public generally in furtherance of the above objects.

"Your committee are further of opinion that in the Museum, if the funds of the Institution permit, might judiciously be included various series of models illustrating the progress of some of the most useful inventions; such, for example, as the steam engine from its earliest and rudest form to its present most improved state; but this they propose only so far as it may not encroach on ground already covered by the numerous models in the Patent Office.

"Specimens of staple materials, of their gradual manufacture, and of the finished product of manufactures and the arts may also, your committee think, be usefully introduced. This would supply oppor-

[1] Since the Institution was not chartered in a legal sense, but established by Congress, the use of the word "charter" in this connection was not correct.

tunity to examine samples of the best manufactured articles our country affords, and to judge her gradual progress in arts and manufactures. * * *

"The gallery of art, your committee think, should include both paintings and sculpture, as well as engravings and architectural designs; and it is desirable to have in connexion with it one or more studios in which young artists might copy without interruption, being admitted under such regulations as the board may prescribe. Your committee also think that, as the collection of paintings and sculpture will probably accumulate slowly, the room destined for a gallery of art might properly and usefully meanwhile be occupied during the sessions of Congress as an exhibition room for the works of artists generally; and the extent and general usefulness of such an exhibit might probably be increased if an arrangement could be effected with the Academy of Design, the Arts Union, the Artists' Fund Society, and other associations of similar character, so as to concentrate at the metropolis for a certain portion of each winter the best results of talent in the fine arts."

The important points in the foregoing report are (1) that it was the opinion of the Regents that a museum was requisite under the law, Congress having left no discretion in the matter; (2) that ethnology and anthropology, though not specially named, were yet as important subjects as natural history; (3) that the history of the progress of useful inventions and the collection of the raw materials and products of the manufactures and arts should also be provided for; (4) for the gallery of art the committee had models in existence, and they proposed, pending the gathering of art collections, which would of necessity be slow, to provide for loan exhibitions by cooperating with art academies and societies.

In the resolutions which were adopted upon the presentation of the report, a museum was mentioned as "one of the principal modes of executing the act and trust."[1] The work was to go forward as the funds permitted, and, as is well known, the maintenance of the Museum and the library was long ago assumed by Congress, the Institution taking upon itself only so much of the necessary responsibility for the administration of these and subsequent additions to its activities as would weld them into a compact whole, which together form a unique and notable agency for the increase and diffusion of

[1] *Resolved,* That it is the intention of the act of Congress establishing the Institution, and in accordance with the design of Mr. Smithson, as expressed in his will, that one of the principal modes of executing the act and the trust is the accumulation of collections of specimens and objects of natural history and of elegant art, and the gradual formation of a library of valuable works pertaining to all departments of human knowledge, to the end that a copious storehouse of materials of science, literature, and art may be provided which shall excite and diffuse the love of learning among men, and shall assist the original investigations and efforts of those who may devote themselves to the pursuit of any branch of knowledge.

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 or knowledge with men of science in the United States.

Since that early day the only material change in the scope of the Government museum has been 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.

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 opportunity for establishing a department of the industrial arts, of which the fullest advantage has been taken, but the department or gallery of the fine arts made little progress, though not from lack of desire or appreciation, until 1906, when circumstances led to its definite recognition.

While it is the primary duty of a museum to preserve the objects confided to its care, as it is that of a library to preserve its books and manuscripts, yet 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. Judged by this standard, the National Museum may claim to have reached a high state of efficiency. From an educational point of view it is of great value to those persons who are so fortunate as to reside in Washington or who are able to visit the Nation's Capital. In its well-designed cases, in which every detail of structure, appointment, and color is considered, a selection of representative objects is placed on view to the public, all being carefully labeled individually and in groups. The child as well as the adult has been provided for and the kindergarten pupil and the high-school scholar can be seen here supplementing their class-room games or studies. Under authority from Congress the small colleges and higher grades of schools and academies throughout the land, especially in places where museums do not exist, are also being aided in their educational work by sets of duplicate specimens, selected and labeled to meet the needs of both teachers and pupils.

Nor has the elementary or even the higher education been by any means the sole gainer from the work of the Museum. To advance knowledge, to gradually extend the boundaries of learning, has been one of the great tasks to which the Museum, in consonance with the spirit of the Institution, has set itself from the first. Its staff, though chiefly engaged in the duties incident to the care, classification, and labeling of collections in order that they may be accessible to the public and to students, has yet in these operations made important discoveries in every department of the Museum's activities, which have in turn been communicated to other scholars through its numerous publications. But the collections have not been held for the study of the staff nor for the scientific advancement of those belonging to the establishment. Most freely have they been put at the disposal of investigators connected with other institutions, without whose help the record of scientific progress based upon the material in the Museum would have been greatly curtailed. When it is possible to so arrange, the investigator comes to Washington; otherwise such collections as he needs are sent to him, whether he resides in this country or abroad. In this manner practically every prominent specialist throughout the world interested in the subjects here well represented has had some use of the collections and thereby the National Museum has come to be recognized as a conspicuous factor in the advancement of knowledge wherever civilization has a foothold.



NORTH FRONT OF ARTS AND INDUSTRIES BUILDING, UNITED STATES NATIONAL MUSEUM.

OPERATIONS OF THE YEAR.

DEATH OF ASSISTANT SECRETARY IN CHARGE OF MUSEUM.

It is with profound sorrow that I record the death at his home in the city of Washington, on July 16, 1918, of Dr. Richard Rathbun, Assistant Secretary of the Smithsonian Institution since 1897 and, as such, in charge of the United States National Museum since 1898.

Out of respect to his memory the flags on the buildings of the Institution were carried at half-mast until after the interment of his remains in Rock Creek Cemetery on July 18. Business was suspended in the offices and the public exhibition halls were closed on the day of his funeral.

This is not the place to give an adequate review of the work of Doctor Rathbun as a man of science, or to recall his contributions to the upbuilding of the institution with which he was so long connected. I may be permitted, however, to express here my sense of bereavement in the passing of a man whose friendship and personal and official confidence I was permitted to enjoy. Coming to the Museum from the Bureau of Fisheries in 1902 to assist Doctor Rathbun in the administrative work of the Museum, our official association here, as in that Bureau, was long and exceedingly cordial.

During Doctor Rathbun's disability and after his decease, the administration of the Museum devolved upon the writer as next in authority.

On November 1, 1918, the position of Assistant Secretary of the Smithsonian Institution in charge of the United States National Museum was discontinued and the writer was placed in charge of the administrative affairs of the Museum, with the title of Administrative Assistant to the Secretary. In addition to the general duties of the above assignment, he was designated Director of Arts and Industries in the Museum.

WAR ACTIVITIES.

As mentioned in the last report, the Board of Regents of the Institution, at the request of the President of the United States, closed the Natural History Building to the public on July 16, 1918, thus enabling the Museum to furnish the Bureau of War Risk Insurance of the Treasury Department with 138,600 square feet of space for office purposes on the ground and two exhibition floors. This was done with the understanding that the Museum would be vacated

upon the completion of the building then being erected for the Bureau at the corner of Vermont Avenue and H Street, and that the Museum space would be turned back to the Museum authorities in the same condition in which was received by the Bureau. Late in March the Bureau moved to its own structure, but its funds were then so depleted that it was unable to carry out the agreement as to renovating the building. It was therefore unfortunately necessary to reopen the Natural History Building without making the needed repairs, the first floor being opened to visitors on April 11 and the second floor on April 22.

From the beginning of the fiscal year until the signing of the armistice on November 11 members of the Museum staff in all departments continued along the same general lines as last year to render service to the various governmental agencies more directly engaged in prosecuting America's part in the great conflict. Much valuable assistance was thus given, and the cooperation of the Museum in this work has resulted in bringing it into even closer relationship with the executive departments, with beneficial results.

Advantage was taken of the closing of the exhibition halls to give additional attention to classifying, arranging, labeling, and otherwise putting in shape the study series in the various departments. In the department of geology this also afforded opportunity to thoroughly clean and to some extent rearrange the exhibition series, so that when reopened to visitors the halls were more interesting than ever.

FINANCES.

The maintenance and operation of the Museum for the fiscal year July 1, 1918, to June 30, 1919, were provided for by the following items of appropriation in the sundry civil bill approved July 1, 1918:

Preservation of collections	$300,000
Furniture and fixtures	15,000
Heating and lighting	55,000
Building repairs	10,000
Purchase of books	2,000
Postage	500
Printing and binding	37,500
Total	420,000

Although the Museum has received many and some exceedingly valuable additions to its collections by bequest, it is only recently that financial assistance has been rendered it in this way. During the year the Museum made its first purchases from the Frances Lea Chamberlain Funds. These two funds, as mentioned in previous reports, were created by Dr. Leander Trowbridge Chamberlain for

promoting, respectively, the increase and the scientific value and usefulness of the Isaac Lea collection of gems and the scientific value and usefulness of the Isaac Lea collection of mollusks. While the full amount of the bequests has not yet reached the Institution, the income from the first installment of the principal has permitted the addition of some very desirable material in both lines. These collections were made by the eminent naturalist Dr. Isaac Lea and reached the Museum some years ago through the generosity of Doctor Lea, his daughter, Mrs. Frances Lea Chamberlain, and his son-in-law, Doctor Chamberlain. By frequent gifts of both specimens and money for making purchases, Mrs. Chamberlain during her lifetime, and afterwards her husband, continued their upkeep, and Doctor Chamberlain's generous provision in his will for perpetuating the assistance so long rendered in person is a benefaction of unusual importance to the Museum.

Through the generosity of one of the members of the staff, a small purchase fund, known as the Swales Fund, was available during the year for adding to the collection of birds' skins.

BUILDINGS AND EQUIPMENT.

The more important repairs in connection with the Natural History Building were the reconstruction of the floor of west entrance and providing cesspool with sewer connection on the outside of the building so as to make the space sanitary, the laying of composition cork flooring in the engine room, the repointing of all the horizontal and vertical joints in stones and sides of pilasters in the different parts of the building, the cutting out and repointing seams between stones in platform and steps on south side of the building, the maintenance and repairs to the roofs, replacing of broken glass in windows and skylights in exhibition halls and the painting of all the radiators in the exhibition halls.

In the Arts and Industries Building special attention was paid to the roofs, skylights, and windows which involved the repainting of the roofs over the four courts, four main halls and the rotunda, the reputtying of all skylights, and reinforcing the irons on the sixteen large triple windows around the rotunda. A new Georgia pine floor was laid in one of the administrative offices in the northwest pavilion, and the old wooden floor at the west end of gallery in west hall removed and a terrazzo flood laid, so that this section of the gallery might be used for exhibition purposes. Room 80 in the southeast pavilion was repainted and fitted up for the use of the States Relations Service, Department of Agriculture, in cooperation with the Museum for home demonstration work, canning, etc. A new dark room was provided in the photographic laboratory, and a number of the halls, offices, and laboratories repainted.

In the west end of the basement of the Smithsonian Building new cement floors were laid in rooms 14, 15, and 18, which completes the substitution of fireproof floors throughout the western portion of that building. Repairs to the roofs consisted chiefly in the refastening of the flashing on gutters, painting the roofs, and repairs to flagpole and replacing broken glass in the windows of the exhibition halls and offices.

The building erected in the east court of the Natural History Building by the Bureau of War Risk Insurance and turned over to the Museum at the expiration of their occupancy of the building, part of which is intended for use as a taxidermist shop, was improved by the installation of a galvanized iron gable skylight on roof and the replacing of ground glass in the west section with clear glass.

As the building for the Freer collections approached completion it became necessary to remove the old two-story brick workshop, constructed in 1875 for housing the preparators and the photographer of the Museum during the preparations for the Philadelphia Centennial Exhibition. This structure has for some years now been used as a taxidermist shop, garage, and machine shop. The building was condemned and after advertisement was sold for the sum of $252, the purchaser being required to remove all of the material within 30 days. Provision for the taxidermist shop was made in the east court of the Natural History Building and for the garage and machine shop of the Astrophysical Observatory in the shed at the rear of the Smithsonian Building.

The power plant was closed down from July 1 to September 4, during which time the electric current for light and power purposes was purchased from the Potomac Electric Power Co. at the usual rate of 2½ cents a kilowatt hour, which is a special rate given to Government establishments having plants for the generation of current. The chief object in closing the plant is to permit of repairs to the machinery and to allow the employees to take the greater part of their leave. It was extremely difficult to have the plant placed in proper condition by September, as several of the engineers, firemen, and laborers, owing to the high rates of pay offered elsewhere, resigned during the late spring and early summer. The situation became so acute that it was necessary, in order to retain any of the old men, to increase their compensation by $10 to $15 a month, but even this increase failed to hold them, so that when the heating season arrived all of the assistant engineers had been replaced by new men and most of the firemen and laborers. Fortunately, the only important repair required was the retubing of the feed-water heater.

It is gratifying to report that although the cost of coal was greater than the preceding year, the cost of electric current was somewhat

less, being 2.512 cents against 2.795 cents the year before. This was due primarily to the fact that steam was required for heating purposes a greater number of days than usual, although the winter was mild, so that the production of current was to a certain extent a by-product.

The coal furnished by the Government fuel yards was extremely poor and not suited for the type of stokers in the Museum. After the 1st of April a better grade was furnished. In addition to the increased cost of coal the cost of the removal of ashes was several hundred per cent greater than ever before, due to the large amount of ash in the coal and great increase in cost for cubic yard in removal.

The total amount of coal used was 3,156.50 tons, of which the Bureau of War Risk Insurance paid for 499.88 tons.

Owing to the closing of the building and its use for office purposes a heavier electrical load was carried, which with the change in the operating force and the impossibility of keeping on a sufficient number of men caused greater wear and tear on the machinery.

Among the important changes made in the plant during the year which will materially aid in its operation was the purchase of an oiling system for the main bearing of the engines which has never been satisfactory. By the use of this apparatus the oil passing over the main bearing flows by gravity to a large receiving tank in the pump pit from which it is lifted by a double-ended steam pump to a filter placed on the main engine room floor, where all dirt and entrained water is removed. The pump then lifts the oil from the filter to a receiving tank near the ceiling of the engine room in which is a continuous pipe coil for circulating cooling water. From this tank the oil passes by gravity back to the reservoir on each engine, thence to the individual bearings. It is expected that this arrangement will do away with the common danger of burning the main bearings of the engine, and will greatly prolong the life of the bearings.

The ventilating system for the engine room, which had been exceedingly unsatisfactory, has been changed, greatly improving conditions. The 30-inch fan originally installed for forcing hot air from the engine room into the rooms and shops in the east hall basement is now utilized for forcing fresh air through a system of ducts running along the ceiling of the engine room. And provision has been made for more efficiently heating the adjacent rooms and shops by the installation of radiators connected with the hot-water system.

The ice plant was operated 5,215 hours, producing a total of 331.8 tons of ice at a cost of $3.70 a ton. Although the cost of ice was less than the preceding year, it was still much higher than it should have

been, due primarily to the fact that the plant is becoming less efficient each year. The cost of labor and material was $246.18 and for current for operating the motor $982.51, making a total of $1,228.69.

All of the fire extinguishers were recharged and thoroughly overhauled during the year. The electric fire alarm systems in all of the buildings were inspected every three months. The system is not entirely satisfactory, and it will undoubtedly be necessary to replace it as soon as a more satisfactory system can be tested.

In view of the large amount of miscellaneous work which the Museum was called upon to do for the Bureau of War Risk Insurance, the Bureau provided an electrician and furnished all the electric lamps for replacements on the three floors occupied by it, at a cost of $1,126.98.

There were acquired during the year 4 exhibition cases and 199 pieces of storage and laboratory furniture, besides 682 unit drawers and 400 insect drawers. The inventory of furniture at the close of the year showed 3,556 exhibition cases, 11,178 pieces of storage, laboratory, office, and other furniture, 45,867 wooden unit drawers, 4,712 metal unit drawers, 10,742 insect drawers, 10,671 special drawers with compo bottoms, and 7,991 miscellaneous drawers, wing frames, etc.

During the period of the war heavier demands were made on the members of the watch force than ever before, and in addition to this many of the best men were called into the service. At one time the force was reduced so low that there were not sufficient men to guard the buildings and collections. The situation became so serious that the Civil Service Commission, not having any eligibles on its registers, authorized the Museum to appoint men from the outside without examination. Through the United States Employment Bureau and other agencies a sufficient number of men was procured and the force kept in a fair condition.

COLLECTIONS.

The total number of specimens acquired by the Museum during the year was approximately 526,845. Received in 1,198 separate accessions, they were classified and assigned as follows: Department of anthropology, 12,333; zoology, 442,383; botany, 40,357; geology and mineralogy, 4,750; paleontology, 26,050; textiles, woods, medicines, foods, and other miscellaneous animal and vegetable products, 884; mineral technology, 62; and National Gallery of Art, 26. As loans for exhibition, 3,096 articles were also obtained, mainly for the divisions of history and American archeology and the Gallery of Art.

Material to the extent of 539 lots was received for special examination and report.

The distribution of duplicates, mainly to schools and colleges for educational purposes, aggregated 3,441 specimens, of which 1,378 were contained in seven regular sets of fossil invertebrates averaging 47 specimens each and six regular sets of mollusks of 174 specimens each. The balance comprised 19 special lots, consisting of marine invertebrates, reptiles, fishes, fossils, minerals and ores, stone implements, and basketry specimens.

In making exchanges for additions to the collections, a total of 5,227 duplicate specimens were distributed. These consisted largely of plants.

Material sent out to specialists for study on behalf of the Museum amounted to 19,851 specimens, mainly biological.

War collections.—In furtherance of its extensive historical exhibits, the Museum, early in the year, through cooperation with the War and Navy Departments, undertook the assembling and installation of a collection of materials connected with the World War, which will form one of its most important collections and may, ultimately, require a separate building. It is proposed to perpetuate the part taken by the United States in this war by preserving and exhibiting objects graphically illustrating the military, naval, and aerial activities not only of our own side of the conflict but of that of our opponents as well.

The value of such a collection can not be overestimated from the popular or the scientific standpoint, not only forming a fitting and serviceable supplement to the written and printed records relating to the history of the war, but constituting a most notable memorial to the patriotic individuals who have contributed to the preservation of civilization. It will also be of the highest value for historical and scientific research.

The scope of this exhibit includes not only the general and individual military and naval equipment of the various branches of the service, but accessories of all kinds, military and naval decorations and medals, commemorative medals of notable events, mementos, trophies, pictorial and printed material, manuscripts, and other objects relating to the war in all its phases.

As the National History Building was closed and every available foot of space in it assigned to the Treasury Department, the material received during the year for the War Collections was mainly installed in the Arts and Industries Building. Some of the large and heavy objects were placed in the open to the west of the building. By the close of the year material for the War Collections was coming in such quantity that it became necessary to also assign to this subject all of the central portion of the ground story and the rotunda of the Natural History Building, space usually reserved for special exhibitions of a very temporary nature.

Of the many articles received during the year for the War Collections, special mention is made of the combined order of battle map corrected to November 11, 1918, with its accessories, as used by General Pershing and his staff at Chaumont, France, throughout the progress of the American military movements; a collection of German military paraphernalia captured during the various engagements in which the American troops participated, and assembled in France by Maj. Gen. H. L. Rogers, United States Army; two French military airplanes used on the western front, the first battle plane built in this country for the United States Government, and a Curtiss training plane such as used at all the training fields in the United States. The Museum is particularly fortunate in having a very excellent series of objects showing the development of the airplane, beginning with the Langley models which have been in its possession for a number of years, and the first Government-owned aeroplane of the world purchased by the United States from Wright Brothers in 1909.

Through arrangement with the Army and Navy, the Museum is also planning to exhibit examples of every plane, engine, radio apparatus, and other accessory in production in the United States at the time of the armistice, and has secured for this exhibit the temporary metal structure erected on the Smithsonian grounds in 1917 by the War Department for the use of the Air Service.

The inauguration of the War Collections gave great impetus to the division of history and added largely to the duties of its extremely small staff. Representing the War Department in the historical phase of the matter, Col. C. W. Weeks, Chief of the Historical Branch of the General Staff, Army War College, was of much assistance in connection with the inception of the work. Capt. J. J. Hittinger, Quartermaster Corps, detailed to the Museum by the War Department, gave general supervision to the assembling and installation of the exhibits, and to his efforts are due the success of many phases of the development of the collections.

Other collections.—Aside from the War Collections, the Museum received this year much material of value and interest in other lines. In the division of history these additions included a large series of costumes worn by the actor Richard Mansfield in some of his leading rôles, donated by Mrs. Mansfield; the gold medal awarded by Congress in 1800 to Capt. Thomas Truxtun, lent by Mr. Thomas Truxtun Houston; a telescope owned by Thomas Jefferson, lent by Brig. Gen. Jefferson Randolph Kean; and a jeweled sword belonging to and presented to the Museum by Maj. Gen. John R. Brooke. Other important acquisitions in the department of anthropology were archeological material from Arizona collected by the curators of ethnology and of

archeology; costumes, ornaments, and implements collected for the Museum in Celebes by Mr. H. C. Raven under the auspices of Dr. William L. Abbott; skeletal material from the ancient pueblo region, presented by the Museum of the American Indian through Mr. F. W. Hodge; and crania and other physical remains from Alaska, the gift of Dr. Edwin Kirk.

The large increase this year in the department of biology was chiefly due to the incorporation of the unrivaled collection of Antillean land mollusks of approximately 400,000 specimens, donated by Mr. John B. Henderson, a Regent of the Smithsonian Institution. Other important biological accessions included the final installment of Mr. Raven's Celebes collections, resulting from Doctor Abbott's generosity; a large amount of interesting material from the Collins-Garner Expedition to the French Congo, and several much desired large mammals collected by Secretary Walcott during his explorations in British Columbia.

Among the additions to the National Herbarium should be mentioned a donation, chiefly Mexican, from Brother G. Arsène, representing the result of eight years' botanical collecting by himself and associates among the Christian Brothers; two large series of Philippine plants, one received in exchange from the Bureau of Science, Manila, the other acquired by purchase; two collections of Venezuelan plants, the first the gift of Dr. H. Pittier, and the other an exchange from the Museu Goeldi in Para, Brazil; the Museum's share of specimens from the Ecuadorean Andes collected by Dr. J. N. Rose on an expedition undertaken jointly with the New York Botanical Garden and the Gray Herbarium, and exchanges with the last-mentioned institution added still other South American plants.

In the department of geology the somewhat fewer additions this year than last was in part compensated for by the unusual value of sundry individual specimens. Among these may be mentioned examples of tungsten minerals both from domestic and foreign sources, including a magnificent specimen of scheelite presented by Dr. J. Morgan Clements, of New York City, and upward of 16.5 kilograms of the extraordinary meteorite which fell at Cumberland Falls, in Whitley County, Kentucky, on the 9th of April, 1919.

The availability of the Frances Lea Chamberlain Fund enabled the department to begin once more a systematic building up of the Isaac Lea gem collection, a 7-gram kunzite, a 16-gram black opal from Nevada, and 5 beautiful examples of Australian opals of a variety heretofore unrepresented in the collections being among the more important additions.

The Middle Cambrian collections obtained by Secretary Walcott from Burgess Pass in British Columbia, numbering nearly 7,000 in-

dividual specimens, form an addition of unusual value. The same is true of a collection including both fossil invertebrates and plants, mainly from Carboniferous and Silurian rocks of Indiana, and especially rich in beautifully preserved crinoids. This collection, comprising not less than 10,000 specimens, was a gift of Mr. Alva Schaefer of Brazil, Indiana.

Excellent exhibition materials in the line of vertebrate fossils, including part of a skeleton with a skull of the curious amphibial *Diplocaulus copei* from the Permian of Texas; a skull of *Monoclonius;* a skull, partial skeleton, and two hind paddles of *Tylosaurus;* and an articulated series of caudal vertebrae of *Platycarpus* are among the more important accessions. Mention should be made of the addition to the exhibition series of the mounted skeleton of *Dimetrodon gigas* which was secured some few years ago. This forms the most complete restoration of this extraordinary animal that has thus far been secured by any museum in the world.

To the collections under the charge of the curator of textiles—which, besides textiles, embrace wood technology, medicine, food, and animal and vegetable products—the most important addition was the collection received by transfer from the Office of the Surgeon General of the War Department, consisting of the apparatus, hospital appliances and field equipment used by the medical department, including the dental and sanitary divisions in the war with Germany, showing examples of all kinds of equipment of a thousand-bed hospital overseas. At the end of the year this was being made ready for the public in connection with the War Collections on the ground floor of the Natural History Building.

Other acquisitions included medicinal plants, pharmaceutical products, pile fabrics, novelty dress fabrics, leather cloth, and other waterproof textiles extensively used during the war, knitting and crocheting yarns with examples of pattern stitches, an extensive collection illustrating the production, classification, and service of foods with many such from the Department of Agriculture and the United States Food Administration, and an exhibit illustrative of neglected sources of supply of fats and oils for food purposes.

In making the food exhibits as useful as possible, a cooperative arrangement was entered into with the States Relations Service of the Department of Agriculture whereby regular demonstrations on the value, use, preparation, and conservation of foods were given at the Museum by experts of the Department. A large room in the Arts and Industries Building was fitted up as a demonstration kitchen and space provided for displaying foods, household equipment, etc. Miss A. Chinn was detailed by the Department of Agriculture to take charge of this work, which soon broadened into a household consultation center, with lectures and demonstrations covering a wide

range of subjects. Through classes for housekeepers in the morning and afternoon and special classes for war workers at 5 p. m., over 2,100 persons were reached.

In mineral technology the customary work of the division was shelved in favor of special activities with a more direct bearing on the national emergency, and as the war progressed the call for specialization on the part of its technical staff increased. While the country was still actively involved on a basis of war, scarcely a day passed without bringing calls from some governmental agency for assistance with reference to one or another industrial issue up for consideration on an emergency rating, the questions ranging from determining a fair price for mica to determining the likelihood of a paralyzing petroleum shortage. As the year advanced, however, two absorbing lines of special investigation developed to such a degree that during the latter half of the year they largely engrossed the attention of the staff. Their general nature may be gathered from the titles under which the results were issued. One, "A Report on the Political and Commercial Control of the Nitrogen Resources of the World," represents an effort to unravel the complexities of the nitrogen situation left behind in the passing of the war. The other, "The Energy Resources, a Field for Reconstruction," coordinates and summarizes the work of several years.

The reports of the head curators in the natural history departments and of the curators in the department of arts and industries, beginning on page 53, give in detail the additions to and the work on their collections during the year.

NATIONAL GALLERY OF ART.

The National Gallery of Art has, in the judgment of Dr. William H. Holmes, its curator, been lifted to a position in the art world inferior to but few of our American galleries by the munificent contribution of Mr. Ralph Cross Johnson, of Washington, comprising 24 rare works by European masters—Italian, French, English, Flemish, and Dutch.

Mr. Johnson has long been a friend of the Gallery. When it was first opened to the public in its present quarters on March 17, 1910, nine paintings of exceptional merit lent by him graced the walls of one of the small north rooms, and that room continued to display a varying number of valuable paintings on loan through his generosity until the spring of 1919, when the larger hall immediately south was assigned to Mr. Johnson's pictures. Twenty-four of his masterpieces were here installed, some of which had previously been exhibited and others new to the Gallery. As soon as the adjustment of the wall space was completed and the effect satisfactory, Mr. Johnson made deed of gift of the paintings to the Gallery, as follows:

GIFT INTER-VIVOS.

I hereby give, grant, and set over unto The National Gallery of Art, now located in the National Museum at Washington, D. C., a collection of paintings, specifically enumerated and entitled in the attached Schedule, to be held by the said National Gallery of Art absolutely and in fee simple. It is my express desire and wish that said collection be hung in a room by itself without addition or diminution.

IN WITNESS WHEREOF I have hereunto set my hand and seal this 19th day of June in the Year of Our Lord one thousand nine hundred and nineteen.

RALPH CROSS JOHNSON. [SEAL.]

Signed, sealed and delivered in the presence of—

RICHARD W. HYNSON.

CHARLES P. LIGHT.

Schedule.

Ruins and Figures	(large canvas)	F. Guardi (signed).
Portrait of a Pope	(canvas)	Titian.
A View in Rome	(canvas)	F. Guardi.
Lord Mulgrave	(canvas)	Thomas Gainsborough.
Lord Abercorn	(canvas)	Sir Thomas Lawrence, P. R. A.
Holy Family	(panel)	Bernard van Orley.
Landscape—Sunset	(canvas)	Richard Wilson, R. A.
Holy Family, Joseph and St. Elisabeth	(canvas)	P. P. Rubens.
Portrait of a Man with Large Hat	(canvas)	Rembrandt (signed).
Landscape and Figures—Evening	(canvas)	Thomas Gainsborough.
Autumn Landscape	(canvas)	David Cox.
A Venetian Senator	(panel)	Lorenzo Lotto.
Holy Family and Two Angels	(circular panel)	Sebastiano Mainardi.
"Edinburgh," or Sunlight and Air	(canvas)	J. M. W. Turner.
The Duchess of Ancaster	(canvas)	Sir J. Reynolds, P. R. A.
Summer Afternoon—Landscape	(canvas)	Richard Wilson, R. A.
Portrait of Viscount Hill	(canvas)	Sir Joshua Reynolds.
Sir Sampson Wright	(canvas)	George Romney.
Archibald Skirving	(canvas)	Sir Henry Raeburn.
Madonna and Child	(canvas)	Govaert Flinck—Flemish School.
A Burgomaster	(canvas)	N. Maes (signed), Dutch.
The Marriage of St. Catherine	(panel)	Innocenzo da Imola.
Portrait of Mrs. Price	(canvas)	William Hogarth.
Portrait of Mrs. Towry	(canvas)	Sir Thomas Lawrence, P. R. A.

The other permanent accessions to the Gallery during the year were the portrait of Hon. Franklin K. Lane, painted by Ossip Perelma in 1918 and donated by Mr. Frank B. Noyes, of Washington, and a marble bust of S. F. B. Morse by Horatio Greenough, 1831, the gift of Mr. Edward L. Morse, of Pittsfield, Massachusetts.

The loans were two paintings in oil by William H. Powell, "Washington at Valley Forge," and Portrait of Alphonse Marie Louis de

Lamartine, 1790–1864, painted from life, lent by Mrs. W. H. Powell, of New York; oil painting, "Interior of Levardin Church, Florence, Italy," by S. Jerome Uhl, from Mr. R. P. Tolman, United States National Museum; oil painting, "The Infant Jesus and Saint John," by Rubens, 1633, from Hon. Hoffman Philip, Department of State; oil painting, "Madonna and Child," attributed to Raphael, from Mr. Thomas B. O'Sullivan, of Washington; water color, "Rhone Valley," by John M. W. Turner, from Miss Elizabeth Ogden Adams, South Lincoln, Massachusetts; and two portraits in oil, Maj. E. Alexander Powell, 1919, and Miss Clara J. Gordon, 1916, by Wilford Seymour Conrow, received from the artist.

In May Secretary Walcott, accompanied by the curator of the Gallery, visited New York to attend a meeting of the American Federation of Arts, on which occasion Doctor Walcott presented an address on the "National Gallery, Its Present Status and Prospects." Visits were made to various art museums and to the residence of Rev. A. D. Pell, who announced his intention to present to the Gallery a large selection from his vast stores of French and other art objects. At the close of the year the first installment of this collection had reached the United States National Museum and its installation was initiated in the north alcove of the Gallery.

The year marks the inauguration of purchases by the Council of the National Academy of Design from the Henry Ward Ranger Fund. The first acquisition, a landscape by Bruce Crane entitled "December Uplands," was assigned to the Syracuse Museum of Art, and under the conditions prescribed by Mr. Ranger can be reclaimed by the National Gallery of Art at any time during the five-year period beginning 10 years after the artist's death.

Fourteen oil paintings from the collection by leading contemporary European artists deposited in the Gallery by the American Federation of Arts in June, 1915, were withdrawn by the Federation in October, 1918, for exhibition on circuit, being shipped to the Arnot Gallery, Elmira, New York. At the end of the year 12 of these had again been deposited in the Gallery by the Federation.

The Gallery, like other portions of the Natural History Building, was closed to visitors the middle of July, and before opening again to the public in April it was thoroughly renovated and the burlap on the walls in part renewed. Important changes were also made in the installation during the year, so that it is now in more perfect condition than at any previous period.

The Advisory Committee on the National Gallery of Art was unfortunate during the year in losing by death two of its valued members, Mr. Frederic Crowninshield on September 18, 1918, and Mr. C. Y. Turner on January 1, 1919. The latter, as chairman from April 12, 1913, gave liberally of his time and talent, while the former

served as a member of the committee from its organization on April 16, 1908. By the appointment of Mr. Edmund C. Tarbell and Mr. Douglas Volk, the committee is now constituted as follows: Dr. W. H. Holmes, chairman and secretary, Mr. Edwin H. Blashfield, Mr. Herbert Adams, Mr. Tarbell, and Mr. Volk.

The recent formation by a group of public spirited and patriotic men and women of a National Art Committee to secure for the National Gallery of Art a series of portraits of military, civil, and religious leaders in the World War, painted by American artists, is of special significance since, aside from valuable additions to the Gallery, it evidences the awakening of public interest in the welfare of the nation's art collections. Hon. Henry D. White (one of the peace commissioners) is the chairman of the committee; Mr. Herbert L. Pratt, of New York, secretary and treasurer; and among the members are Mr. J. P. Morgan, Mr. Henry Frick, Mrs. E. H. Harriman, Mr. Robert W. de Forest, Mr. Guy Lowell, and Dr. Charles D. Walcott. There will be 20 or more portraits and the fund, already underwritten, is in excess of $200,000.

FREER COLLECTIONS.

Much progress was made this year on the building for the Freer collections being erected by the Institution, at the expense of Mr. Charles L. Freer, on the southwestern corner of the Smithsonian Reservation. The building was entirely enclosed at the end of the year, the exterior granite and marble walls and the roofs being completed. Work on the interior is now progressing satisfactorily. All interior limestone work is complete, ready for cleaning, and the interior marble work, including marble floors, is four-fifths finished, and the plastering, plumbing, heating, ventilating, and electrical installations are likewise nearing completion. It is expected that the structure will be entirely finished in the autumn.

This building is specially designed and will be used for the Freer collections of American and oriental art, which are by far the most important within their particular fields in existence, and are valued at several million dollars. The most recent transfer to the Institution by Mr. Freer aggregated 928 objects, as mentioned in the Museum report for 1918, bringing the number of items in the Freer collections to upward of 6,200. It will be recalled that in the original agreement between Mr. Freer and the Institution, entered into in 1906, the collections were to remain in the donor's possession during his life, and only subsequently was the building to be constructed and the collections moved to Washington. The building fund, as provided by Mr. Freer in the same deed of gift, was then fixed at $500,000. Owing to the very great increase in the size of the collections and the increased cost of building operations this

was later doubled. Waiving the condition as to the time of transfer of the collections, Mr. Freer, in 1915, decided upon the early erection of the building, and the structure now nearing completion is the result of much care and attention on his part and on that of the architect, Mr. Charles A. Platt, being especially designed for the convenience of students and others desirous of an opportunity for uninterrupted study of the collections.

VISITORS.

Owing to the occupancy of the exhibition halls of the Natural History Building by the Bureau of War Risk Insurance, this building was closed to the public from July 16, 1918, to April 11, 1919. During the approximate three months that the building was open the attendance of visitors was 94,240 for week days and 38,619 for Sundays, making an average of 1,149 for week days and 2,758 for Sundays. From November 10 to April 6 the opening of the Arts and Industries Building was extended to include Sundays as well as week days, the number of visitors for the year being 225,927 on week days and 40,605 on Sundays, a daily average of 721 for the former and 1,845 for the latter. At the Smithsonian Building, which is open only on week days, the total attendance was 101,504, with a daily average of 324.

In view of the excellent Sunday attendance at the Arts and Industries Building during the short period that it was opened on that day, it seems highly desirable that both Museum buildings should be open every Sunday. This will only be possible when additional funds are provided to cover the extra watchmen and other attendants required.

The following tables show the attendance of visitors each month of the past 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 ending June 30, 1919.

Year and month.	Museum buildings.		Smithsonian Building.	Year and month.	Museum buildings.		Smithsonian Building.
	Arts and Industries.	Natural History.			Arts and Industries.	Natural History.	
1918.				1919.			
July	17,323	19,262	8,419	January	24,393	.....	8,170
August	19,151	.....	9,485	February	24,147	.....	8,067
September	19,776	.....	9,754	March	31,451	.....	9,666
October	15,339	.....	5,633	April	23,060	29,404	9,166
November	20,805	.....	8,468	May	19,511	40,619	7,155
December	26,721	.....	9,375	June	24,855	43,574	8,146
				Total	266,532	132,859	101,504

Number of visitors to the Musuem and Smithsonian buildings since 1881.

Year.	Museum buildings.		Smithsonian Building.	Year.	Museum buildings.		Smithsonian Building.
	Arts and Industries	Natural History.			Arts and Industries	Natural History.	
1881	150,000	.....	100,000	1901–2	173,888	.....	144,107
1882	167,455	.....	152,744	1902–3	315,307	.....	181,174
1883	202,188	.....	104,823	1903–4	220,778	.....	143,988
1884 (half year)	97,661	.....	45,565	1904–5	235,921	.....	149,380
1884–85 (fiscal year)	205,026	.....	105,993	1905–6	210,886	.....	149,661
1885–86	174,225	.....	88,960	1906–7	210,107	.....	153,591
1886–87	216,562	.....	98,552	1907–8	299,659	.....	237,182
1887–88	249,665	.....	102,863	1908–9	245,187	.....	198,054
1888–89	374,843	.....	149,618	1909–10	228,804	50,403	179,163
1889–90	274,324	.....	120,894	1910–11	207,010	151,112	167,085
1890–91	286,426	.....	111,669	1911–12	172,182	281,887	143,134
1891–92	269,825	.....	114,817	1912–13	173,858	319,806	142,420
1892–93	319,930	.....	174,188	1913–14	146,533	329,381	102,645
1893–94	195,748	.....	103,910	1914–15	133,202	321,712	40,324
1894–95	201,744	.....	105,658	1915–16	146,956	381,228	48,517
1895–96	180,505	.....	103,650	1916–17	161,700	407,025	86,335
1896–97	229,606	.....	115,709	1917–18	161,298	401,100	67,224
1897–98	177,254	.....	99,273	1918–19	266,532	[1] 132,859	101,504
1898–99	192,471	.....	116,912				
1899–1900	225,440	.....	133,147	Total	8,317,262	2,776,513	4,835,996
1900–1	216,556	.....	151,563				

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

PUBLICATIONS.

The publications of the year comprised 8 volumes and 71 separate papers. The former consisted of the annual reports of the Museum for 1917 and 1918; volumes 52 and 53 of the Proceedings; and the following four Bulletins: No. 50, Part VIII, "The Birds of North and Middle America," by Robert Ridgway, containing descriptions of the jacanas, thick-knees, oyster-catchers, turnstones, surf birds, plovers, snipes, phalaropes, avocets and stilts, skimmers, terns, gulls, skuas, and auks; No. 100, volume 3, "Contributions to the biology of the Philippine Archipelago and adjacent regions. Starfishes of the Philippine seas and adjacent waters," by Walter K. Fisher; No. 102, volume 1, "The mineral industries of the United States. The energy resources of the United States: A field for reconstruction," by Chester G. Gilbert and Joseph E. Pogue; and No. 105, "Catalogue of the postage stamps and stamped envelopes of the United States and possessions, issued prior to January 1, 1919," by Joseph B. Leavy.

Of the 71 papers issued in separate form 2 were parts of Bulletin No. 99, "East African mammals in the United States National Museum," by N. Hollister, as follows: "Part I. Insectivora, Chirop-

tera, and Carnivora," and "Part II. Rodentia, Lagomorpha, and Tubutidentata"; 2 were parts of volume 1, and 2 of volume 2, of Bulletin 100, "Contributions to the biology of the Philippine Archipelago and adjacent regions," as follows: Volume 1, part 4, "Report on the Chaetognatha collected by the United States Fisheries Steamer Albatross during the Philippine expedition, 1907–1910," by Ellis L. Michael; and part 5, "Hydromedusae, Siphonophores, and Ctenophores of the Albatross Philippine expedition," by Henry B. Bigelow; volume 2, part 1, "The Salpidae collected by the United States Fisheries Steamer Albatross in Philippine waters during the years 1908 and 1909," by Maynard M. Metcalf; and part 2, "The Salpidae: A taxonomic study," by Maynard M. Metcalf and Mary M. Bell. Three parts of Bulletin 102, "The mineral industries of the United States," were issued, namely, part 5, "Power: Its significance and needs," by Chester G. Gilbert and Joseph E. Pogue; part 6, "Petroleum: A resource interpretation," by Chester G. Gilbert and Joseph E. Pogue; and part 7, "Natural Gas: Its production, service, and conservation," by Samuel S. Wyer. Bulletin 103, "Contributions to the geology and paleontology of the Canal Zone, Panama, and geologically related areas in Central America and the West Indies," represents the work of a number of specialists, whose papers were issued, in separate form, as follows: Pages 1–13, "On some fossil and recent Lithothamnieae of the Panama Canal Zone," by Marshall A. Howe; pages 15–44, "The fossil higher plants from the Canal Zone," by Edward W. Berry; pages 45–87, "The smaller fossil foraminifera of the Panama Canal Zone," by Joseph Augustine Cushman; pages 89–102, "The larger fossil foraminifera of the Panama Canal Zone," by Joseph Augustine Cushman; pages 103–116, "Fossil echini of the Panama Canal Zone and Costa Rica," by Robert Tracy Jackson; pages 117–122, "Bryozoa of the Canal Zone and related areas," by Ferdinand Canu and Ray S. Bassler; pages 123–184, "Decapod crustaceans from the Panama region," by Mary J. Rathbun; pages 185–188, "Cirripedia from the Panama Canal Zone," by H. A. Pilsbry; pages 525–545, "The sedimentary formations of the Panama Canal Zone, with special reference to the stratigraphic relations of the fossiliferous beds," by Donald Francis MacDonald; and pages 547–612, "The biologic character and geologic correlation of the sedimentary formations of Panama in their relation to the geologic history of Central America and the West Indies," by Thomas Wayland Vaughan. One part of Bulletin 104, "The foraminifera of the Atlantic Ocean," by Joseph Augustine Cushman, namely, "Part 1. Astrorhizidae," was also issued. Of the remaining separates 2 formed parts of volume 20, "Contributions from the United States National Herbarium," while 19 were from volume 54, and 29 from volume 55 of the Proceedings, as listed in the

bibliography at the end of this report. A brief guide to the Arts and Industries and History Building was also issued.

The distribution of volumes and separates to libraries and individuals on the regular mailing lists aggregated 103,876 copies, in addition to which some 14,456 copies of the publications of last and previous years were supplied in response to special applications.

In addition to the Museum publications, many contributions based on material in its collections were printed by other bureaus of the Government and by private institutions, all of which are cited in the bibliography. Those issued by the Smithsonian Institution comprise the following, which appeared in the Miscellaneous Collections: "The mosses collected by the Smithsonian African Expedition, 1909–10," and "Uganda mosses collected by R. Dümmer and others," by H. N. Dixon; "Cambrian geology and paleontology, IV, No. 4, Appendages of trilobites," by Charles D. Walcott; "Begoniaceae Centrali-Americanae et Ecuadorenses," by Casimir de Candolle; "A Lower Cambrian edrioasterid, Stromatocystites walcotti," by Charles Schuchert, and "Explorations and field-work of the Smithsonian Institution in 1918."

The editorial office, besides supervising the printing of the Museum publications, also has charge of all miscellaneous printing and binding.

LIBRARY.

The library of the Museum, assembled with reference to the working up of the collections, embraces a wide range of subjects in the sciences and arts. The main library is housed in the Natural History Building, while the publications on the useful arts are provided for in the Arts and Industries Building. Moreover, each of the divisions and the principal offices of the Museum has its own sectional library, consisting of the books relating wholly to its subject; these are withdrawn from the main branches and so distributed in order to facilitate the progress of work. The use of the library and its sections is not, however, restricted to members of the Museum staff, but is extended to all properly qualified persons, a privilege extensively availed of by the workers in other Government scientific bureaus and similar establishments in Washington.

During the year the library was increased by 2,172 volumes and 2,614 pamphlets and unbound papers, most of which were obtained by gift or exchange. Two hundred and eighty-seven books were purchased and 106 periodicals secured by subscription. There are now in the library 141,794 books, consisting of 54,685 volumes and 87,109 pamphlets and unbound papers.

The most important acquisition was a set of catalogues of the art collection of J. Pierpont Morgan, which was presented to the

library by his son, J. Pierpont Morgan, jr. Many of these were printed privately in numbered editions, and for this reason are rare and valuable. Acknowledgment is due to the heirs of Dr. Richard Rathbun for the gift of his valuable library relating to museums of the world and to natural history subjects, and to the University of Michigan for donating the 12 volumes which have been published of the humanistic series. Others contributing valuable material were Dr. Charles D. Walcott, Mr. B. H. Swales, Mr. William Schaus, Dr. O. P. Hay, Dr. C. W. Richmond, Dr. W. H. Dall, Dr. Mary J. Rathbun, Mr. Austin H. Clark, and Mr. W. R. Maxon.

MEETINGS AND CONGRESSES.

The auditorium and committee rooms in the Natural History Building were not available during the first six months of the year. Shortly after the signing of the armistice, however, the auditorium was vacated by the Bureau of War Risk Insurance. As soon as it could be repainted and the chairs replaced, the Smithsonian Institution inaugurated a series of free popular illustrated lectures on alternate Saturday afternoons between 4.45 and 5.30 o'clock, the lecturers and their subjects being as follows:

January 18: Dr. Charles D. Walcott, "Photographing in the Canadian Rockies."

February 1: Dr. Charles G. Abbot, "Sun Rays in Many Lands."

February 15: Dr. J. Walter Fewkes, "The Indian as a Stone Mason."

March 1: Dr. George P. Merrill, "Meteorites and Shooting Stars."

March 15: Prof. William H. Holmes, "The Story of our Local Aborigines—Historic and Prehistoric with Demonstrations of their Instrument Making."

March 29: Dr. L. O. Howard, "Harmful and Beneficial Insects and How the National Museum Helps in their Study."

April 12: Mr. F. L. Lewton, "The Story of Silk."

April 26: Mr. F. V. Coville, "Why the Wild Flowers are so Wild."

As soon as the auditorium was available the meeting facilities afforded by the Museum were in demand by Government departments and scientific societies, as in previous years.

The Department of Labor used the auditorium on the evenings of January 9, 10, and 14, for lectures under the training section of the United States Employment Bureau, Doctor Meeker speaking on gathering and interpreting statistics, and Doctor Prosser on training of the handicapped; and on the morning of May 8 for a conference on child welfare standards, with an illustrated lecture, under the auspices of the Children's Bureau. On the evening of the latter date the scientific and technical Federal employees occupied it for the purpose of forming an organization with a view to joining the Federal Employees Union.

The hall was granted the Department of Agriculture on the afternoon of February 11 for the use of the Forest Service for a lecture

and motion pictures; on the afternoon of April 15 for the Office of Home Economics for a lecture, with motion pictures, by Col. John A. Murlin on efficiency and sanitation in the feeding of United States troops, and on the afternoon of May 28 for a meeting of the War Relief Association of that Department.

The Treasury Department occupied the auditorium on February 1 for an exhibition, under the Public Health Service, of the moving picture film "Fit to Win," before the faculties and students of the departments of medicine and dentistry of Georgetown University, the speakers being Asst. Surg. Gen. C. C. Pierce, Dr. George M. Kober, and Dr. Bruce L. Taylor; and the Bureau of War Risk Insurance on December 31 for a farewell meeting to the retiring assistant director, Capt. John J. Crowley, United States Army; on January 17 for the annual meeting of the Allotments and Allowance Division; on January 31 for instructing its timekeepers; on February 3 for organizing the employees of the Allotments and Allowance Division to constitute a branch of the Federal Employees Union; on February 4 and 5 for lectures, under the auspices of the Commission on Training Camp Activities, before the female employees of the Bureau; on February 9 to show moving pictures before the female employees; on February 14 and 15 for all-day meetings of insurance officers from the demobilization camps; on February 17 for an informal meeting at which Mr. Gates, chief of the Allotments and Allowance Division, addressed the employees; on March 10 and the afternoon of March 19 for lectures to different sections of its employees; and on March 24 for moving pictures of the Bureau's activities overseas, before the director and other members of the staff of the Bureau.

The Ordnance Department of the War Department was assisted in its work by illustrated lectures in the auditorium on the afternoons of May 3 and 17, when Lieut. Col. G. M. Barnes spoke, respectively, on the battle scenes in the World War and the method of camouflaging used by the Artillery Division of the United States Army during the war.

The National Academy of Sciences met this year on April 28 to 30, the afternoon of the last day being devoted to a joint session with the National Research Council. The main hall, range, and chapel of the Smithsonian Building were prepared for these meetings, but, after the first day's sessions, adjournment was had to the Museum auditorium and committee rooms, as affording better accommodations. Dr. James Henry Breasted, of the University of Chicago, delivered in the auditorium the two lectures under the William Ellery Hale foundation on "The origin of civilization, from the old stone age to the dawn of civilization," the first on the evening of April 28, and the second on the next afternoon. The first was followed

by a reception by the Secretary and Regents of the Smithsonian to the members of the Academy and their friends, all the exhibition halls of the first floor including those of the National Gallery of Art being opened to the guests.

Other speakers before the Academy and their subjects included the following: Alfred G. Mayer, The Age of the Fringing Reef of Tutuila, American Samoa; Charles D. Walcott, Seaweeds and Sponges of the Middle Cambrian; Robert G. Aitken, The Spectra of the Visual Binary Stars; George E. Hale, F. Ellerman, S. B. Nicholson, and A. H. Joy, The Magnetic Polarity of Sun Spots; Walter S. Adams and A. H. Joy, The Motions in Space of Some Stars of High Radial Velocity; Walter S. Adams and G. Strömberg, The Use of the Spectroscopic Method for Determining the Parallaxes of the Brighter Stars; Adriaan van Maanen, Evidence of Stream-motion Afforded by the Faint Stars in the Orion Nebula; Graham Lusk and H. V. Atkinson, The Production of Fat from Protein After Giving Meat in Large Quantity to a Dog; William S. Halsted, End-to-end Anastomosis of the Intestine—Experimental Study; Robert M. Yerkes, Psychological Examining in the United States Army; Frederick H. Seares, Relation Between Color and Luminosity for Stars of the Same Spectral Type; Frederick H. Seares, A. van Maanen, and F. Ellerman, Deviations of the Sun's General Magnetic Field from that of a Uniformly Magnetized Sphere; W. W. Campbell, The Solar Corona; Herbert E. Gregory, Plans for Exploration of the Pacific; Francis G. Benedict, W. R. Miles, and Alice Johnson, The Temperature of the Human Skin; S. J. Meltzer and M. Wollstein, The Influence of Degeneration of a Vagus Nerve upon the Development of Pneumonia; Edwin H. Hall, (1) The Effect of Great Pressure on the Electric Conductivity and Thermoelectric Properties of Metals, (2) Comments on the Results of Bridgman's Experiments, (3) Thermal Conduction in Metals, from the Standpoint of Dual Electric Conduction, and (4) The Thermoelectric Equation $P=TdV/dT$ once more; Charles Lane Poor, Line of Position Computer; Irving Langmuir, The Arrangement of Electrons in Atoms and Molecules; Henry F. Osborn, (1) Palæomastodon, the Ancestor of the Long-jawed Mastodons Only, and (2) Seventeen Skeletons of Moropus: Probable Habits of this Animal; Thomas B. Osborne and Alfred J. Wakeman, The Preparation of Vitamine-free Proteins; Arthur G. Webster, (1) Tentative Results in Interior Ballistics, (2) Tentative Results in Elastic Hysteresis, (3) The Most Perfect Tuning Fork, and (4) Angle of Repose of Wet Sand; Edward Kasner, Geometry of the Wave Equation; C. G. Abbot, (1) Rotating Projectiles from Smooth-bore Guns, (2) Means for Measuring the Speed of Projectiles in Flight, and (3)

Recent Simultaneous Measurements of the Solar Constant of Radiation at Mount Wilson, California, and Calama, Chile; John C. Merriam, Human Remains from the Pleistocene of Rancho La Brea; George E. Hale, The Past Work and Future Plans of the National Research Council; John C. Merriam, The Division of General Relations, Section of Relations with Educational Institutions and State Committees; R. A. Millikan, The Division of Physics, Mathematics, Astronomy, and Geophysics; Dayton C. Miller, Pressures and Velocities, Internal and External, due to the Discharge of Large Guns; E. W. Washburn, The Division of Chemistry and Chemical Technology; A. A. Noyes, Nitrate Investigations; Whitman Cross, The Division of Geology and Geography; R. G. Hussey, The Division of Medicine and Related Sciences; R. M. Yerkes, Psychology in Relation to the War; C. E. McClung, The Division of Agriculture, Botany, Forestry, Zoology, and Fisheries; and G. H. Clevenger, The Division of Engineering.

The auditorium was used for a conference on the American merchant marine on January 22 and 23, with Hon. Joseph E. Ransdell presiding, and during official hours on June 4 for a joint shipping industrial conference, under the auspices of the United States Shipping Board. On the evening of the same day, the Louisiana Society of Washington arranged an illustrated lecture by Hon. M. F. Alexander, Commissioner of Conservation of Louisiana, on the work of the commission.

The Biological Society of Washington met in the auditorium on the evening of January 25, and on April 3 and 4 the American Society of Mammalogists held its sessions in the auditorium and one of the committee rooms. The Wild Flower Preservation Society occupied one of the committee rooms on the afternoon of April 14, and, in connection with the meeting in Washington of the American Rose Society, the Florist Club of Washington gave a lecture on the cultivation of roses in the auditorium on the evening of June 3.

The annual meeting of the District of Columbia Chapter of Sigma Xi in the auditorium on March 6 was preceded by an illustrated lecture by Maj. R. M. Yerkes on the relationship of Army tests to education and vocational guidance. On March 24 a widely attended meeting of officers and men of the American Army, presided over by Col. E. Lester Jones, resulted in the organization of the General Pershing Post No. 1 of the American Legion.

The Minimum Wage Board of the District of Columbia used the auditorium on April 29 for a conference, and on June 23 there was a lecture, under the auspices of the National Women's Trade Union League, by Miss Margaret Bondfield, of England, on the new spirit of British labor.

The employees of the Smithsonian Institution and its branches used the auditorium on May 1 for the purpose of organizing the Smithsonian branch of the Federal Employees Union No. 2, and a few days later for the nomination of candidates and the election of a representative to the central committee of the Smithsonian Institution on the Joint Congressional Commission on the Reclassification of Salaries. A representative of the American National Red Cross addressed the employees of the Institution in the north hall of the Natural History Building on August 8, explaining the purpose of its salvage department in collecting old materials, such as waste paper, metals, bottles, and other objects, and converting the same into funds. The meetings of the Smithsonian Red Cross Auxiliary, the Smithsonian Relief Association, and other similar bodies, were held in rooms on the third floor of the Natural History Building, as was also the lecture by Doctor Rabe before the women employees of the Institution on January 3, at the instance of the War Camp Community Service.

ORGANIZATION, AND CHANGES IN STAFF.

The scope of the United States National Museum embraces many subjects, which may be classed under the following headings:

1. Natural history, comprising zoology, botany, geology, mineralogy, paleontology, physical anthropology, ethnology, and archeology.
2. Applied science and art (Arts and Industries).
3. The fine arts (National Gallery of Art).
4. American history.

At the capitals of the principal countries abroad there are generally several separate Government museums for these various classes, notably in London and Paris, resulting from the independent origin of the different collections. In London, for example, the subjects combined in the United States National Museum are distributed between two sections of the British Museum (Bloomsbury and South Kensington), the Victoria and Albert Museum, the Science Museum, the Museum of Practical Geology, Bethnal Green Museum, the Wallace Collection, the several national galleries of art, and others. In Washington, on the contrary and very fortunately, the entire museum scheme has, by law, been essentially combined under one administration, which not only insures greater economy in management, but permits of a more logical classification and arrangement, the elimination of duplication, and a consequent reduction in the relative amount of space required.

The national collections of the United States are not yet to be compared as a whole with those of certain European capitals, though in natural history they are probably not surpassed there. In respect to the fine arts, the Freer collection comprises the most important

representation of oriental art in the world. However, in the fine arts generally and in the useful or industrial arts the National Museum has a great task before it, possible of accomplishment only when requisite facilities are supplied.

Steps were taken during the year looking to the more definite organization of the department of arts and industries. Elaborate classifications have been proposed from time to time, but none of these have been strictly followed in the arrangement of the collections, due mainly to the limitation of space. Work is being chiefly centered at present on those subdivisions which are most prominent in relation to current industrial affairs, but there are other subdivisions with important collections which are not represented by experts on the staff from lack of funds for their employment. As at present constituted the department of arts and industries may be considered to consist of: The division of mineral technology; the division of textiles; the section of wood technology; the section of foods; the division of medicine; and the division of mechanical technology, the latter transferred from the department of anthropology at the close of the fiscal year.

There were a number of changes in the scientific staff. On March 31, 1919, Mr. J. C. Crawford resigned his position as associate curator of insects, though continuing to serve as custodian of Hymenoptera. Dr. John M. Aldrich, earlier in the year made custodian of Diptera, was transferred on April 4, from the Department of Agriculture to succeed Mr. Crawford as associate curator. Dr. W. M. Mann was made assistant custodian of Hymenoptera, Mr. William Schaus assistant custodian of Lepidoptera, and Mr. Charles T. Green assistant custodian of Diptera.

After long carrying the administrative duties of the division, Dr. Charles W. Richmond, assistant curator, was advanced to the position of associate curator of birds on September 1, 1918. The section of birds' eggs was, on August 20, placed in charge of Mr. Bradshaw H. Swales, as custodian.

On his return to the Museum on January 1, from military duty, Mr. Neil M. Judd was promoted to curator of American archeology, Doctor Holmes wishing to be relieved of the immediate charge of that division. Mr. Philip A. Means was appointed a collaborator in archeology for two years, from March 1, 1919.

Dr. Joseph E. Pogue was advanced on September 30, from assistant curator to curator of mineral technology. From October 1 to April 8 he was furloughed from the Museum to the Fuel Administration, to assist in formulating a conservation program with reference to petroleum resources. Mr. Carl W. Mitman, who severed his connection with the scientific staff of the Museum in 1917, returned to the Museum on October 9, 1918, as assistant curator of

mineral technology, by transfer from the Department of Agriculture.

The resignation of Dr. James C. Martin as assistant curator of physical and chemical geology, on May 6, resulted in the appointment of Mr. Earl V. Shannon to that position, and Mr. William F. Foshag was made assistant curator of mineralogy and petrology on June 27. Mrs. Eula D. McEwan resigned as aid in paleobotany on September 25, 1918, and was succeeded on April 1 by Miss Lucile Simpson.

By a readjustment of the routine of the department of biology, Dr. James E. Benedict's title was changed on December 4, from chief of exhibits to assistant curator, with duties directly under the head curator of the department. Mr. Isaac Ginsburg, aid in the division of fishes, severed his connection with the Museum on December 19, 1918.

Pending the appointment of a curator of mechanical technology to succeed Mr. Maynard, Dr. Walter Hough was asked to give a certain general oversight to the division of mechanical technology, and Mr. Richard G. Paine was transferred to the division as aid on October 1.

On November 1, 1918, Miss Marie V. Schiffer, stenographer and typewriter in the division of history, was advanced to the position of aid in that division.

During the first half of the year the following were granted furloughs to enable them to render military or naval service to the country: W. M. N. Watkins, assistant curator of wood technology; E. J. Weiskoff, electrician; Fred Kaske, skilled laborer; William F. Best, watchman, and Charles Dishman and Alfred Frazier, laborers.

The following, upon completion of military or naval duty, returned during the year to their positions in the Museum: Neil M. Judd, E. J. Weiskoff, Fred Kaske, Louis Goldberg, William F. Best, R. E. Roper, Alfred Frazier, Bernard I. Jackson, J. R. Baldel, Roland Wells, and Charles Dishman. The last four, however, soon severed their connection here for more remunerative employment elsewhere.

The year was marked by the passing away of an unusual number of persons long connected with the Museum. Besides Mr. Rathbun, Mr. Turner, and Mr. Crowninshield, whose deaths have been heretofore noted, mention should be made of Mr. George C. Maynard, curator of mechanical technology; Mr. A. Howard Clark, honorary curator of history; Mr. E. P. Upham, aid in American archeology; Mr. Frederick Knab, honorary custodian of Diptera; Mr. W. E. DeRiemer, of the clerical staff; Mr. W. C. Weeden, of the watch force, and Eldridge Hawkins, a laborer, who was for many years a familiar figure about the Smithsonian Building.

NECROLOGY.

Richard Rathbun, late assistant secretary of the Smithsonian Institution, and for nearly 20 years in charge of the United States National Museum, was born in Buffalo, New York, January 25, 1852, and died in Washington, D. C., July 16, 1918. He attended the public schools until the age of 15 years, when he entered the service of a firm of contractors, Whitmore, Rathbun & Co., the owners of several quarries in western New York. He continued with this firm for a period of four years as bookkeeper, financial clerk, and overseer of work, thereby obtaining a good knowledge of business methods.

At the age of 16 years, attracted by the fossils in the quarries referred to, he began a study of the paleontology of the region about Buffalo, to which, however, he could only devote his holidays and evenings. He founded the collection of paleontology in the museum of the Buffalo Society of Natural Sciences, of which section he became the curator. The unique and undescribed species obtained by him were, however, turned over later to the Museum of Comparative Zoology of Harvard University.

In 1871, when 19 years old, he met Charles Frederic Hartt, professor of geology at Cornell University, and a former pupil of Louis Agassiz, by whom he was persuaded to give up business and devote his life to science. He accordingly entered Cornell University, and, while pursuing a regular course, his special studies were in geology and paleontology.

Professor Hartt had accompanied Professor Agassiz to Brazil on the famous Thayer expedition, and had made two subsequent trips to that country. The Emperor, Dom Pedro II, had offered Hartt his patronage in the organization of a geological survey of his country, and Mr. Rathbun, becoming imbued with the enthusiasm of his chief, put himself in training for that field.

Soon after entering Cornell, the collections of Devonian and Cretaceous fossils previously obtained by Hartt in Brazil were turned over to him for working up. The monographs on these two groups were finished in about two years, to the extent possible at Cornell University. Mr. Rathbun then completed the work on the Devonian paper at Albany, New York, with the assistance and advice of Prof. James Hall. It was printed in 1874.

The paper on Cretaceous fossils required extensive studies at the Museum of Comparative Zoology, whither he went in the spring of 1873, the last year of the life of Louis Agassiz, whose lectures he attended. From this famous naturalist he received every kindness and obtained free access to the collections. This paper was published in 1875.

The delay characteristic of Brazil retarded the establishment of the survey, and, on the advice of Hartt, Mr. Rathbun remained east, not returning to complete his course at Cornell. He was the assistant in zoology at the Boston Society of Natural History from 1873 to 1875, and during the same period continued work at the Museum of Comparative Zoology, through the courtesy of Dr. Alexander Agassiz. During the summers of 1874 and 1875 he also served as a volunteer scientific assistant under Professor Baird in the marine explorations of the Fish Commission on the New England coast, this being his first connection with the Smithsonian Institution.

In the autumn of 1875 he received directions from the Brazilian minister at Washington to report at Rio de Janeiro, as geologist of the Geological Commission of Brazil. He reached his destination in December, and remained in Brazil until March, 1878, when his chief, Professor Hartt, died of yellow fever. As the party was small, the duties of each member were unusually varied and extensive, being divided between the field and the headquarters at Rio de Janeiro. Mr. Rathbun began field work in the region about the Bay of Bahia, and continued thence down the coast of the Province of the same name to near its southern end. Extensive deposits of coal, reputed to occur in parts of this region, constituted one of the special objects of the trip, but the geology was studied in all respects and also the extensive coral reefs which lie along this coast and the ethnology of the Indian tribes living but a short distance inland. The report upon the geology and coral reefs was published in the archives of the National Museum of Brazil.

Mr. Rathbun's second piece of field work was through the central and southern parts of the Province of São Paulo to determine the mineral and especially the coal resources, which proved very unimportant, though he had the opportunity of working out the origin of the rich red lands which produce the famous coffee of that region.

On returning to the United States. Mr. Rathbun brought with him complete series of the Devonian and Cretaceous fossils and of the corals, which have since, through exchange, become the property of the United States National Museum. He began the study of this material and published a few papers upon it, but new duties occupying all of his time, the remainder was turned over to other specialists.

In the spring of 1878 Mr. Rathbun was offered by Professor Baird and accepted the position of scientific assistant on the United States Fish Commission. He continued in this service, with promotions, until the close of 1896. In the beginning there was not room at Washington for the Fish Commission collections and they were kept at the Museum of Yale University under Professor Verrill, to whom

he was detailed as assistant. He was also during that time assistant in zoology at Yale University.

In 1880, owing to the near completion of the brick structure of the United States National Museum, now the Arts and Industries Building, he was transferred from New Haven to Washington, and brought with him a part of the collections which had been stored at the former place. He was also made curator of the department of marine invertebrates in the National Museum, an office which he held until 1914. For some time after 1880, therefore, he was both an assistant on the Fish Commission and a curator in the Museum.

Professor Baird, acquainted with his early business training, assigned Mr. Rathbun to many administrative duties, which increased in amount and responsibility until the former's death in 1887.

Although Professor Verrill, of Yale University, was the nominal head of the summer investigations of the Fish Commission up to 1887, during much of the time Mr. Rathbun was expected to take the active charge of the laboratories, steamers, and equipment, and to be responsible for the arrangements in general. The collections were mostly assorted under his supervision for distribution to specialists. His own studies related to the commercial fisheries and to the working up of the natural history of several groups of invertebrates. To the latter he continued to give attention until his administrative duties compelled him to turn the material over to some half dozen experts, whose reports are being published from time to time by the National Museum.

Before his death Professor Baird arranged that Mr. Rathbun's duties should be transferred wholly to the Museum. Dr. G. Brown Goode, then Assistant Secretary of the Smithsonian Institution, temporarily succeeded Professor Baird as Fish Commissioner, and at his request Mr. Rathbun remained with the Commission, in consequence of his experience in the work. Col. Marshall McDonald was soon made permanent Commissioner, and Mr. Rathbun continued with him until his death in 1895, as chief executive officer and in charge of the scientific work. He was acting commissioner during three or four months of each year, and entirely revised the methods and purposes of the scientific inquiries, directing them in practical channels to meet the laws of Congress.

The Fish Commission having changed in character in 1896, Mr. Rathbun was glad to accept the invitation of Secretary Langley to enter the administrative service of the Smithsonian Institution, two vacancies having occurred through the death of Doctor Goode and Mr. Winlock. He was first put in charge of the office and exchanges, but after a year and a half was given direction of the Museum, with which he had been connected since 1880.

Some of the special work performed by him in connection with the Fish Commission was as follows:

In 1880 and 1881 he was employed upon the fishery investigations of the Tenth Census, reporting as follows: On the natural history of, and the fisheries for, the commercial lobsters, crabs, shrimps, corals, and sponges; the marine fishing grounds of North America and the ocean temperatures of the Atlantic coast of the United States; amounting in all to 550 quarto pages, with 106 plates.

In 1891, at the request of the Secretary of State, he assisted Gen. John W. Foster in preparing material for the United States case at the Paris fur-seal tribunal. He had the services of several experts, and was called to report upon the laws of all nations relating to the extra-limital fisheries for whales, hair seals, fishes, precious corals, pearls, trepang, etc., and also upon the distribution and habits of these forms. Reports of progress were made daily to General Foster and the completed report consisted of two large volumes of typewriting, the more essential parts of which were incorporated in the extended brief of the American agent.

During the entire period of the fur-seal inquiries Mr. Rathbun was in charge of the investigations, except those of the first international commission. The steamer *Albatross* made yearly trips to Bering Sea with one or more experts, who were charged with the study of the habits of these animals, and with making an annual comparative record of their distribution and numbers by written notes and identical series of photographs. The work was also extended to the Russian islands.

The most important international commission to the Fur Seal Islands was the one dispatched in 1896. This expedition, with the cooperation of the Secretary of State, was conducted by the Treasury Department. Assistant Secretary of the Treasury Charles S. Hamlin was in immediate charge of the case and Mr. Rathbun was called to be his chief adviser. The latter was asked to become the head of the American commission, but, declining, was requested to nominate its members, which he did. Mr. Rathbun also prepared the instructions for the commission, which entered into every detail and every accusation on the part of Canada.

In December, 1892, Mr. Rathbun was appointed by President Harrison, as the American representative on the Joint Commission with Great Britain to study the condition of the fisheries in the boundary waters between the United States and Canada and the seacoast waters adjacent to the two countries, and to report such measures as might be deemed necessary to insure the protection of these fisheries. No similar investigation of such magnitude and importance was ever before attempted and four years were required for its accomplish-

ment. A large party of experts was put in the field on the part of the United States, and Canada assisted to the extent of its facilities. Mr. Rathbun himself visited every point of interest, starting with the Gulf of St. Lawrence, continuing through the fresh-water systems, including the Great Lakes, and ending at Cape Flattery at the west. The report submitted to the Department of State on December 31, 1896, was transmitted by the President to Congress and printed.

On February 1, 1897, Mr. Rathbun was made an Assistant Secretary of the Smithsonian Institution, and on July 1, 1898, was given, in addition, charge of the National Museum. He continued in this position up to the time of his death. During this period he served as Acting Secretary during three or four months of each year, and also during the year following the death of Secretary Langley, in February, 1906.

It is almost impossible to attempt to consider in detail the many ramifications of the great work that he accomplished, and naturally the minor, but certainly not unimportant, interests are obscured by the larger events to which he gave the later years of his life.

The most important of these was the construction of the new Museum building, in which the natural history collections are preserved. His intense interest in this undertaking, which never flagged during the many years of preparation and construction as well as his remarkable capacity for studying detail, is perhaps best shown by his careful preliminary study, "The United States National Museum. An Account of the Buildings Occupied by the National Collections," that appeared in the annual report of the United States National Museum for 1903, and in the descriptive account of the Natural History Building of the United States National Museum, that forms No. 80 of the bulletin series, published in 1913 on the completion of the building.

With an interest equal to that shown by him in the construction of the new Museum building, he undertook the development of the National Gallery of Art, an important feature of the Smithsonian Institution, which, although the one mentioned first in the fundamental act, had remained dormant for lack of adequate facilities. A permanent record of this development has been left by Mr. Rathbun in Bulletin No. 70 of the United States National Museum, under the title of "The National Gallery of Art, Department of Fine Arts of the National Museum," a volume remarkable for its artistic appearance, to every detail of which he gave his personal attention.

In his later years his spare time was devoted to gathering data for a history of the National Museum from its beginnings. In connection with these studies a first volume was issued on "The Columbian Institute for the Promotion of Arts and Sciences. A Washington Society of 1816–1838, which established a Museum and Botanic Gar-

den under Government Patronage," which was published in 1917 as No. 101 of the bulletin series of the National Museum. A second volume on the National Institute, 1840–1862, established for the promotion of science, is nearly completed.

The last report prepared by Mr. Rathbun and issued shortly before his death is that entitled "The Smithsonian Institution, United States National Museum," occupying pages 384–398 of "Public Buildings in the District of Columbia," a report of the Public Buildings Commission, presented to Congress in the interest of adequate Government buildings. Here are set forth briefly and comprehensively the value and the needs of the different branches of the Museum, with recommendations as to the best methods of supplying those needs in the immediate future.

LIST OF PUBLISHED WRITINGS BY RICHARD RATHBUN.

On the Devonian Brachiopoda of Ereré, Province of Pará, Brazil. Bull. Buffalo Soc. of Nat. Sci. for 1874, vol. 1, No. 4, pp. 236–261, pls. 8–10.

Morgan expedition, 1870, Ch. Fred. Hartt, in charge. Preliminary report on the Cretaceous lamellibranchs collected in the vicinity of Pernambuco, Brazil. Proc. Boston Soc. Nat. Hist. for 1874, vol. 17, pp. 241–256.

Morgan expedition, 1870–71, Ch. Fred. Hartt, in charge. On the Devonian Trilobites and mollusks of Ereré, Province of Pará, Brazil. (Joint author with Ch. Fred. Hartt.) Annals, Lyceum of Natural History, New York, vol. 11, pp. 110–127. (May, 1875.)

The geological commission of Brazil. Additions to the Echinoid fauna of Brazil. Amer. Journ. Sci. and Arts, ser. 3, vol. 15, pp. 82–84. (1878.)

The Devonian Brachiopoda of the Province of Pará, Brazil. Proc. Boston Soc. Nat. Hist. for 1878, vol. 20, pp. 14–39.

Notes on the coral reefs of the Island of Itaparica, Bahia, and of Parahyba do Norte. Proc. Boston Soc. Nat. Hist. for 1878, vol. 20, pp. 39–41.

Observações sobre a Geologia aspecto do Ilha de Itaparica, na Bahia de Todos os Santos. Archivos do Museu Nacional do Rio de Janeiro, vol. 3, pp. 159–183. (1878.)

Explorations in Brazil. Work of the late Professor Hartt. New York Daily Tribune, May 4, 1878.

Sketch of Prof. C. F. Hartt. Pop. Sci. Month., vol. 13, pp. 231–235, with portrait as frontispiece. (June, 1878.)

Work of the Fish Commission. New York Daily Tribune, Nov. 5, 1878.

Sketch of the life and scientific work of Prof. Charles Fred. Hartt. Proc. Boston Soc. Nat. Hist. for 1878, vol. 19, pp. 338–364. Reprinted. New Haven, 1879. Pp. 38.

Translation from the Portuguese of "The artificial mounds of the island of Marajó, Brazil," by Orville A. Derby. Amer. Nat., vol. 13, pp. 224-229. (April, 1879.)

A list of the Brazilian echinoderms, with notes on their distribution, etc. Trans. Connecticut Acad. of Arts and Sciences for 1879, vol. 5, pp. 139–158.

List of marine invertebrata from the New England coast, distributed by the United States Commission of Fish and Fisheries. Series I. (Distributed in 50 sets, put up by Mr. Richard Rathbun, under the direction of Prof. A. E. Verrill, 1879.) Proc. U. S. Nat. Mus. for 1879, vol. 2, pp. 227–232.

List of the dredging stations of the United States Fish Commission from 1871 to 1879, inclusive, with temperature and other observations. Arranged for publication by Sanderson Smith and Richard Rathbun. Ann. Rep. Commissioner of Fish and Fisheries for 1879, pp. 1-43.

Professor Hartt on the Brazilian sandstone reefs. Amer. Nat., vol. 13, pp. 347–358. (June, 1879.)

Review of O. A. Derby's "The geology of the Lower Amazonas." Amer. Journ. Sci. and Arts. ser. 3, vol. 17, pp. 464–468. (June, 1879.)

Brazilian corals and coral reefs. Amer. Nat., vol. 13, pp. 539–551, one text figure. (Sept., 1879.)

Review of O. A. Derby's "The geology of the Diamantiferous region of the Province of Paraná, Brazil." (Proc. Amer. Philos. Soc., May 16, 1879.) Amer. Journ. Sci. and Arts, ser. 3, vol. 18, pp. 310, 311. (Oct., 1879.)

The littoral marine fauna of Provincetown, Cape Cod, Massachusetts. Proc. U. S. Nat. Mus. for 1880, vol. 3, pp. 116–133.

Review of lecture of Prof. A. E. Verrill on the Devil-fish of the North Atlantic. New York Times, March 13, 1880.

Review of lecture of Prof. William H. Brewer on the Triumphs of science over disease. New York Times, March 18, 1880.

Researches in science. [This and the three following are discussions of the National Academy.] New York Times, April 22, 1880.

Onward steps in science. Results of the work of investigators. New York Times, April 23, 1880.

Work in scientific paths. Investigations presenting and comparing results. New York Times, April 24, 1880.

Seeking facts in science. New York Times, April 25, 1880.

Review of Orville A. Derby's "On the age of the Brazilian gneiss series. Discovery of Eozoon." Amer. Journ. Sci., ser. 3, vol. 19, pp. 324–326. April, 1880.

Studying the sea bottom. Golden Days, vol. 1, No. 16, June 19, 1880.

Remarks on the scientific results of the season's explorations. Ann. Rept. Commissioner of Fish and Fisheries for 1881, pp. 38–41.

List of marine invertebrates, mainly from New England coast, distributed by the United States National Museum. Series II. Proc. U. S. Nat. Mus. for 1881, vol. 4, pp. 298–303.

List of marine invertebrates from the New England coast, distributed by the United States National Museum. Series III. Educational Series. Proc. U. S. Nat. Mus. for 1881, vol. 4, pp. 304–307.

The giant squid. St. Nicholas, vol. 8, pp. 266–270, 5 plates. (Feb., 1881.)

Reports on the Department of Marine Invertebrates in the United States National Museum for years 1881–1892, inclusive. By Richard Rathbun, curator. Annual Reports of the Board of Regents of the Smithsonian Institution, showing the operations, expenditures, and condition of the Institution for the several years. Washington, Government Printing Office, various dates.

Dredging stations of the United States Fish Commission steamer Fish Hawk. Lieut. Z. L. Tanner commanding, for 1880, 1881, and 1882, with temperature and other observations. Bull. U. S. Fish Comm. for 1882, vol. 2, pp. 119–131.

Notes on the shrimp and prawn fisheries of the United States. Bull. U. S. Fish Comm. for 1882, vol. 2, pp. 139–152.

List of duplicate marine invertebrates distributed by the United States National Museum. Series IV—Educational series No. 2. Prepared under the direction of. Proc. U. S. Nat. Mus. for 1883, vol. 6, pp. 212–216.

The United States Fish Commission steamer Albatross. Science, vol. 2, pp. 6–10, 66–72. (1883.)

Sponge culture in Florida. Science, vol. 2, p. 213. (1883.)

Collection of economic crustaceans, worms, echinoderms, and sponges. Great International Fisheries Exhibition, London, 1883. U. S. of America. B. Washington, 1883, pp. 31. Reprinted in Bull. U. S. Nat. Mus. for 1884, No. 27, pp. 107–137.

Descriptive catalogue of the collection illustrating the scientific investigation of the sea and fresh waters. Great International Fisheries Exhibition, London, 1883. U. S. of America. G. Washington, 1883, pp. 109. Reprinted in Bull. U. S. Nat. Mus. for 1884, No. 27, pp. 511–622.

The American initiative in methods of deep-sea dredging. Science, vol. 4, pp. 54–57. (1884.)

American appliances for deep-sea investigation. Science, vol. 4, pp. 146–151, 225–229, 400–404, with numerous text illustrations. (1884.)

Annotated list of the described species of parasitic Copepoda (Siphonostoma) from American waters contained in the United States National Museum. Proc. U. S. Nat. Mus. for 1884, vol. 7, pp. 483–492.

Notes on the decrease of lobsters. [A paper read before the Fishcultural Association.] Forest and Stream, vol. 23, p. 89. (Aug. 28, 1884.)

Notes on the decrease of lobsters. Bull. U. S. Fish Comm. for 1884, vol. 4, pp. 421–426.

Crustaceans, worms, radiates and sponges. The fisheries and fishery industries of the United States, prepared through the cooperation of the Commissioner of Fisheries and the Superintendent of the Tenth Census by George Brown Goode, Assistant Director of the U. S. National Museum, and a staff of associates. Section I, Natural history of aquatic animals. Part V, pp. 759–850, pls. 260–277. Washington, Government Printing Office, 1884.

Report upon the Echini collected by the United States Fish Commission steamer Albatross, in the Caribbean Sea and Gulf of Mexico, January to May, 1884. Proc. U. S. Nat. Mus. for 1885, vol. 8, pp. 83–89.

Report upon the Echini collected by the U. S. Fish Commission steamer Albatross in the Gulf of Mexico from January to March, 1885. Proc. U. S. Nat. Mus. for 1885, vol. 8, pp. 606–620.

Notice of a collection of stalked crinoids made by the steamer Albatross in the Gulf of Mexico and Caribbean Sea, 1884 and 1885. Proc. U. S. Nat. Mus. for 1885, vol. 8, pp. 628–635.

A crab invasion. Science, vol. 6, pp. 135, 136. (1885.)

Catalogue of the collection of recent Echini in the United States National Museum (corrected to July 1, 1886). Proc. U. S. Nat. Mus. for 1886, vol. 9, pp. 255–293.

Descriptions of parasitic copepods belonging to the genera Pandarus and Chondracanthus. Proc. U. S. Nat. Mus. for 1886, vol. 9, pp. 310–324, pls. 5–11.

Notes on lobster culture. Bull. U. S. Fish Comm. for 1886, vol. 6, pp. 17–32.

Catalogue of the species of corals belonging to the genus Madrepora, contained in the United States National Museum. Proc. U. S. Nat. Mus. for 1887, vol. 10, pp. 10–19.

Annotated catalogue of the species of Porites and Synaræa in the United States National Museum, with a description of a new species of Porites. Proc. U. S. Nat. Mus. for 1887, vol. 10, pp. 354–366, pls. 15–16

Descriptions of the species of Heliaster (a genus of starfishes) represented in the U. S. National Museum. Proc. U. S. Nat. Mus. for 1887, vol. 10, pp. 440–449, pls. 23–26.

Descriptions of new species of parasitic copepods, belonging to the genera Trebius, Perissopus, and Lernanthropus. Proc. U. S. Nat. Mus. for 1887, vol. 10, pp. 559–571, pls. 29–35.

The fishing grounds of North America. Edited by Richard Rathbun. The fisheries and fishery industries of the United States, prepared through the cooperation of the Commissioner of Fisheries and the Superintendent of the Tenth Census by George Brown Goode, Assistant Secretary of the Smithsonian Institution, and a staff of associates. Section III, pp. vii–xviii, 5–154, 49 charts. Washington, Government Printing Office, 1887.

Ocean temperatures of the eastern coast of the United States, with 32 charts. The fisheries and fishery industries of the United States, prepared through the cooperation of the Commissioner of Fisheries and the Superintendent of the Tenth Census by George Brown Goode, Assistant Secretary of the Smithsonian Institution, and a staff of associates. Section III, pp. 155–238, 32 plates. Washington, Government Printing Office, 1887.

The crab, lobster, crayfish, rock-lobster, shrimp and prawn fisheries. The fisheries and fishery industries of the United States, prepared through the cooperation of the Commissioner of Fisheries and the Superintendent of the Tenth Census by George Brown Goode, Assistant Secretary of the Smithsonian Institution, and a staff of associates. Section V. History and methods of the fisheries. II. Part XXI, pp. 627–810, pls. 246–252. Washington, Government Printing Office, 1887.

The leech industry and trepang fishery. The fisheries and fishery industries of the United States, prepared through the cooperation of the Commissioner of Fisheries and the Superintendent of the Tenth Census by George Brown Goode, Assistant Secretary of the Smithsonian Institution, and a staff of associates. Section V. History and methods of the fisheries. II. Part XXII, pp. 811–816. Washington, Government Printing Office, 1887.

The sponge fishery and trade. The fisheries and fishery industries of the United States, prepared through the cooperation of the Commissioner of Fisheries and the Superintendent of the Tenth Census by George Brown Goode, Assistant Secretary of the Smithsonian Institution, and a staff of associates. Section V. History and methods of the fisheries. II. Part XXIII, pp. 817–841, pls. 253–255. Washington, Government Printing Office, 1887.

Results of investigations by the schooner Grampus on the southern mackerel grounds in the spring of 1887. (Joint author with D. E. Collins and T. H. Bean.) Bull. U. S. Fish Comm. for 1887, vol. 7, pp. 217–267.

Sponges and sponge fishery. The Chautauquan, March, 1887, pp. 352–354.

The transplanting of lobsters to the Pacific coast of the United States. Bull. U. S. Fish Comm. for 1888, vol. 8, pp. 453–472, pl. 71.

Reports upon the inquiry respecting food fishes and the fishing grounds. Ann. Reports U. S. Commission of Fish and Fisheries. Reports of the commissioner for years 1888–1896, inclusive. Washington, Government Printing Office, various dates.

The United States Fish Commission. Some of its work. Century Mag., vol. 43, pp. 679–697, 19 text figures. (1892.)

Jerome Henry Kidder. Bull. Philos. Soc. of Washington, vol. 11, pp. 480–488. (1892.)

Report of the joint commission of the United States and Great Britain relative to the preservation of the fisheries in waters contiguous to the United States and Canada, under agreement of December 6, 1892, by Richard Rathbun, representative on behalf of the United States, and William Wakeham, representative on behalf of Great Britain. Transmitted to the Congress of the United States by the President under date of February 24, 1897. Washington, D. C. Government Printing Office, 1897, pp. 178.

A review of the fisheries in the contiguous waters of the State of Washington and British Columbia. Report of the U. S. Commissioner of Fish and Fisheries for 1899, pp. 251–350, pls. 8–16.

Reports upon the condition and progress of the U. S. National Museum during the years ending June 30, 1899, 1900, 1901, 1902, 1903, 1904, 1905, and 1906, by Richard Rathbun, Assistant Secretary of the Smithsonian Institution, in charge of the U. S. National Museum. Annual reports of the Board of Regents of the Smithsonian Institution, showing the operations, expenditures, and condition of the Institution for the years ending June 30, 1899, 1900, 1901, 1902, 1903, 1904, 1905, and 1906. Reports of the U. S. National Museum. Washington. Government Printing Office, various dates.

Reports upon the condition and progress of the U. S. National Museum during the years ending June 30, 1907, 1908, 1909, 1910, 1911, 1912, 1913, 1914, 1915, 1916, and 1917, by Richard Rathbun, Assistant Secretary of the Smithsonian Institution, in charge of the U. S. National Museum. Washington, Government Printing Office, various dates.

The United States National Museum: An account of the buildings occupied by the national collections. Ann. Rep. U. S. Nat. Mus. for 1903, pp. 177–309, pls. 1–29.

Statement relative to the United States National Museum, the national museums of London, Paris, Berlin, and Vienna, and the American Museum of Natural History in New York City. New building for the U. S. National Museum. 57th Cong., 2d sess., H. Doc. No. 314, pp. 2–18, 4 plates. Government Printing Office, 1903.

Address of welcome to the U. S. National Museum, Washington, D. C. Bi-Monthly Bulletin, Amer. Institute of Mining Engineers, No. 4, July, 1905, pp. 923–928.

Statement to the Board of Regents of the Smithsonian Institution. November 28, 1906, pp. 12. Privately printed.

The National Gallery of Art. Department of Fine Arts of the National Museum. Bull. 70, U. S. Nat. Mus. Washington, Government Printing Office, 1909, pp. 140, 26 plates. Reprint, with additions. 1916. Pp. 189, 26 plates.

A descriptive account of the building recently erected for the departments of natural history of the United States National Museum. Bull. 80, U. S. Nat. Mus. Washington, Government Printing Office, 1913, pp. 131, 34 plates.

The Columbian Institute for the Promotion of Arts and Sciences. A Washington society of 1816–1838 which established a museum and botanic garden under Government patronage. Bull. 101, U. S. Nat. Mus. Washington, Government Printing Office, 1917, pp. 85.

The Smithsonian Institution. United States National Museum. Public Buildings in the District of Columbia. Report of the Public Buildings Commission. 65th Cong., 2d sess., S. Doc. No. 155, pp. 348–398. Government Printing Office, 1918.

Alonzo Howard Clark was born in Boston, April 13, 1850. He was educated at Wesleyan University, from which he received the honorary degree of M. A. in 1906. After eight years of mercantile business in New York, Mr. Clark entered the Government service in 1879, in charge of the United States Fish Commission station at Gloucester, Massachusetts, and special agent of the Tenth Census. In 1881 he came to the United States National Museum as curator of the division of history, and later was made editor of the Smith-

sonian Institution, which position he held until his death on December 31, 1918.

Mr. Clark was deeply interested in all matters of a patriotic and historic nature, and was connected with many patriotic organizations, among them the Sons of the American Revolution, of which he was secretary general and registrar general; the Society of Mayflower Descendants; and the Society of Colonial Wars. He served as assistant United States commissioner to the International Exposition in London, 1883, expert commissioner and member of the jury of awards at the Paris Exposition of 1889, delegate to the International Geographic Congress at Paris in 1889, and was decorated by the President of France with the cross of an Officier du Mérite Agricole of France.

It was through Mr. Clark's efforts, under the opportunities afforded by the generous administrative policy of Dr. G. Brown Goode, that the beginnings were made of the present great historical collections in the National Museum. His experience in historical and genealogical research and his wide connection with historical and patriotic societies especially fitted him for the task of developing an exhibit in the Museum which would show by means of relics and mementos the various periods in the history of the country. Closely related to this phase of Mr. Clark's activity was his work as secretary of the American Historical Association from 1889 to 1908 and as curator from 1889 until the time of his death.

George Colton Maynard died July 28, 1918. He entered the Museum as custodian of the section of electricity in 1896. Subsequently he was made curator of the division of mechanical technology, which position he filled at the time of his death.

Of distinguished New England ancestry, he was born in Ann Arbor, Michigan, on October 23, 1839. After the usual common-school education, his attention was directed to the then growing subject of telegraphy, and he became an expert operator. In this specialty he became so proficient and his patriotism was so great that during the Civil War he gladly proffered his services to his Government, and he was called to Washington, where he participated in the great work of those eventful years, being a sad witness of the culminating tragedy in Ford's Theater, in 1865.

His interest in his vocation was not a nominal one, and possessing mechanical acquaintance of the details of telegraphy, his knowledge was sought by the larger corporations which at that time were developing. His valuable service was recognized and he had much to do with the building of important telegraph lines.

As the telegraph yielded to the telephone, he became associated in the early history of its development with Gardiner Greene Hubbard and Alexander Graham Bell, and had general control of the

Bell telephone system in the District of Columbia. He made himself the historian of the beginnings of this industry by his many reminiscent articles, both on the telephone and the telegraph.

As he grew older his knowledge was often sought by the authorities of the United States National Museum, and his interest in the growth of the collection was so genuine that is 1896 he was called to the care of the section of electricity. His association with the greatest minds in the inventive world gave him opportunities to add materially to his section. It may be said that his contributions to the division of mechanical technology, of which he became curator in 1912, though in charge from 1903, have been such as to render its present enlargement in great part the result of his untiring energy.

Edwin Porter Upham, who had been associated with the archeological collections of the Museum since 1878, died on August 7, 1918. He was born in Weston, Massachusetts, March 6, 1845, the son of Joel and Elizabeth Upham. He received a public school education, and at the age of 19 joined the Forty-fourth Massachusetts Volunteer Regiment and was with that regiment during the remaining nine months of the Civil War. In 1878 he came to Washington, where he entered the service of the Smithsonian Institution as assistant to Dr. Charles Rau, the noted archeologist. He remained with Doctor Rau until the latter's death, and later became associated with Dr. Thomas Wilson. In 1906 he was made aid in the division of prehistoric archeology, which position he held at the time of his death. His services in the National Museum, always faithful and efficient, extended over the exceptionally long period of 39 years and 8 months. Mr. Upham early developed musical talent, and for a long period was violinist in the Georgetown Orchestra. His proficiency as a musician was applied to the study of the scales of the numerous prehistoric musical instruments in the national collections and formed the basis of several papers by Doctor Wilson, including his chapters on wind instruments in the Report of the United States National Museum for 1896.

Frederick Knab was born in Wurzburg, Bavaria, September 22, 1865, and came to the United States with his parents, who settled in Chicopee, Massachusetts, in 1873. He inherited the artistic temperament of the family and early devoted himself to drawing and painting; but at the same time an interest in natural history led to the accumulation of a collection of beetles and a study of their biologies. This interest became so strong that in 1885–86 he made a trip up the Amazon River as far as Peru, accumulating much material and information which in his later studies of entomology were of utmost importance to him.

On his return to the United States he resumed his artistic work, and in 1889 went to Munich, where he studied art for two years, after which he established a studio in Chicopee, where for several years he made landscape painting his profession.

During all this time he continued his study of the biologies of North American beetles with Doctor Dimmock, and through the latter, in 1903, secured the work of studying the life histories of the New England species of mosquitoes for the monograph of the mosquitoes of North and Central America and the West Indies, then undertaken by Dr. L. O. Howard under a grant from the Carnegie Institution of Washington. This led to the further employment of Mr. Knab on the same project, during which he made several trips to the Tropics, and his increased activities in the subject and excellent work in making the drawings of the larvae for this book led to his being made coauthor of the monograph with Doctors Howard and Dyar.

On October 26, 1910, he was made honorary custodian of Culicidae in the division of insects, United States National Museum, and after the death of Mr. Coquillett he was made honorary custodian of Diptera on September 1, 1911.

Always an earnest student, he soon attained preeminence in his newly chosen field, especially in the subject of insect-borne diseases, and the amount of work done by him may be judged by the long list of titles of articles which he published, as well as by the numerous notes published on the discussions of articles read before the Entomological Society of Washington, all of which show his breadth of knowledge and deep perception into all entomological problems. During the last years of his life although constantly suffering from an obscure tropical disease, probably insect-borne, which finally caused his death on November 2, 1918, he was always cheerful and ready to help others, and he lived to see completed the monumental work on mosquitoes to which he had so greatly contributed.

The death of Mr. William T. Evans, at Glen Ridge, New Jersey, on November 25, 1918, removes a benefactor to whom the National Gallery of Art is greatly indebted. By a series of donations, continuing through a period of some eight years, from March, 1907, Mr. Evans presented to the Gallery what is regarded as one of the choicest and best collections of contemporary American paintings existing. This contains 150 paintings and 1 fire etching, representing 106 American artists, besides 1 bronze by an American sculptor, and 115 examples of the work of 16 of the foremost American wood engravers. The gift was made most unostentatiously, with the sole purpose of establishing a gallery of American painting in the Na-

tional Gallery, and represented the most valuable pictures in Mr. Evans' private collection at the time.

Mr. Evans, of Welsh-Irish ancestry, was born at Clough Jordan, Ireland, in 1843, and was brought to this country by his parents when a year old, first settling in Scotch Plains, New Jersey, and later moving to Jersey City. Mr. Evans graduated at the New York Free Academy, studied architecture two years, and finally went into business as an employee of E. S. Jaffray & Co. There he attracted the attention of the late Philo Mills and John Gibb, and when they founded their dry goods house of Mills & Gibb they entrusted the financial management to Mr. Evans. Displaying marked business ability he soon became a partner and later its president. He was an intense worker day and night throughout the larger portion of his life.

Mr. Evans formed three art collections. The first consisted of modern foreign paintings and was sold in 1890, his interest in foreign art leading to the decoration of St. Michael being conferred on him by the Bavarian Government. Deciding to devote his energies and purse to the advancement of American art, Mr. Evans began collecting American paintings, buying judiciously as well as generously, and in most instances from the artists who were struggling and unknown to fame. He became a life member of the Metropolitan Museum of Art, a member of the National Arts Club, Lotos Club, and Salmagundi Club, gave an annual prize for the American Water Color Society, and developed his art work in many other directions. The sale of his second collection of paintings in January, 1900, was regarded as the turning point when American art came into its own.

In 1913 a third sale of paintings of his collecting again marked an advance in the estimated worth of American paintings, and virtually ended his work as a collector. Mr. Evans did more than almost any other collector to promote interest in American art, and to his patronage many of the leading American artists to-day owe their first step toward success.

IMMEDIATE NEEDS OF THE MUSEUM.

The pressing needs of the Museum are those for additional space for the accommodation of collections and additional funds for the increase in the scientific and technical staff. It is clearly manifest that these needs must be met if the institution with its numerous departments is to keep reasonable pace with the development of the country as a whole. The space congestion especially becomes more pronounced and embarrassing with each passing day.

The natural history collections and the laboratories connected therewith require for their reasonable accommodation and admin-

istration the entire Natural History Building, a structure erected especially for this particular purpose. To-day, however, large areas in the building are assigned—and that from necessity—to the rapidly growing collections of the National Gallery of Art and, in larger measure even, to the great accumulations of historical material relating to the late war which are just now demanding adequate attention. The older building, designed to accommodate the nationally important department of arts and industries—and not adequate in space to serve this purpose—is half filled, and from absolute necessity, with a great body of unrelated exhibits, representing history, anthropology, and art.

The National Gallery of Art, now for the first time taking an enviable place among the galleries of the country, is crowded into the Natural History Building without possibility of expansion, and many liberally inclined collectors of art works, who seek a permanent home for their treasures and who may be generously disposed toward Washington, are necessarily met with the statement that additional collections, if acquired, must go into storage. These possible benefactors of the nation are thus turned to other institutions or toward the auction room. The Nation is accordingly deprived of the possibility of building up, even by gift and bequest, collections of art such as are highly prized and fully provided for by civilized nations generally. The sooner a building devoted to the fine arts is provided, the more readily will the American people find themselves in the forefront in all that characterizes to the highest level of civilization.

American history, one of the most essential and vital of the departments of Museum activity, is not better provided for than art. A building of an order commensurate with a great national purpose is an absolute essential, and its erection should be provided for with the least possible delay.

DETAILED REPORTS ON THE COLLECTIONS.

REPORT ON THE DEPARTMENT OF ANTHROPOLOGY,

By W. H. Holmes, *Head Curator.*

In preparing the report of the Department of Anthropology for the year the reports furnished by the several curators have been freely utilized and in each case due credit has been given for the work accomplished. In some of the divisions the work of the year has been conducted under exceptional difficulties due to the occupation of certain exhibition halls of the Natural History Building by the War Risk Bureau. The exhibits belonging to these halls had to be stored in other exhibition halls which were thus necessarily closed to the curators as well as to the public. It is gratifying to observe, however, that the restoration of the exhibits to their places has afforded the opportunity of making noteworthy improvements in their installation.

It may not be inappropriate to note in this place that the head curator's lifelong interest in art has led during past years to a considerable expansion of his duties; first to the care of the art works and to consideration of the art side of installation generally, and finally to his appointment as curator of the rapidly developing National Gallery of Art—a work which has added greatly to his responsibilities. In the administration of the two departments the head curator has been assisted by Miss Louise A. Rosenbusch, recorder.

The additions to this department were received in 400 accessions, with a total of 15,421 specimens, of which 3,088 were loans or deposits, classified and distributed as follows: Division of ethnology, 1,140 specimens; art textiles collections, 62 specimens; section of musical instruments, 2 specimens; section of ceramics, 476 specimens; division of physical anthropology, 233 specimens; division of American archeology, 1,718 specimens; division of Old World archeology, 119 specimens; division of history, 10,274 specimens; historical costumes collections, 82 specimens; division of mechanical technology, 182 specimens; division of graphic arts, 1,127 specimens; section of photography, 6 specimens. There were also received from various

sources for examination and report 29 lots of specimens, diversified in character and importance.

Ethnology.—The division continued under the curatorship of Dr. Walter Hough, who, in addition, supervised the division of mechanical technology, the sections of ceramics, art textiles, musical instruments, and the collection of period costumes. In these varied duties he was assisted by Mr. R. A. Allen. The diversified activities were carried forward with the usual thoroughness, although some embarrassment resulted from the occupation of portions of the space assigned to ethnology by the War Risk Bureau. The installation is now, however, quite restored to the normal condition. Toward the close of the year the curator was fortunate in obtaining, under the auspices of the Bureau of American Ethnology, the opportunity of undertaking certain researches among the ancient ruins of the pueblo country.

Additions to the ethnological collections were somewhat less numerous than during the preceding year, but the high standard of scientific value was fully maintained. Accessions of exceptional value are an interesting collection from the Celebes Islands, East Indies, received as a gift from Dr. W. L. Abbott. It was collected by Mr. H. C. Raven, and consists of basketry, costumes of bark cloth, personal ornaments, charms, lime gourds, flutes, small bronze castings, horn carvings, cocoanut shells, etc. The collection illustrates the extensive employment of decoration on articles of daily use by the Celebes Islanders. Important material relating to the life of the Haida and Tlinkit Indians of southeastern Alaska was presented to the Museum by Dr. Edwin Kirk, of the United States Geological Survey. It consists of baskets, burial chests, stone implements, ceremonial headdresses, etc., numbering about 100 specimens. A collection of 6 specimens of fine weavings, consisting of pouches and blankets of Aymara Indians of Bolivia, South America, was acquired. The fineness of the texture and the beauty of the dyes relate these specimens to the ancient textiles of Peru and Bolivia. Col. William B. Davis, United States Army, presented to the Museum an interesting collection of 21 pieces of Cuthead Sioux Indian work secured by him at Fort Totten, Dakota, in 1878. Miss Isobel H. Lenman added to her former loan contributions four accessions consisting principally of Americana, notably several very old Bolivian weavings of the finest materials and dye.

The exhibit collections being closed for reasons above stated, the work was largely concentrated on the materials in the laboratories and in divisional storage. The curator continued investigation on the mutations of decorative designs on specimens from the Celebes.

Additions were made to the collection of data on heating and illumination. A report on the explorations of the habitations of New Mexican pit-dwellers investigated by the curator was finished and printed. Interest was taken by the curator in war activities and was extended to the Army Medical Museum, the Red Cross, the National Research Council, and the Girl Scouts.

The division values its correspondents who have been in the past instrumental in adding to its collections. Among these is Mr. Victor J. Evans, who is collecting extensively in American ethnology and whose collections are destined for the National Museum.

American archeology.—Owing to the absence in military service of the assistant curator, Mr. Neil M. Judd, and to the failing health of Mr. Edwin P. Upham, aid, the division was under the direct charge of the head curator during the first part of the year. On his return, January 1, Mr. Judd was made curator of the division. Toward the close of the year he, under temporary detail to the Bureau of American Ethnology, was able to resume his archeological researches in southwestern Utah and northwestern Arizona.

Although the new accessions are not so numerous as in preceding years, the scientific value is well maintained. Some of the more important of these are: A collection of 558 gold ornaments, with shell and bone beads, from Colombia, South America, a loan from Capt. Edward H. Watson, United States Navy, through Mrs. C. C. Marsh, Washington, District of Columbia. A second large collection, lent by Mr. Robert Hinckley, Washington, District of Columbia, consisting of prehistoric stone and earthenware artifacts from the neighborhood of San Salvador and certain pottery vessels and images made by natives in imitation of antiquities, 192 in all; collected by the late Hon. Thomas Hinckley, former United States consul general and first secretary of legation at Salvador, Central America. A valuable collection of 155 Peruvian slings presented by Dr. Aleš Hrdlička, of the United States National Museum. Two hundred and nineteen stone objects of various types, potsherds and fragments of soapstone vessels from ancient village sites on the Susquehanna River at Great Bend, Pennsylvania, presented by Capt. Richard C. Du Bois, United States Army (retired), Hallstead, Pennsylvania. Two fragments of human bones in which brass arrow heads are imbedded, received as a transfer from the United States Navy Department; they were discovered by Mr. C. S. Burrell, in charge of the construction of new barracks at the United States submarine base, New London, Connecticut, and are probably of Norse origin.

Old World archeology.—Aside from the archeological problems proper, Dr. I. M. Casanowicz, assistant curator of the division, has

charge of the valuable relics of religious art which have a separate installation. The accessions for the year are noteworthy for artistic as well as for archeological value. A few of the more noteworthy examples may be mentioned.

A Russian ecclesiastical cloth of silk, measuring 19 by 18 inches, richly embroidered in gold and silk threads of various colors with the figures of the Trinity, cherubim and seraphim and an inscription in old-Slavonic letters, containing the words of the institution of the Lord's Supper, Matthew xxvi, 27 and 28, which would indicate that it was used as a cover for the chalice during the celebration of the mass in a Russian church; exchange with Mr. E. W. Keyser. A finely executed bronze statuette of Dionysus (Bacchus), with marble base about 12 inches high which, though found in Egypt, is evidently of Roman origin. It represents the god of wine adorned with a wreath of vine and wearing a panther skin, in a graceful pose; and two Phenician iridescent ointment bottles of peculiar shape with concentric circles and undulating lines in relief; lent by Hon. Hoffman Philip, Department of State. A bronze representing a lamp, probably from a temple in India. From the semicircular reservoir project two graceful nozzles for wicks. From the base of the reservoir rises a handle terminating in a palmette. The reservoir, adorned with floral designs in relief, rests upon a tripod, the feet of which terminate in claws and are joined by palmettes in openwork. Lent by Miss Isobel H. Lenman. Another specimen, a Phenician double glass bottle with a triple handle on the sides and an overarching handle on top, is lent by Miss Lenman.

The exhibition collection of historic religions was transferred from the Arts and Industries Building toward the close of the year to the Natural History Building, space being assigned the subject on the first floor of the north wing.

Physical anthropology.—This division, which is under the direction of Dr. Aleš Hrdlička, curator, is steadily advancing in practical usefulness and scientific importance. It is perhaps not too much to say that it is fast becoming the recognized center of somatological research and instruction in America. The collections of the division, already very rich, are being steadily augmented by valuable additions, among which are: A large collection of skeletal material from the ruined village of Hawikuh, Zuni, New Mexico, the result of two seasons of excavating by Mr. F. W. Hodge for the Museum of the American Indian, Heye Foundation, presented to the National Museum with the understanding that it be described for publication later. It comprises the remains of upward of 200 human skeletons and will be added to as further excavations are undertaken. The scientific value of a collection so carefully made and involving so many practically complete skeletons is very great.

Seven undeformed skulls in excellent state of preservation and a lot of miscellaneous bones, from rarely visited parts of the territory of the Tlingit and Haida Indians of the northwest coast, were received as a gift from Dr. Edwin Kirk. A skeleton of an Indian, possibly prehistoric, found on Snead's Island, Manatee County, Florida, was presented by Mr. Charles T. Earle, of that place. It is well preserved and is a typical specimen of the broad-headed type of Florida Indian.

Progress in caring for the collections and in new installation was retarded during the earlier part of the fiscal year by the lack of help, in consequence of which a part of the recently acquired material could not be marked. The lack of requisite space for storage and installation is also keenly felt. However, the older collections in the division are in excellent condition for study, and progress has been made in installation.

Mechanical technology.—The collections of the division of mechanical technology, since the demise of curator George C. Maynard, were under the general supervision of the curator of ethnology, assisted by Mr. R. G. Paine, aid, and Miss Barbara E. Bartlett, clerk. Accessions of the year worthy of special mention are as follows:

A remarkable sundial adapted for the latitude of Jerusalem, north latitude 31° 47′, presented by Mr. Claude L. Woolley, Baltimore, Maryland. During the last few years Mr. Woolley has contributed 19 sundials, which with the various types already in the collection cover nearly all the different forms. A type L–2 grafonola equipped with a nonset automatic stop, gift of The Columbia Graphophone Co. A Cardew voltmeter of an early type, acting by the expansion of a hot wire, gift of Mr. Charles Wirt, Germantown, Philadelphia, Pennsylvania. A portable voltmeter invented by John W. Howell, and patented September 2, 1890, gift of Mr. W. S. Andrews, General Electric Co., Schenectady, New York. A lamp indicator or engine-room voltmeter invented by John W. Howell, patented March 30, 1886, and January 11, 1887, gift of The Roller-Smith Co., New York City.

An exhibit illustrating the early development of the telephone was assembled in chronological order and placed in a special case which includes, in part, a reed sounder which gave the first clew to the transmission of sound over wires, the first instrument through which the sound of the human voice was heard, the first long-distance telephone, some early commercial hand telephones, and a pioneer desk-telephone set.

The gun court was cleared of all unrelated specimens, and two cases of gun accessories, powderhorns, powderflasks, bullet molds, and shot bags installed. The Nordenfeldt machine gun has been

provided with a more uniform case and placed with the Gatling gun, which form the nucleus of a machine-gun exhibit.

The collection of sundials was installed in two cases that are to be placed in the metrology section which is now ready to be assembled, due to the recent removal of the Chinese gateway from the east hall.

Musical instruments.—The collection of musical instruments to which Mr. Hugo Worch has contributed in a most generous and commendable manner has had but few additions during the year. A melotrope representing an early stage in the invention of mechanical players for the piano was presented by Mr. Carl Hering, Philadelphia, Pennsylvania. A second accession is a piano made by hand by Gerhardt Feldhar in 1844, and presented by Mrs. William P. Spensley, Chicago, Illinois.

Ceramics.—The exhibition collections of ceramics, which are cared for by the curator of ethnology, remain in the gallery of the northeast court of the Arts and Industries Building pretty much as arranged by the head curator in former years.

Accessions added during the year exceed those of last year in both number and scientific value. An interesting collection of pottery and porcelain, a portion of the Hussey-Knight-McLane collection, received as a bequest from Mrs. Allan McLane, consists of English blue ware with scenes, Spode, Derby, Wedgwood, luster, and other varieties of English ware; and of "East Indian" pieces, that is, Chinese after European forms, glass, lacquers, bronzes, and jade. A collection of 78 specimens of lacquer, porcelains, glass, and ormolu and art glass was received as a gift from Mrs. B. H. Buckingham and Miss Isabelle C. Freeman, Washington, District of Columbia. Other accessions are two gold lacquer chests from Japan, lent by Mr. Harold I. Sewall, New York City.

Graphic arts.—The field occupied by the division of graphic arts is a wide one and of exceptional museum interest and practical importance. The many rapidly developing branches of these arts require constant and close attention in order that the collections, and especially the exhibits, shall be kept fully up to date, thus filling their proper functions. Mr. Paul Brockett, custodian of the division, was assisted by Mr. R. P. Tolman, aid. Some of the more important additions to the collections pertain to the group of Japanese wood-block cutters and printers. A lay figure representing the cutter was prepared and installed. Essential assistance in this work was rendered by Mr. Eizo Kondo, of New York, and by Mr. Albert J. Osgood, Washington, District of Columbia, who supplied the oriental wood required in making the table. Twenty-nine lithographic progressive proofs of the Edison mazda calendar were presented by the Forbes Lithograph Manufacturing Co. of Boston, Massachusetts. These

illustrate the series of stages through which the most modern color print passes in printing. Dr. Marcus Benjamin's gift of two sets of chromo lithographic progressive proofs of Dr. Kunz's Gems and Precious Stones, published in 1890, furnishes interesting material for comparison. The material in both of these accessions is of the best lithographic work of 1890 and 1918. One ancient book binding, gift of Mr. Joseph Stewart, Washington, District of Columbia. This book bears the date of 1604 and was apparently rebound in 1754. Books bound at this time were all done by hand and a great deal of thought was given to the binding. The leather is remarkable in that it is as strong to-day as it was when first put on.

The collections of the division are in excellent condition.

At the suggestion of the Administrative Assistant, Mr. Tolman undertook the reinstallation of the cases containing the relics of James Smithson.

The collection of 99 remarkable water-color paintings of native flowers, by Mrs. Charles D. Walcott, was placed on exhibition and will remain on view in the main hall of the Smithsonian Building during the summer.

Although the number of accessions to the section of photography for the year is small, it exceeds that of last year in historical value. A bronze statuette, The Genius of Photography, by Lafon de Camarsac, was received as a gift from Thomas W. Smillie, through his sister, Miss Lydia Smillie. Because of its artistic excellence the statuette would merit a place in any art collection, but it was Miss Smillie's desire that it should be placed in the section of photography as a memorial of her brother, who devoted much of his life to the development of the section. Five specimens of dorotypes were accessioned as a gift from the Eastman Kodak Co., of Rochester, New York. These dorotypes are of great interest, as they represent a modern application of the ambrotype process, one of the earliest developments in photographic processes.

History.—During the past year this division acquired extensive exhibits of diversified character and great scientific value through the assembling by the Museum of a special collection of material relating to the recent war with Germany. Owing to the essentially historical character of this material the principal work of its selection devolved upon the curator of history, Mr. T. T. Belote, and, through the courtesy of the War Department, Capt. J. J. Hittinger, Quartermaster Corps, was detailed, in addition to his other duties, to assist the Museum authorities in connection with the acquirement and installation of the collection which is known officially as the "War Collection." More than half of the accessions received by the division of history during the past year relate to this collec-

tion, which illustrates many different phases of the world conflict and includes the following classes of matter: Air Service, military and naval equipment, battlefield relics and trophies, and military and naval uniforms and insignia.

Among the objects received in this connection the following are the most notable: From the United States Air Service, the first De Haviland-4 battleplane built in America, which was completed by the Dayton-Wright Airplane Co., October, 1917, and installed with the first 12-cylinder Liberty engine. This airplane was flown for over 1,000 hours, including trips from Dayton to Indianapolis, Detroit, Akron, Pittsburgh, Cleveland, New York, Philadelphia, and Washington, chiefly by Howard Rinehart, and has carried Orville Wright, Glenn Martin, and others of national reputation. It was used as a model by the Dayton-Wright Co. and other makers, and is fully equipped with guns, bombs, camera, radio apparatus, and other accessories; a training plane of the Curtis JN4–D type, used at all United States fields for primary instruction of aviators, 1918; the fuselage of a De Haviland-4 military airplane equipped with two Lewis aircraft machine guns on double yoke, and two Marlin aircraft machine guns, and other accessories; a Voisin military airplane for bombing at night and a Caudron airplane for photographing and reconnoitering, both used by the French on the western front during the European War, are of special interest as the first notable relics of aerial warfare to be received by the Museum. From the Air Service was also received a number of other interesting exhibits consisting of aerial accessories and including an aviator's fur-lined flying suit equipped with an electric harness which may be attached to batteries for extra warmth.

From the Ordnance Department was received a very complete exhibit relating to the activities of that department, including a 6-ton special tractor military tank, model of 1917. This tank is of the armored 2-man type equipped with a 37-millimeter gun. It is driven by a 4-cylinder gasoline engine which imparts the drive through a transmission gearset and reduction gearing to a track-laying or crawler traction mechanism. The main structure of the body is made up of six-tenths-inch armor plates capable of withstanding machine gun or rifle fire; a Browning machine gun, water cooled, model of 1917, with a belt filling machine, water boxes, filling cup, steam condensing device, cleaning rod, ammunition boxes and leather fillers, ammunition belts, flash hider, and a hand carrying case with small accessories; a Browning machine rifle with spare parts and accessories, model of 1918; a battery commander's telescope, with accessories, one of the most important instruments used in the control and observation of field artillery fire; a battery com-

mander's periscope for use in a trench or shellhole for observation purposes; a sitogoniometer used for rapid approximate measurements and especially fitted for rapid preparations of indirect firing; an aiming post used in the field as an auxiliary aiming point when no suitable natural object is visible; a Jacob's staff used as a support for field glasses; a pair of Wilson goggles with amber glasses used by anti-aircraft gunners to protect their eyes when viewing a target in the direction of the sun; a time interval recorder or stop watch, used to correct the height or burst of shrapnel, to check the time of flight of shells and also in various systems of sound and flash-range finding; a prismatic compass, clinometer and accessories, used to ascertain the direction or course toward a sighted object, or to measure the included angle between any two given points; a tachyscope used in anti-aircraft fire for obtaining the speed of an airplane and also for determining the wind velocity; and a collection of adapters and boosters, mechanical fuses and shell and shrapnel, many pieces sectionalized.

From the Chemical Warfare Service were received 12 large panels installed with military gas masks and accessories showing in a very complete and interesting manner the development of these objects by the United States Chemical Warfare Service during the war.

From the Quartermaster and Ordnance Departments were received large collections of examples of the individual equipment of the enlisted men of the various branches of the Army, including infantry, cavalry, and artillery, such as clothing, mess outfit, trench tools, haversacks, ammunition belts, and horse equipment.

Among the battlefield relics and trophies received the following are the most notable: From Gen. John J. Pershing, United States Army (Chaumont, France), through the War Department, as a transfer, the combined order of battle map and accessories used at his headquarters at Chaumont during the progress of the American military movements in France. This map was developed and kept posted to date daily by members of the third section of the general's staff and used by them and other superior officers during active operations for strategical studies and purposes of general information, and shows in a vivid fashion as at present installed the exact situation at the hour of the armistice, November 11, 1918. In general this map gives the following information: Location of all divisions, both enemy and allied, on the western front; correct battle line; commanding generals; location of headquarters and army boundaries; and various other information concerning divisions, as, for example, whether they were fresh or tired. As an aid to clearness and in order to obviate the need of referring to a legend, national flag designs were used on the map where possible in the make-up of the tags. Those representing the American divisions are, however,

colored in red in order to emphasize them. The map, which is 8 feet by 10 feet in size, was brought to the National Museum with all of its accessories and installed by members of the third section of General Pershing's headquarters. The accessories consist of the secret chamber walls in which the map was kept, the sliding door which covered the map when not in use, the platform and floor matting and four chairs and a table which were used in the chamber. From Maj. Gen. H. L. Rogers, Quartermaster General, United States Army, was received as a loan, a very interesting collection of objects consisting for the most part of German military paraphernalia captured during the various engagements in which the American troops participated, and assembled in France by General Rogers while serving as chief quartermaster of the American Expeditionary Forces. This includes helmets of different types, one camouflaged and one showing the effects of shrapnel and machine-gun fire, gas masks for men and horses; a gas-proof cage for carrier pigeons, with an opening for extracting the pigeons when under gas attack, found in a captured trench on the Chateau Thierry front; trench knives and bayonets, one of the latter of the double saw-edge type used by German pioneer troops, and picked up in the Argonne Forest by the Second American Division; a leather belt with buckle inscribed, "Gott mit uns," with bayonet and scabbard and knot attached, worn by a noncommissioned officer of German artillery and found on the Chateau Thierry front; a field telephone found in a captured trench by the Fifth American Division during the Argonne-Meuse offensive; cartridge cases of various types, including one for the 420-millimeter howitzer, which is the largest fixed ammunition in the world, and was used by the Germans in shelling the Belgian forts, which before 1914 were considered impregnable; a trench mortar captured in the Argonne Forest; an anti-tank gun, a water-cooled machine gun, a field operating chair, trench tools, grenades and grenade throwers, pieces of steel armor, and various other objects salvaged from the battlefields. In addition to the captured material, this collection also includes a French rifle and trench helmet, a British pistol for firing star signal shells, and a special designation flag of the American Eighty-first, or "Wild Cat," Division. General Rogers also lent a collection of captured German military paraphernalia made of paper, including a large bolt of paper cloth of a blue-gray color; two rolls of belting; a wagon cover; a saddle blanket; a cannon seat cover; a nose bag; saddlebags; shovel, spade, and pick and various other tool and instrument carriers; and miscellaneous pieces of harness made of paper reinforced with leather. From the Ordnance Department was received, as a loan, a German 37-millimeter machine gun captured by the American Seventy-ninth Division, November, 1918, practically complete, with accessories,

and including fourteen cartridges in an ammunition box, two belts, two belt reels, a belt reel box, a belt feeding rack, a loading machine, two magazines, and a base and upper part of mount. Also an Italian 37-millimeter mountain cannon, with tripod. From the historical branch of the General Staff of the Army was transferred a collection of American, French, and German propaganda balloons and printed propaganda of the type used during the European War. A very interesting collection of French gas masks and accessories, showing the development of these objects during the war, from a simple cloth covering to a complicated device, was received as a gift from the High Commission of the French Republic in the United States. A notable collection of relics of Lieut. Benjamin Stuart Walcott, United States Army, who entered the French Air Service as a member of the Lafayette Corps and was killed in aerial combat and fell within the German lines December 12, 1917, was received during the fiscal year. The collection includes a uniform coat, a pair of breeches, a cap, a tie, and a belt worn by him as sergeant, French aviation service; the croix de guerre with palm and accompanying citation, awarded to him by the French Government; the French aviation pilot badge owned by him; and the certificate of "Pilote Aviateur" awarded to him by the Federation Aeronautique Internationale; the diploma and bronze war medal of the Aero Club of America awarded to him; the Lafayette Flying Corps badge worn by him; his commisson as first lieutenant, Air Service, United States Army; and his diploma as bachelor of science, Princeton University, 1917. From Madame Claude Langlais, of Washington, District of Columbia, was received as a loan, three uniforms worn by Monsieur Claude Langlais, a member of the Thirty-third French Infantry, machine gun unit, who participated in many engagements of the European War from May, 1915, until September, 1916, when he was wounded during the battle of the Somme. These uniforms bear the croix de guerre bar, indicating the award of this decoration to Monsieur Langlais, a wound bar with a red star indicating that blood was shed for France, and wound and war service chevrons.

Notably large collections of United States military and naval uniforms and insignia of the type used during the war with Germany have been added to the large amount of material of this character already in the possession of the division relating to other wars in which the United States participated. Among these are representative sets of the devices indicating the ranks and corps of commissioned officers of the Army, Navy, and Marine Corps; sets of chevrons and specialty marks showing the various grades and special duties of the enlisted personnel; types of the uniforms worn by the enlisted personnel, including those of the yeowomen and marinettes;

and a set of the shoulder badges indicating divisions, corps, armies, or special units, which were developed during the recent war.

Another important addition to the War Collection received during the year is a group of 121 paintings and two pieces in plaster, by American artists, consisting of war scenes and portraits of personages connected with the war. These were executed for the publicity committee of the Second Federal Reserve District Liberty Loan Committee for display in connection with its work for the fifth or "Victory loan" and the collection was deposited in the Museum by the publicity committee, through Capt. H. Ledyard Towle, chairman.

Many collections of note not connected with the recent war were also received by the division during the past fiscal year. Worthy of special mention in this connection are the following: From Mrs. Beatrice Cameron Mansfield was received as a gift, a large number of costumes and accessories worn by the late Richard Mansfield in his extensive repertoire of historic characters. The costumes and armor are accurate reproductions of the objects of this type of the periods represented and consist of copies from such originals as exist, or from such accurate sketches of others as survive. A relic of special note is the gold medal awarded by resolution of Congress to Capt. Thomas Truxtun, United States Navy, March 29, 1800, in recognition of the defeat of the French ship *Vengeance*, February 1, 1800, when captain of the United States frigate *Constellation*. This was received as a loan from Mr. Thomas Truxtun Houston and is the earliest original medal of this type in the possession of the Museum. Another loan of interest consists of a silver-mounted telescope owned by Thomas Jefferson and used by him in 1781 when he made his escape from Monticello previous to its capture by British troops, and a miniature portrait of him by St. Memin, received from Brig. Gen. Jefferson Randolph Kean, Medical Corps, United States Army. From Miss Mary E. Thackara and Mrs. Eleanor Sherman Thackara Cauldwell, through Mr. P. T. Sherman, New York City, were received as a gift, a saddle, bridle, pair of holsters, and blanket roll, owned by Gen. William T. Sherman, United States Army, during and subsequent to the Civil War. Another accession relating to General Sherman consists of a United States flag and an army headquarters flag owned by him, which were presented by Miss Mary E. Sherman, Boston, Massachusetts. A sword and scabbard presented to Col. Stephen H. Long, United States Topographical Engineers, in recognition of his Rocky Mountain and other explorations, 1818–1824, was received as a bequest from William Foulke Johnes, through Mrs. Myrtle Giffen Johnes, executrix, New York City. The medicine scales and case used by Dr. Gustavus Richard Brown, of Maryland, during his attendance

upon Washington at the time of his last illness in 1799, were presented by Mr. William H. Gray, of Washington, District of Columbia, and Mr. C. G. Brown, Texarkana, Texas. From Maj. Gen. John R. Brooke, United States Army, Washington, District of Columbia, was received as a gift, a notable collection of military relics, including a jeweled sword presented to him by American and Cuban friends in 1899; a saddle, saddle cloth and pad, a chapeau, two pairs of epaulets, dress and service belts, and various pieces of military insignia worn by him during his long career as an Army officer. Dr. Alfred S. Hopkins, Bethesda, Maryland, has loaned a very interesting collection of seventy-three early American and foreign swords, the commission of Nahun P. Monroe as surgeon, Twentieth Maine Volunteers, dated August 29, 1862, a uniform worn by him during the Civil War and a photograph of him in uniform; and a uniform worn by Francis Schroeder when United States minister plenipotentiary and envoy extraordinary to Sweden and Norway, 1849–1857. A drum carried during the Civil War by John C. Hutsler when drummer boy, Company H, Seventh Maryland Volunteers, was received as a loan from Lieut. Francis L. Hutsler, United States Army, Washington, District of Columbia.

The numismatic section of the historical collections was enriched by a number of military decorations of the type awarded by the Allied Powers prior to and during the European War, 1914–1918. Among these the following are the most notable: The Belgian war cross, established in 1915, and awarded with citation in army orders; three types of the French war cross, established in 1915; one with palm awarded with citation in army orders, one with silver star awarded with citation in division orders, and one with bronze star awarded with citation in brigade orders; and the silver British military cross, estabished in 1914. In addition to the decorations mentioned a number of commemorative medals, of which the following are the most notable, have been received: Two bronze replicas of the medal issued by the American Numismatic Society, in commemoration of the visit of the French and British war commission to New York in 1917, and two bronze replicas of the medal issued by that society commemorating the unveiling of a memorial to Lafayette in Prospect Park, Brooklyn. Mr. J. Sanford Saltus presented, through the American Numismatic Society, New York City, a silver replica and a bronze replica of the medal of T. Spicer Simson, issued by the society, commemorating the aerial crossing of the English Channel by the King and Queen of the Belgians in 1918. The Victory medallion of the Art War Relief, designed by Paul Manship and sold for the war relief fund, was also added to the collection. From the Indiana Historical Commission, Indianapolis, Indiana, was received

as a gift a bronze medal commemorating, 1916, the centennial anniversary of the admission of the State of Indiana to the Union, 1816. A collection of United States coins, consisting of gold $3 pieces, $2.50 pieces, and dollars, silver half dollars, quarter dollars, and coins of smaller denominations, all in fine condition, many proofs and uncirculated pieces, were lent by Mr. Douglas N. Starr, Washington, District of Columbia.

During the year the collection of philatelic material in the care of the division of history has been increased by 3,725 specimens, of which 2,699 have been received by transfer from the Post Office Department, and of these 1,270 are examples of new issues received by that department from the International Bureau of the Universal Postal Union, Berne, Switzerland. In building up here a collection of stamps relating to the war, our Allies have, in response to requests through the Department of State, indicated their intentions of assisting, the British Government having already supplied 71 varieties of stamps used in its colonies, the French Republic 62 varieties of colonial and charity stamps, and the Italian Government 20 varieties, while the International Committee of the Red Cross, Geneva, has contributed a series of 93 envelopes showing various types of war-time stamps and franks. A number of stamps have also been received from individual contributors.

Historical costumes.—The collection of costumes, one of the most interesting and popular in the Museum, is developing rapidly and favorably. Much aid was given as in former years by Mrs. Julian-James and Mrs. R. G. Hoes, who have contributed substantially to the acquirement of new exhibits and have assisted in the increasingly difficult task of display in the limited space provided. Additions to the collection are 82 in number and present many features of particular interest. Among these may be mentioned a Chantilly lace shawl worn by Mrs. Abraham Lincoln, lent by Mrs. Henry J. Finley; costumes worn by the Society of Friends or Quakers in the nineteenth century, presented by Mrs. Charles D. Walcott.

A complete series of engraved lithographic and photographic portraits of the Presidents of the United States, 1789–1917, were received in the Hussey-Knight-McLane collection bequeathed to the Museum by Mrs. Allan McLane, and were installed in the historical costumes hall.

Art textiles.—Additions to the art textile collection have been less numerous than in previous years. The main feature of interest in the hall devoted to this section is a collection of 50 oriental rugs displayed on the south and west walls of the hall. It comprises excellent specimens of the varieties of rug weavings. Especially noteworthy is a large Persian rug known as "Ispahan" of Herati pat-

tern and dating from the sixteenth century. The collection is lent for temporary display by a resident of Washington.

A Brussels lace fichu of 1840 was received from Mrs. Richard D. La Garde, Washington, District of Columbia, and installed in one of the cases containing the collection of the Misses Long. A chased brass oval stand *repoussé* and *percé a jour*, of the sixteenth century Florentine work which belonged to the Convent San Marco, Naples, Italy, was received as a loan from Mrs. Charles D. Walcott. A specimen of fifteenth century pewter communion plate of German work was received as a loan from Miss Isobel H. Lenman, Washington, District of Columbia, and placed in a case with other art objects in the lace hall.

Work of preparators.—The department laboratory was conducted by Mr. W. H. Egberts, with Mr. Frank Kotrba as preparator. The work is greatly varied and requires skill in many directions, consisting largely, however, of modeling in clay, casting in plaster, the building of models of various kinds, and the repair of specimens. Much work was done on the preparation and installation of lay figure groups, the principal of which are the Japanese wood-block cutter for the division of graphic arts and the Zulu-Kaffir, Carib, Kiowa Indian, and Eskimo groups for the division of ethnology. This work was carried on largely under the immediate supervision of the head curator.

Mr. R. A. Allen, preparator in the division of ethnology, has given systematic attention to freeing from destructive insects all objects as they are received at the Museum, and in otherwise preserving material in the department collections. The actual handling and marking of the diversified collections of the division have fallen largely to his share. He also assists in looking after the interests of the section of historical costumes and in every division and section where his services are required.

Present condition of collection.—There can be no doubt that the exhibition collections of the department are to-day in better general condition than at any previous period; but the ideal is still far distant. The most serious shortcoming is due to the fact that the collections and work are not assembled under a single roof, or in a single exclusive space. Serious defects difficult of remedy are due to inheritance of furniture and fixtures of antiquated forms and the resultant heterogeneity of the new. The shortage of space also is a serious embarrassment, causing disorder. On the receipt of new and important collections room must be made for them, causing changes in installation or removal to storage of valuable exhibits. Satisfactory conditions depend upon the systematic assemblage of the entire department in such a manner as would characterize a well organized

business establishment in which a definite body of interests is handled. With respect to duplicate and storage collections, I am sure that the very best that can be done for them is being done by the several curators.

Field explorations.—The field researches of the year were limited to three brief explorations by members of the anthropological staff and to certain explorations by Mr. Gerard Fowke, the well-known archeologist. All were conducted under the auspices of the Bureau of American Ethnology, and resulted in each case in the acquirement of valuable collections of relics left by the ancient peoples. During May and June Dr. Walter Hough, curator of ethnology, was engaged in examining certain heretofore unexplored sites formerly occupied by the ancient cliff dwellers on the White Mountain Apache Reservation, Arizona. He was still in the field at the close of the year. Mr. Neil M. Judd, curator of American archeology, explored a number of caves formerly occupied by the cliff and cave dwellers of western Utah, securing many relics of interest, and Mr. Fowke carried forward his cavern explorations in Missouri. His collections, which have not yet reached the Museum, are said to be important. Dr. Aleš Hrdlička spent a month in Florida, devoting his attention to the exploration of the little-known region of Ten Thousand Islands, the object being to trace along the western coast of the peninsula certain anthropological types characterizing the former aboriginal population, at the same time conducting studies of such Seminole Indians as could be found roaming the islands.

Doctor Hough had the good fortune to discover ancient occupied sites covering several acres of ground on Blagden Plains, overlooking Piney Branch, District of Columbia. These sites were recognized by the occurrence of chipped implements of quartzite and quartz and a very large number of unfinished and broken specimens. It is apparent that these sites, in part at least, are the finishing shops occupied by the workers of the boulder quarries located in the neighboring ravine, examined by Dr. W. H. Holmes and described in detail in the Fifteenth Annual Report of the Bureau of American Ethnology.

Closely related to field work as ordinarily interpreted are official visits of members of the Museum staff to distant cities, for the purpose of getting information on subjects related to their Museum functions or to attend conferences or deliver lectures on subjects of Museum interest. In September the curator of history, Mr. T. T. Belote, visited New York, with the view of obtaining needed information regarding the acquirement for the Museum of military and naval insignia and war relics and materials generally. The information obtained led to excellent results now materializing in extensive war collections. Later the curator of history, accompanied by

the head curator, visited Baltimore, to inspect war exhibits assembled at the Armory in that city, with corresponding results. Early in 1919 he visited Philadelphia and New York for like purposes. In the latter instance he was accompanied by Capt. J. J. Hittinger, Quartermaster Corps, who is taking a prominent part in the activities of the Museum in this branch.

In May Doctor Hrdlička, curator of the division of physical anthropology, under instructions from the Secretary, attended a conference of the National Committee for Constructive Immigration Legislation. The various important problems were carefully considered, and on the suggestion of Doctor Hrdlička a committee of especially qualified persons was appointed to outline, as far as possible, the whole scope of the question and to suggest the measures, agencies, and methods necessary to a practical solution of the many problems constantly being presented.

REPORT ON THE DEPARTMENT OF BIOLOGY,

By LEONHARD STEJNEGER, *Head Curator.*

Notwithstanding the fact that the war practically came to an end during the first half of the year covered by this report, the effect of the war activities, as far as this department is concerned, were felt with even greater force than during the previous year. Not only was the exhibition series closed and practically inaccessible till within a short time of the end of the year, but the falling off in the accessions and the decrease in the scientific output is more pronounced than a year ago.

It is true that the total number of specimens received this year, namely, 482,740, vastly exceeds that of last year, which was only 99,660, but that is solely due to the incorporation of a single collection of 400,000 specimens mentioned in some detail below. This collection, however, was not in any sense the result of this year's activity, as it had been accumulated during many years.

This slackening of the pace has not been without its compensation. It is a deplorable fact that the scientific staff of the department of biology for many years past has been too small to keep abreast of the accumulation of material which it is not in a position to control or regulate. During the past period of diminished intensity it has been possible to catch up many loose ends and to bring the work up to date in several of the divisions. This has been accomplished to a great extent by the employment of temporary assistance.

It need therefore cause no surprise that the number of accessions (560) and their scientific value, on the whole, did not equal that of normal years, and scarcely even that of last year. I am happy, however, to be able to report one conspicuous exception, namely, the donation by Mr. John B. Henderson of his unrivaled private collection of Antillean land mollusks, consisting of about 30,000 lots (approximately 400,000 specimens). According to the report of the curator of marine invertebrates, Dr. P. Bartsch, "it is by far the most complete and extensive collection of Antillean land shells in the world, and is notable not only for the fact that it contains almost all the known species of this exceedingly rich fauna but because it includes so large a proportion of types, cotypes, topotypes, and author's specimens. These author's specimens have been acquired during the past 25 years by purchase of numerous collections from men who a generation ago exchanged with the original collectors and authors of

this Antillean field. These collections include the Sanderson Smith, John Ford (Antillean section), C. W. Johnson, Henry Prime, Theodore Gill, and John H. Redfield collections, as well as a series from Maynard, Jarvis, Vendreys, and Brown. The Redfield collection was almost wholly made up by full series of specimens acquired by him from Poey, Arango, Gundlach, and Wright in Cuba; from C. B. Adams and Chitty in Jamaica; from Shuttleworth, Knox, and Riise in Haiti and Santo Domingo, together with many contributions from Bland, Cuming, Petit, and Swift. A most valuable element in the collection is the series of Cuban rarities contributed by Dr. Carlos de la Torre, of Havana, consisting of shells from early collectors, together with cotypes of all his own species. The bulk of the Henderson collection, however, consists of the results of twelve or thirteen expeditions to the Antilles made by himself and assistants for the sole purpose of visiting regions unexplored or little known to the naturalist. These expeditions have yielded very large series for study purposes, as well as a wealth of type material."

I have dwelt the more upon this magnificent acquisition as it points a moral. Why is this collection unsurpassed, why is it of such great scientific importance? Surely not only or even chiefly because of its vast size. The all-important factor in its formation is that it was made for a purpose and according to a plan. It would seem self-evident that such motives should always guide in the accumulation of material for a biologic museum. Unfortunately, such is not the case with regard to the zoological and botanical collections of the United States National Museum. The bulk of the material which is deposited in it is the result of uncoordinated efforts of other departments without regard to its own needs and its own organic and harmonious development. The biological branch of the National Museum is dependent to a great extent on the activities of various bureaus belonging to many Government departments, such as the Bureau of Fisheries, the Bureau of Plant Industry, Bureau of Entomology, Biological Survey, Public Health Service, etc., for whose collections the National Museum by law is made the depository. Naturally these branches of the Government pursue their own aims in their own way. The utilitarian questions and interests for which they were created and which it is their principal duty to study and promote must of necessity engage their energies. It is therefore unavoidable that the material received from these sources must be more or less one-sided. I bear here grateful testimony to the fact that the men at the head of these various bureaus are not only aware of this fact, but that they are constantly endeavoring as far as lies in their power to remedy this defect. They realize, as possibly no one else does, how necessary it is that the collections, upon the study of which they must rely for the fundamental facts

of their own applied science, should be complete and harmonious even in those fields which on superficial consideration would seem remote and unconnected. But not only their field, but also their power and resources are limited, thus leaving big gaps in our material without which really basic scientific work can not be expected. It is a privilege to acknowledge our indebtedness to a few generous friends of the Museum who by directly going into the field collecting or by sending out collectors at their own expense are striving to fill some of these gaps, conspicuous examples being the work done by by Dr. W. L. Abbott in the Malayan Archipelago, as well as that accomplished in various parts of Africa by a number of private expeditions. Cooperation with other institutions, such as last year's botanical explorations in South America by Dr. J. N. Rose, have also been helpful in building up our collections more systematically. Finally, it is occasionally possible to obtain material needed for the solution of the many questions which arise by exchange with other museums. The small sum which in most years has been less than $300 which it has been found possible to expend in purchases for this department has only partly been available for the above purpose, having been mostly utilized for filling gaps in the exhibition series.

A noteworthy exception which for that very reason most distinctly illuminates the general rule is presented by the Francis Lea Chamberlain Fund, from which the section of mollusks is able to supplement some of the deficiencies in its series. Were each division similarly provided, it would be possible within a reasonable time to round out the collections in such a way that the conclusions based on their study might be given out with the confidence that they can be relied upon as solid foundations for future work in the applied branches of the biologic science.

It is of even greater importance, however, that the scientific staff should be enabled whenever necessary to study their subject in the field no less than in the Museum. It is regarded as a matter of course that paleontologists spend part of each year in the field, while the zoologists and botanists studying the recent organisms are supposed to be able to do full justice to the material under their care by working at their desks all the year round over collections brought to the Museum by outside agencies. True, most of the biologist's material consists of dead specimens, but many of the problems placed before him depend for their proper understanding upon the relation between the living specimens and their environment. The time is past when the work of the zoologist and the botanist was done by merely naming and describing the objects on the shelves of the Museum. That could be done in the laboratory, as well as the study of their histology and embryology. But with the renaissance of biologic science, following the establishment of evolution as its governing

principle, other and more important requirements are made on the systematic zoologists and botanists. The whole proposition is so self-evident that to be admitted it only needs to be propounded. Nevertheless, it is a deplorable fact that the Museum has no adequate means at its command to meet such an essential factor in the proper discharge of its functions.

The establishment of the Walter Rathbone Bacon Scholarship of $50,000 provided for in the will of Mrs. Virginia Purdy Bacon is to be hailed as a first step in the right direction. It is designated a traveling scholarship under the direction of the Smithsonian Institution for the study of the fauna of countries other than the United States of America. There can be no doubt that it will eventually help remedying the unsymmetrical development of the Museum collections pointed out above. On the other hand, it would greatly benefit the work in the Museum, both by improving the collections and by increasing the usefulness of the staff, if numerous smaller amounts were available each year for travel. It is of great importance for the proper development of the exhibition series that the men engaged in its growth and care be enabled from time to time to visit other similar institutions. The United States National Museum has to keep abreast of the best efforts in this line. There is great competition between the various establishments everywhere to make the collections as illuminating and as attractive to the visiting public as possible, but only by seeing what others are doing in the same field is it possible to keep up with the progress. It is also necessary for members of the scientific staff in the course of their work to consult material in other museums, especially type specimens which, as a rule, are not allowed to leave the institutions to which they belong.

The question of type specimens is one of extreme importance to every working taxonomist. Modern botanical and zoological nomenclature depends to an ever-increasing degree on these specimens upon which the first name of a newly discovered organism were bestowed. So much depends on the correct interpretation of these priceless specimens—priceless because they can not be replaced when lost or destroyed—that it is often necessary for the scientific worker to travel long distances in order to be able to inspect them personally. It is manifestly a great disadvantage that type specimens are scattered through hundreds of museums, some of them even in private collections exposed to dangers of many kinds. The ideal condition would undoubtedly be to have one single depository where the scientific student could go sure of finding all the existing type material relating to his work gathered together in one place. I need not emphasize that such an idea is Utopian at the present time, but it would seem possible to have the great majority of types assembled in a few of the largest institutions which would have ample facilities

for their permanent security and care as well as for their study and accessibility. Many smaller museums with laudable ambitions of becoming centers of scientific activity in certain fields are endeavoring to maintain type collections in order to attract visiting biologists or to facilitate the studies of some scientists of their own faculty or of some neighboring institutions. But what does it benefit them to have such ready access to a few types when in any event they must consult the much larger number accumulated in the great museums which, because of their age, have been the depositories of types described by several generations of species-makers? The National Museum has long been recognized as possessing one of the richest type collections in America. Realizing the obligations to scientific workers all over the country which this possession involves it has been our aim to make the care and accessibility of the types one of the leading features of this institution. The specimens are being segregated, specially housed and marked, card-catalogued and constantly inspected. The building and fixtures are fireproof, and their handling is reduced to a minimum. Descriptive catalogues are being prepared and will be published from time to time. In this way it is hoped that the type collection of the National Museum may become a Mecca where botanists and zoologists may find material for the settlement of so many vexing questions. Many taxonomists realizing the importance of this work have in recent years voluntarily deposited the types of their descriptions, knowing that here they would be safe and accessible.

The curators have continued during the past year their efforts in this direction. Many types are undoubtedly yet undiscovered among the general collections, but diligent search is constantly being made. Quite a number of interesting finds of old types were made during the term of this report in practically all divisions. It is expected that detailed accounts of several of these collections may soon be available. In the meantime it is hoped that authors all over the country will avail themselves of the opportunity to have their types properly preserved for future generations of biologists.

The operations of the department of biology by divisions have been as follows:

Mammals.—The most noteworthy of the accessions received was the result of Dr. W. L. Abbott's continued generosity and consisted of 423 mammals from central Celebes collected by Mr. H. C. Raven. This collection is extremely important, as it supplements in an admirable manner our Malayan material and illustrates the fauna from a region from which we have hitherto had no specimens. It includes several genera not before represented in the Museum, some of them probably undescribed.

The 217 specimens received as the first result of the Collins-Garner expedition to the French Congo and collected by Mr. C. R. Aschemeier form another valuable addition, including as it does 2 gorillas, 7 chimpanzees, 10 buffaloes, 28 antelopes, and parts of an elephant.

Several large mammals, including a mule deer, Rocky Mountain goat, and Rocky Mountain sheep, were collected for the Museum by Secretary Walcott during his exploration in British Columbia. Two species of banana opossums from Yucatan hitherto unrepresented in the Museum were presented by Dr. George F. Gaumer. Another interesting donation consisted of seven embryos of insectivores and carnivores from Mr. Arthur Loveridge in Nairobi, East Africa, a material especially important for comparative study.

Additional storage cases furnished during the year has resulted in greatly relieving the crowded condition of part of the skin collection. The completion of the rearrangement of the entire collection of small and medium skulls has also accomplished a betterment especially among the carnivores.

Owing to various conditions the curator, Mr. Gerrit S. Miller, jr., found it impracticable to devote much time to original investigation during the past year. Such work of this kind as has been done has consisted chiefly of routine identification of material for cataloguing. The translation of an important paper on the classification of the Cetacea[1] has been nearly completed. The present inconvenient arrangement of the study material caused by the storing of the specimens on the second floor, while the workrooms and the library are located in the basement, has also hampered the work of Mr. N. Hollister, superintendent of the National Zoological Park, who is now working up the primates for part 3 of the East African Mammals in the National Museum, part 2 having been published during the year as part 2 of Bulletin No. 99. Dr. C. Hart Merriam, associate in zoology, has continued his work on North American bears. The members of the Biological Survey, as usual, made constant use of the collections, as did Dr. O. P. Hay, of the Carnegie Institution of Washington, in connection with his work on the Pleistocene fauna of North America. Dr. J. L. Wortman completed his studies of insectivores and primates and submitted a paper for publication as a result of his studies. Specimens were lent for study to Dr. J. A. Allen, of the American Museum of Natural History, New York City; Dr. Glover M. Allen, of the Museum of Comparative Zoology, Cambridge, Massachusetts; Mr. Oldfield Thomas, of the British Museum, London, England; Mr. O. A. Peterson, of the Carnegie Museum, Pittsburgh, Pennsylvania; Mr. William Beebe, of the New York Zoological Park; Mr. E. H. Sellers, of the Florida State Geo-

[1] Winge, H., Udsigt over Hvalernes indbyrdes slægtskab, Vidensk. Meddel. fra Dansk naturh. Foren., vol. 70, pp. 59–142, 1918.

logical Survey. One weasel skin and skull were also loaned to the Provincial Museum, Halifax, Nova Scotia, while seven samples of mammal hairs were sent to Mr. Leon Augustus Hausman, of Cornell University.

Birds.—Dr. W. L. Abbott, Philadelphia, Pennsylvania, contributed 952 skins, 87 alcoholics and skeletons, and 10 eggs. The bulk of this material was collected in middle Celebes by Mr. H. C. Raven, and constitutes an important addition to the collection. It contains representatives of 2 genera and 13 species (and subspecies) new to science, descriptions of which have lately appeared. Doctor Abbott personally collected 68 skins, 16 alcoholics and skeletons, and 10 eggs in Santo Domingo. Familiar with the desiderata of the Museum, he went there for the purpose of filling gaps in the collection, and managed to obtain several desirable species and plumages. Probably the most interesting item in this collection was a clutch of 4 eggs of the palm chat, possibly the first to reach any museum, though the species, its nest, and general habits, have been known almost since the discovery of America. The palm chat is very common on the island, conspicuous, lives in colonies, and builds an enormous community nest, sometimes 5 feet or more in diameter, of small sticks, placed in the top of a high palm tree. The eggs were described by a French writer in 1851 as white, but they proved to be spotted, and large for the size of the bird. Doctor Abbott also sent 2 eggs of the ruddy quail-dove (*Oreopeleia montana*), unusual in collections. From Mr. B. H. Swales, honorary custodian of the section of eggs, were received 645 birds, chiefly from North America, including a number of important desiderata among foreign birds. Among the latter were representatives of 28 genera not previously in the Museum. There were also six skins of a recently described new diving petrel from the island of South Georgia. Large and important shipments of specimens of birds from the Collins-Garner Congo expedition were received during the year. The Bureau of Fisheries transmitted two lots from Alaska, chiefly from the Pribilof Islands, including 21 species not hitherto recorded from that group, of which 4 were also unrecorded from North America. The latter were the falcated teal (*Eunetta falcata*), Polynesian tattler (*Heteroscelus brevipes*), Kamchatkan sea eagle (*Thalasoaetus pelagicus*), and Japanese pipit (*Anthus spinoletta japonica*).

The Biological Survey, Department of Agriculture, transmitted 161 alcoholics and skeletons, chiefly birds of special interest, for anatomical investigation. From the National Zoological Park were received several accessions of considerable interest, namely, a trumpeter swan, one of the fast-vanishing species of this country; a crested eagle from Liberia, a Cape Barren goose, and a weka rail. Mr. Ed-

ward J. Brown, of Los Angeles, California, forwarded 137 skins and 4 skeletons from California, among which were a goodly number of well-prepared gulls and wading birds.

Early in July, 1918, at the time preparations were being made for closing the exhibits to the public, a number of rare and extinct birds were removed from the exhibition halls and brought to the office for safe-keeping. At the same time search was made for certain type specimens in the mounted collection, two being recovered, namely, a sparrow from Cuba and a species of Petroica from Australia. Not much has been attempted in arranging the eggs and nests received in recent years, but Mr. B. H. Swales, who was designated honorary custodian of the section of birds' eggs during the year, has started work on the collection. All of the material received during the year was catalogued and stored in temporary quarters. The numerous foreign alcoholic specimens received during the year were catalogued and supplied with tin tags, determined as far as the material would allow, placed in suitable containers, supplied with fresh alcohol, and labeled. Unfortunately, the number of uncleaned skeletons is increasing each year, owing to the fact that the preparators are not able to keep up with the accumulation of material, so that a number of rare genera from Celebes, Santo Domingo, etc., remain unavailable for study. Mr. Wetmore, of the Biological Survey, has generously continued to look after the arrangement of the skeleton collections.

The curator, Dr. Robert Ridgway, continued his work on the uncompleted portion of Bulletin 50, The Birds of North and Middle America. A very considerable part of the time during the year was employed in correcting proof sheets and superintending preparation of the index of part 8, which was published before the end of the year. Work on part 9 has consisted of descriptive work relating to the first major group to be treated, namely, the Gruiformes. The associate curator, Dr. Charles W. Richmond, was occupied as usual very largely with routine and miscellaneous duties partly relating to seeing part 8 of Bulletin 50 through the press, partly furnishing the curator with data for the groups to be treated in part 9, and continued his work on the office card catalogue of species of birds. He also made considerable progress toward correcting and completing early records of the office and its collections, such as piecing together and filling out records for the United States Exploring Expedition material, some interesting data having been obtained from Peale's original journals in the Library of Congress. He also began, with Mr. Swales, the accumulation of data for a report on the birds of Santo Domingo and Haiti, during which work he formulated a list of desiderata of materials and facts for the use of Doctor Abbott in future trips to the island.

The aid, Mr. J. H. Riley, besides attending to routine work, studied the Celebes collection, publishing two preliminary papers on the subject. As stated above, Mr. Swales has been engaged in the various investigations. The report upon the African collections, begun by the late Dr. Edgar A. Mearns, has remained unchanged, no successor having been found thus far.

The subject of ornithology does not lend itself readily to actual war work. However, some information on "protective coloration" was given to an official connected with the military service who was developing the camouflage work for the Army. In this connection the associate curator calls attention to the interesting fact that at the time the late Secretary Langley was engaged in solving the problem of mechanical flight in taking a soaring bird as a model, a quarter of a century or more ago, he turned to the division of birds for information, receiving many data and material as well as books on the subject. References to literature on bird flight, descriptions of soaring powers of birds, records of square-wing area in proportion to weight, and data in relation to the center of gravity in birds were supplied, and several birds of soaring types mounted in the attitude of flight were used in his experiments. Living birds of high soaring ability were secured for his investigations. This took place over a period of 13 years, from 1887 to 1900. It may also be mentioned that Mr. Pentz, who had submitted to the naval board a plan for the use of gulls as a means of detecting the presence of submarines, called at the office for information, and some time was spent looking up literature on gulls and on their habits, searching for data bearing on the project.

As in former years, members of the Biological Survey, including Messrs. Vernon Bailey, E. A. Preble, F. V. Earnshaw, T. T. Bloxsom, Francis Harper, A. H. Howell, and Dr. Walter P. Taylor had full access to the collection in connection with their work; Dr. H. C. Oberholser worked largely through the year on collections both in connection with survey business and in his own time on the various East India and Malayan material; Mr. Alexander Wetmore likewise worked frequently among the various collections, partly upon survey projects, but more particularly in his own time on various anatomical investigations undertaken by him.

Dr. W. L. Abbott on three occasions examined the recent accessions from Celebes and Santo Domingo, especially the genera of possible occurrence in the last-named island. A large number of other ornithologists visited the division at various times consulting specimens in the study series, namely, Dr. Glover M. Allen, of Cambridge, Massachusetts; Mr. Edwin Ashby, of Blackwood, South Australia; Mr. Harry B. Bailey, of Newport News, Virginia; Dr. Peter Brancato, of Wyckoff, New Jersey; Mr. H. W. Brandt, of Cleveland, Ohio;

Dr. Frank M. Chapman, of the American Museum of Natural History, New York City; Mr. Robert E. Coker, of the Bureau of Fisheries, Washington, District of Columbia; Maj. Alfred M. Collins, of Philadelphia, Pennsylvania; Mr. Edward J. Court, of Washington, District of Columbia; Mr. W. A. Deane, of Washington, District of Columbia; Dr. Jonathan Dwight, of New York City; Mr. H. J. Elwes, of England; Mr. J. H. Fleming, of Toronto, Canada; Mr. C. L. Fitzgerald, of the Royal Navy; Mr. L. A. Fuertes, of Ithaca, New York; Mr. Leon L. Gardner, Philadelphia, Pennsylvania; Dr. G. Dallas Hanna, of the Bureau of Fisheries; Mr. R. B. Hough, of Lowville, New York; Mr. Chas. M. Hoy; Mr. Carl Lumholtz; Mr. Robert Cushman Murphy, of Brooklyn Museum; Mr. John T. Nichols, of the American Museum of Natural History, New York City; Mr. G. K. Noble, of Cambridge, Massachusetts; Mr. J. Parker Norris, of Philadelphia, Pennsylvania; Mr. W. H. Osgood, of the Field Museum, Chicago, Illinois; Mr. H. C. Raven; Mr. Chas. H. Rogers, of the American Museum of Natural History, New York City; Dr. L. C. Sanford, of New Haven, Connecticut; Dr. R. W. Shufeldt, of Washington, District of Columia; Mr. Henry Steele, of Highland Park, Illinois; Mr. George H. Stuart, of Philadelphia, Pennsylvania; Miss Katherine Stuart, of Alexandria, Virginia.

There were an unusual number of inquiries for titles of books on the birds of France, and a number of men in uniform called at the office to see books on this subject.

Specimens were lent for study to the American Museum of Natural History, New York City; Judge R. M. Barnes, Lacon, Illinois; Brooklyn Museum, Brooklyn, New York; Bureau of Engraving and Printing; California Academy of Sciences, San Francisco, California; Carnegie Museum, Pittsburgh, Pennsylvania; Mrs. John W. Daniel, Lynchburg, Virginia; Field Museum of Natural History, Chicago, Illinois; Museum of Comparative Zoology, Cambridge, Massachusetts; Museum of Vertebrate Zoology, Berkeley, California; University of Pennsylvania, Philadelphia, Pennsylvania; and Arthur T. Wayne, Mount Pleasant, South Carolina.

Reptiles and batrachians.—Although the accessions as a whole were rather disappointing, there are nevertheless a few noteworthy additions. Thus Lieut. H. C. Kellers, United States Navy, sent in 139 specimens from Savage Island and the American Samoa, Polynesia. The Biological Survey transferred 354 specimens, mostly from western United States, but including 35 from France collected by Maj. E. A. Goldman. From the Museum of Comparative Zoology, Cambridge, Massachusetts, 20 specimens from Kamerun, Madagascar, the West Indies, and Peru were obtained in exchange. To Dr. W. L. Abbott we are indebted for 19 specimens collected by Mr. H. C. Raven in Celebes, and 8 specimens collected by himself in Santo Domingo.

The American Museum of Natural History, New York, presented four paratypes of species recently described in its bulletin. Finally, grateful mention should be made of 12 turtles, mostly Kinosternons, donated by the Mexican National Museum through its director, Dr. A. L. Herrera, as this material is of particular importance in clearing up some of the confusion existing in relation to the species of this group of turtles. The usual annual examination of all the jars in the collection for the purpose of replenishing the alcohol was completed.

The curator, Dr. Leonhard Stejneger, with many interruptions, continued his study of the turtles north of Panama, principally the mud turtles of Central America and Mexico. The material at hand, although considerable and probably greater than in any other museum, is still insufficient to solve the many intricate questions involved, and efforts are being made to obtain specimens from all parts of the region mentioned. Dr. F. N. Blanchard, who was appointed aid during the year, made good progress and nearly completed his monographic study of the American milk snakes. He published a preliminary paper describing two new species of the genus. Dr. Thomas Barbour, of the Museum of Comparative Zoology, during several visits studied West Indian reptiles and batrachians, determining about 50 lizards on one occasion. Dr. J. C. Thompson, United States Navy, identified about a hundred snakes from Malaysia, and Mr. E. R. Dunn, of Smith College, studied and identified a considerable number of salamanders during occasional visits. Other herpetologists who have examined material in the collection from time to time were: Mr. G. K. Noble, of the American Museum of Natural History; Dr. O. P. Hay, of the Carnegie Institution; and Dr. R. W. Shufeldt, of Washington, District of Columbia. Specimens were lent for study to the Museum of Comparative Zoology, Cambridge, Massachusetts, for Dr. Th. Barbour; American Museum of Natural History, New York City, for Miss M. C. Dickerson, and to Dr. Alex. G. Ruthven, director of the Museum of the University of Michigan.

Fishes.—The Bureau of Fisheries transferred 31 specimens of Macruroid fishes, among them two types, collected during the *Albatross* Philippine cruise, 1907–1909; also an *Apsilus dentatus* from Campeche Banks, Gulf of Mexico, received from the Warren Fish Co., Pensacola, Florida. Mr. Philip Cox, University of New Brunswick, Fredericton, New Brunswick, donated four specimens of an undescribed form of Dace (*Leuciscus*) collected in a brook tributary to Miramichi Bay.

The upper floor and about one-half of the lower floor of the storage containing the study series has been gone over thoroughly, alcohol replenished or changed where needed, shelves and containers

cleaned, many labels restored, and the family members added to the labels for convenience in locating specimens. The collection of type specimens has been gone over carefully and many specimens removed to more suitable jars. The card catalogue has been brought up to date as far as possible.

Mr. B. A. Bean, the assistant curator of fishes, prepared an annotated list of a second lot of fishes collected by officials of the Geological Survey of Canada and forwarded it to Ottawa for inclusion in the report upon the fishes collected around Vancouver Island, now in the hands of the editor. At the suggestion of Dr. David S. Jordan, he has undertaken a detailed description of the unique type specimen of *Steinegeria rubescens* to accompany the publication of an illustration of this little-known form. Dr. O. P. Hay, during the year, examined various skeletons in the collection in comparison with fossil remains from different localities. Mr. W. W. Welsh, of the United States Bureau of Fisheries, also examined various specimens in connection with his study of recently collected material. The fishes collected by Mr. W. H. Brown with the United States Eclipse Expedition to West Africa, 1889–90, as well as those collected by Mr. Rolla P. Currie, of the Department of Agriculture, in the St. Paul River, Siberia, in 1907, were sent for examination and report to Mr. Henry W. Fowler, of the Academy of Natural Sciences of Philadelphia, who has submitted for publication a manuscript based on these collections. The fishes of the United States Exploring Expedition under Captain Wilkes were also sent to him for study and report. A large number of fishes collected during the Smithsonian Biological Survey of Panama were sent to Mr. S. F. Hildebrand, of the United States Bureau of Fisheries, at present located at Key West, Florida, for study. Also 13 specimens of chub mackerel (*Scomber colias*) to Prof. E. C. Starks, Stanford University, for study and comparison with west coast material.

Insects.—Owing to the very small number of transfers from the Department of Agriculture the increase in the entomological collections has been slight as compared with previous years. The only accession worthy of special mention is the deposit by Mr. J. R. de la Torre Bueno, of White Plains, New York, of part of the Kirkaldy collection of Hemiptera. The late G. W. Kirkaldy was one of the foremost authorities on the order Hemiptera, and the collection contains the material on which his valuable work on that order was done. Owing to a lack of drawers there has not been any great advance in the arrangements of the collections. Some progress, however, has been made in the Lepidoptera, the Coleoptera, and to a lesser extent in the Hymenoptera where the North American bees have been assembled.

The bibliography for the year indicates what the staff of the division has published during the year. Most of the work done is of a taxonomic character, and consists primarily and in the main of determining specimens submitted to the Bureau of Entomology. Incidentally, revision work of a more general character is undertaken usually in conjunction with or necessitated by the above. Thus several monographic revisions of families or greater groups have been begun or developed during the year, and one, a synopsis of the tribes and genera of muscoid flies of the world, by Dr. C. H. T. Townsend, has been completed, though not yet published.

Prof. T. D. A. Cockerell, of the University of Colorado, has continued his studies of and described a large number of bees in the national collection. Mr. R. V. Chamberlain, of the Museum of Comparative Zoology, has begun the revision of our entire collection of Myriopoda. During the past year the collections have been consulted by the following entomologists, in addition to the specialists of the Bureau of Entomology, who have always had free access to the specimens: Messrs. E. T. Cresson, jr., and J. A. G. Rehn, of the Academy of Natural Sciences, of Philadelphia; C. C. Crampton, of the Massachusetts Agricultural College, Amherst, Massachusetts; C. B. Williams, of Trinidad, West Indies; and H. G. Barber, William T. Davis, C. W. Leng, and L. B. Woodruff, of New York. The entire collection of Myriopoda, contained in 509 bottles and jars, were sent to Mr. R. V. Chamberlain, as noted above. A few Diptera were sent for study to Prof. C. L. Metcalf, of the Ohio State University, Columbus, Ohio, and 31 Lepidoptera to Sir George F. Hampson, of the British Museum, London, for study in connection with his revision of the Noctuidae.

Marine invertebrates.—With the exception of the John B. Henderson collection of Antillean land mollusks, already referred to above, the accessions for the rest of the marine invertebrates are not as valuable as in past years, chiefly because the activities of the vessels of the Bureau of Fisheries have been shifted to work connected with the war, thus interfering with the normal lines of investigation which in times of peace have resulted in transfer of large collections to the United States National Museum. Nevertheless, there are a number of very notable accessions meriting special mention, such as 50 specimens of land shells from the Philippine Islands, among them no less than 7 types of new species and subspecies, donated by Mr. Walter F. Webb, of Rochester, New York. These additions are the more valuable as they are chiefly from unexplored regions in the archipelago, and in most cases unique specimens, presented with characteristic generosity to the National Museum to the detriment of his own private collection. Mr. R. L.

Mestayer and Miss Marjorie Mestayer, of Wellington, New Zealand, donated a number of New Zealand mollusks, including paratypes of 5 new species, and 4 slides of foraminifera, including 1,241 specimens dredged by H. M. S. *Hinemoa* and containing many forms new to science. Dr. Joseph A. Cushman has made the latter material the basis of a monographic report now going through the press. Dr. W. L. Abbott's own exploration in Santo Domingo resulted in the addition of about 500 specimens (25 species) of land and fresh-water mollusks from Santo Domingo, while the Raven collection contained 5 marine invertebrates from Borneo. The Australian Museum, Sydney, New South Wales, presented a first set of duplicates of decapod crustaceans, 15 species in 42 specimens, secured by the *Endeavour's* investigations in Australian waters and reported on by Dr. Mary J. Rathbun. The land and marine shells donated by Mr. W. E. Crane, of Washington, District of Columbia (414 specimens), from various localities are especially valuable to the Museum, not only because many are exceedingly rare, but also because they are selected with a view to filling gaps in the Museum collections discovered by Mr. Crane during his research in this division. Dr. F. Felippone, of Montevideo, Uruguay, has added 48 species, mostly mollusks, to his previous contributions, which have more than tripled the Museum's collections of the Uruguayan fauna, including types of several new genera and species. A collection of about 2,000 specimens of Australian chitons was obtained in exchange from Mr. Edwin Ashby, of Sydney, New South Wales, admirably filling the gaps and rounding out our series, and containing besides many paratypes. Mr. B. Preston Clark, of Boston, Massachusetts, donated 35 specimens of Philippine land shells of the genus *Amphidromus*. Hon. Jaime C. de Veyra, Resident Commissioner from the Philippines, United States House of Representatives, Washington, presented 22 Philippine mollusks, among them the type of *Columbella deveyrai* described by Doctor Bartsch. One hundred invertebrates were received from Prof. N. Gist Gee, of the Soochow University, China, among which the type of a new species of isopod crustacean. Dr. A. L. Herrera, the director of the National Museum of Natural History of Mexico, generously contributed an unusually rare and perfect gorgonocephalid echinoderm, which was described by Mr. Austin H. Clark in the Museum Proceedings as a new genus and species under the name *Astrocynodus herrerai*. Doctor Herrera also contributed 10 microscopical preparations of bio-artifacts. Mr. William H. Weeks, of Brooklyn, New York, donated 21 mollusks from various localities, among them the type of *Leptopoma nitidun weeksi* Bartsch, from Bohol, Philippine Islands. Another collection of Philippine mollusks,

containing many new and rare forms, is due to the generosity of Mr. C. M. Weber, Balabac Island, Philippine Islands. A large number of invertebrates from the coast of California were received from Mr. E. P. Chase, of Los Angeles, California, in exchange and as gift, among them the type of a new species. Types of three new species of shells from the Philippine Islands were contained in a donation by Mr. Gilbert S. Perez, industrial supervisor, Lucena, Tayabas. Various types were also presented, with other valuable material, by Mr. G. Willett, of Los Angeles, California, Mr. T. Urita, Kogoshima, Japan, and Prof. Carl C. Engberg, of the University of Nebraska, Lincoln, Nebraska.

With regard to the condition of the collections, Dr. Paul Bartsch, the curator, reports that all collections have been overhauled and as far as possible put in order, solutions, containers, and labels renewed in all cases where necessary. The mollusk collection, as a whole, has been rendered more useful by the intercalation of label blocks containing the names of the genera and subgenera at the head of the various sections and by cards placed in each drawer showing the species contained. For a number of years Dr. W. H. Dall, the honorary curator of mollusks, has been adding to the collection of Brachiopoda by exchange or purchase. He has now systematically arranged this collection, bringing the nomenclature and labeling up to date and naming the unidentified specimens. Including the European specimens in the Jeffreys collection the number of species represented in our series of recent Brachiopoda is 175, represented by more than 6,000 specimens. Thirty-two of these species are new to science. From information recently received in regard to the Davidson collection of recent Brachiopods now in the British Museum, which has always been considered the finest in any museum, it is apparent that the collection in the National Museum far exceeds it, both in number of specimens and species, and of original types. It is without doubt the finest collection of recent Brachiopods extant.

Doctor Dall completed the revision of the collection of mollusks from the west coast of America. In the course of this work many new species were discovered and described, being the largest contribution to the marine molluscan fauna of the Pacific coast since 1886. He also prepared a check list of the marine gastropods from the Arctic Ocean to San Diego, California, containing references to 2,055 species exclusive of cephalopods and nudibranchs as against only 492 species, including these groups, in Carpenter's list published in 1872. He furthermore revised for publication the large collection of recent brachiopods, comprising over 6,000 specimens representing 175 species, of which 32 are new to science, and began a study

of the mollusks collected by the Bureau of Fisheries steamer *Albatross* during 1902 in the deeper waters around the Hawaiian Islands. Mr. John B. Henderson, a regent of the Smithsonian Institution, has continued his studies of the east American mollusks. He has also begun a monograph of the American tectibranchs and in addition has cooperated with the curator in a report on the mollusk fauna of the Beaufort, North Carolina, region for the Bureau of Fisheries. The text of his monograph on the Western Atlantic Scaphopoda has been completed for some time, its publication awaiting the making of a large number of illustrations. Dr. Mary J. Rathbun, associate in zoology, continued her study of the brachyuran crabs of the American Museum Congo expedition, 1910–1916, referred to in last year's report. She has also identified the brachyurans collected by the Barbados-Antigua expedition of the State University of Iowa.

The lectures delivered by the curator at Camp Lee and Camp Meade are referred to here as "war work," and frequent advice to correspondents how to destroy noxious pests, particularly slugs which have made serious inroads upon the war gardens in cities may be similarly classified. Mr. Austin H. Clark, assistant curator, has completed a second part of his Monograph of the Existing Crinoids, the first part of which was published by the Museum in 1915 as Bulletin 82. Work on a third part of this monograph is well under way. His investigations in the larval crinoids of the *Gauss* expedition have been completed, as well as his report on the ophiurans and crinoids of the Barbados-Antigua expedition of the State Universtiy of Iowa. He has continued his investigations on the crinoids of the *Ingolf* expedition. Mr. Waldo L. Schmitt, assistant curator, has begun a report on the Macrura and Anomura of the American Museum Congo expedition, 1910–1916, and another on the Macrura and Anomura of the State University of Iowa Barbados-Antigua expedition, 1918. He also spent three months, from August to October, 1918, in California, on detail to the United States Bureau of Fisheries, in connection with his studies upon the life history of the California spiny lobster. He has also continued his studies upon the hermit crabs of Japan and the American East Coast Macrura. His report on the Schizopods of the Canadian Arctic expedition is going through press. Mr. William B. Marshall, assistant curator, has devoted the greater part of his time to routine work incidental to the distribution of old and receipt of new molluskan collections, including identifications of large groups of mollusks submitted by other institutions and individuals for examination. Such time as could be spared for research work was devoted to the study of the pearly fresh-water mussels which has resulted in the completion of two papers. He also continued his study of the

diplodons and anodontites. Mr. C. R. Shoemaker, aid, in what little time could be spared from routine work, continued his studies of the amphipods, completing his report on those collected by the Canadian Arctic expedition, as well as a report on the amphipods of the American Museum Congo expedition, 1910–1916. Miss Pearl L. Boone, aid, continued her studies of the isopods, which resulted in the preparation of three papers for publication. Her report on the isopods of the Canadian Arctic expedition is being expanded into a report upon those crustaceans for the entire region. She has also begun a comprehensive report on South American isopods.

Dr. T. Wayland Vaughan, custodian of the Madreporarian corals, has devoted the major portion of his time to war work under the Geological Survey. The little time remaining for research he has devoted to consideration of fossil material in connection with which he had consulted the recent coral collections of the United States National Museum. Asst. Surg. Gen. Charles Wardell Stiles, custodian of the Helminthological collections; Dr. B. H. Ransom, assistant custodian; and Dr. P. E. Garrison, United States Navy, have continued their investigations on the parasites of man and other animals. Mr. Harry K. Harring, custodian of Rotatoria, has continued his studies of the rotifers of the District of Columbia, Wisconsin, and other States.

The facilities of the division have been extended to a number of other specialists prosecuting investigations in our collections, as follows: Dr. Charles W. Cook, United States Geological Survey, has consulted the recent mollusk collections in connection with his study of the Eocene and Oligocene fauna, continued in the intervals of field work for the United States Geological Survey. Mr. W. E. Crane, of Washington, District of Columbia, has spent about six months studying the various collections of mollusks, comparing and identifying his own private collection thereby. He has liberally donated several lots of rare shells from his private collection to fill gaps in the collection of the Museum. Mr. Edwin Ashby, of Blackwood, South Australia, studied the Australian chitonidae collections in the United States National Museum during the month of July, which, in addition to a revision of our collections, resulted in an exchange of valuable paratypes and other valuable Australian chitonidae for North American specimens. Dr. Ralph V. Chamberlin, of the Museum of Comparative Zoology, Cambridge, Massachusetts, spent a couple of days examining the annelid collections, making a preliminary examination of the Arctic marine annelids and the general collection of sipunculid worms, both of which he has undertaken to monograph, his reports to be published by the National Museum.

Dr. Max Ellis, University of Colorado, Boulder, Colorado, spent several days examining the crustacean collections for discodrilid worms. The parasites found have been referred to him for monographic report, to be published by the National Museum. Dr. R. W. Shufeldt, of Washington, District of Columbia, spent several days in the division selecting specimens of mollusks and crustaceans to be photographed for use as illustrations for a series of popular articles. Fifty or more specialists from the various branches of the United States Department of Agriculture, the Bureau of Fisheries, and the Geological Survey have made personal calls, seeking assistance with various phases of their respective problems.

There are a large number of groups of marine invertebrates on which the Museum, unfortunately, possesses no staff specialist. Whenever material in these groups arrives for determination or deposit it is sent to men engaged in research upon these lines, and while this arrangement is undoubtedly also of advantage to these coworkers, the Museum is nevertheless under great obligations to them for their cordial and valuable cooperation. The list embraces some of the highest authorities in their specialty in this country, as well as abroad, as follows: Dr. Henry B. Bigelow (Medusae, Ctenophora); Dr. L. R. Cary (Alcyonarians); Dr. R. V. Chamberlin (Gephyrea); Dr. Hubert L. Clark (Holothurians); Dr. Wesley R. Coe (Nemerteans); Dr. Leon J. Cole (Pycnogonids); Dr. Joseph A. Cushman (Foraminifera); Prof. G. S. Dodds (Fresh Water Entomostraca); Dr. Max Ellis (Discodrilids): Dr. C. O. Esterly (Free-swimming Copepods); Dr. Walter Faxon (Crayfishes); Prof. Ernest Carroll Faust (Trematodes); Dr. Walter K. Fisher (Starfishes); Dr. Maurice C. Hall (Discodrilids); Mr. Sanji Hozawa (Calcareous sponges); Dr. A. G. Huntsman (Ascidians); Prof. René Koehler (Ophiurans); Prof. Chauncey Juday (Daphniidae Crustaces); Dr. C. Dwight Marsh (Free-swimming Copepods); Dr. Alfred G. Mayor (Scyphomedusae); Dr. Maynard M. Metcalf (Salpa and Pyrosoma); Dr. J. Percy Moore (Annelids, Leeches); Dr. Theodor Mortensen (Echinoids); Dr. Charles C. Nutting (Hydroids); Dr. Raymond C. Osburn (Bryozoa); Dr. Henry A. Pilsbry (Barnacles, Mollusks); Mr. Madoka Sasaki (Cephalopod Mollusks); Prof. Frank Smith (Earthworms); Dr. Victor Sterki (Sphaeriidae); Prof. Harry B. Torrey (Actinians); Dr. Aaron L. Treadwell (Annelids); Dr. Willard G. Van Name (Ascidians); Dr. A. E. Verrill (Starfishes); Prof. L. B. Walton (Planarians); Dr. Charles B. Wilson (Parasitic Copepods).

Several large collections were sent out to specialists mentioned above, thus a large number of foraminifera to Dr. Joseph A. Cushman, of the Boston Society of Natural History, in connection with

his forthcoming monographs; all the arctic marine annelids and all unidentified sipunculids to Dr. Ralph V. Chamberlin, of the Museum of Comparative Zoology. In addition various smaller lots were submitted for identification, or as supplementing previous sendings. Bottom samples to the number of 175, secured by the Bureau of Fisheries steamer *Albatross*, off Oregon and Washington, were forwarded to Dr. C. H. Edmunston, of the University of Oregon, for examination and report.

Plants.—The number of accessions received as well as the number of specimens entered in the record books during the present year is considerably less than the annual average, though the scientific value of the specimens received is about equal to that of the previous year. The low number of entries resulted from the difficulty in securing mounters. With the exception of the Mexican and Philippine plants mentioned below, the more important accessions relate to material from South America, a region from which a special effort is being made to obtain specimens at the present time. In the order of their importance the larger accessions are as follows: Approximately 12,000 specimens of plants, chiefly from Mexico, presented by Brother G. Arsène, representing a nearly complete series of the extensive botanical collections secured by him and his associates among the Christian Brothers during about eight years' residence in Mexico. Some 3,995 specimens of Philippine plants were obtained by purchase. Prof. H. Pittier, of the Bureau of Plant Industry, donated a total of 1,761 specimens of Venezuelan plants of particular interest as coming from regions of great importance historically. From the bureau of science, Manila, Philippine Islands, 5,612 Philippine plants were received in exchange. Dr. J. N. Rose's expedition to Ecuador added about 2,000 specimens to the National Herbarium from the Andes of Ecuador, a region not well represented in American herbaria. From the Museu Goeldi, Para, Brazil, 1,077 specimens, from Brazil, chiefly leguminous trees, an unusually complete and well-prepared collection, obtained in exchange.

Notwithstanding the shortage of curatorial help and the difficulty of securing mounters, the work connected with the upkeep and increase of the National Herbarium has progressed satisfactorily during the past fiscal year. Approximately 13,000 specimens have been mounted, while more than 20,000 remain to be mounted, this work to be accomplished in large part by orders already issued. All the specimens mounted have been entered in the record books of the division, and the greater part distributed into the herbarium together with specimens remaining from last year. This work has been made possible by the employment of temporary help. The remainder of the grass herbarium has also been stamped and catalogued. Work

in the general herbarium has included the identification of several thousand Mexican phanerogams by Mr. P. C. Standley, the assistant curator, in connection with his study of the trees and shrubs of Mexico.

The associate curator, Mr. William R. Maxon, again calls attention to the crowded condition of the herbarium and the difficulty of making provision for normal increase. Cases actually required have been installed temporarily, but at a sacrifice of table space which is badly needed. A small amount of space can be released by the distribution of duplicates, but this would require additional clerical assistants. Real relief can only be had by providing a balcony in the west half of the herbarium as previously suggested and hope is expressed that it may be possible to have one constructed at an early date. The sectional library has been extended and completely rearranged during the latter part of the year. The work, in charge of Mr. Brockett, involved the deposit of many volumes received from the Biltmore Herbarium and of others selected from the Museum library.

The curator, Mr. Frederick V. Coville, continued his studies of *Vaccinium* and related genera, making use of material in the National Herbarium as in previous years. Dr. J. N. Rose, associate curator, since his return from the expedition to Ecuador in October, 1918, continued his studies of the Cactaceae in collaboration with Dr. N. L. Britton, director in chief of the New York Botanical Garden. The first volume of The Cactaceae has recently been published by the Carnegie Institution, under whose auspices the work has been done, and the second volume is in proof. Mr. Maxon continued his studies of the North American ferns and has published several papers. He has begun the preparation of a catalogue of the pteridophyta of Cuba. Mr. Standley carried forward his work upon the Rubiaceae and has submitted manuscript for part 2 to be published in the North American Flora, part 1 having been issued during the year. He also submitted the first part of a synoptical account of the trees and shrubs of Mexico, and completed Studies of Tropical American Phanerogams, No. 3, which will appear shortly.

During the year the herbarium has been consulted frequently, as in previous years, by members of the staff of the Department of Agriculture. Among the botanists from other cities who have worked in the herbarium during the year are the following: Prof. C. S. Sargent and Dr. Camillo Schneider, of the Arnold Arboretum, Jamaica Plain, Massachusetts; Prof. W. W. Rowlee, of Cornell University, Ithaca, New York; Dr. J. K. Small, Dr. P. A. Rydberg, and Dr. H. A. Gleason, of the New York Botanical Garden, Bronx Park, New York City; and Dr. J. M. Greenman, of the Missouri

Botanical Garden, St. Louis, Missouri. The same condition which prevailed during the previous years resulted in the sending out for study a smaller number of specimens than usual, namely, 2,394, in 39 lots. The following deserve special notice: 136 specimens of South American orchids, lent to Mr. Oakes Ames, North Easton, Massachusetts, in connection with his monographic study of this group; 235 specimens of *Salix* lent to the Arnold Arboretum, Jamaica Plain, Massachusetts, for the use of Dr. Camillo Schneider in connection with his extended treatment of North American willows; 61 specimens of African mosses sent to Mr. H. N. Dixon, Northampton, England, for identification, this material including many new species, will form the basis of a forthcoming paper; 155 specimens of ferns of the genus *Pityrogramma* lent to the Gray Herbarium, Cambridge, Massachusetts, for study by Mr. C. A. Weatherby in connection with a revision of the southwestern representatives of this genus; 85 specimens of Vernonieae lent to the University of Michigan, Ann Arbor, Michigan, for monographic study by Prof. H. A. Gleason. During the year 14 persons connected with the Department of Agriculture have borrowed from the National Herbarium 66 lots of plants, aggregating 1,918 specimens.

Work of preparators.—The storing away of the whole exhibition series at the beginning of the year and its later partial reinstallation with the incidental cleaning and repair has occupied a great amount of the time and labor of the preparators. The removal of the work shop of the osteologist and of the bird taxidermist due to the evacuation of their former quarter in the stable; the further removal of the mammal taxidermists and the modeler from the south shed to the building in the east court of the Natural History Building; and the transfer of the bone cleaners' shops from the south to the north side of the south shed further reduced the time available for work on specimens. Finally, the absence of several of the men during part of the year due to sickness and temporary detail to another department contributed to the comparative lack of progress in this division. Under those circumstances but little new work was accomplished. On the other hand, this release of the preparators from work on the exhibition material has been of great benefit to the study series, both of mammals, birds, and reptiles. Again, the receipt of the large consignments of material from the Collins-Garner expedition to the French Congo, which on account of transportation difficulties had been long on the way and exposed to most untoward conditions, necessitated the concentration of the preparatory force on the work of saving this exceptionally valuable material. Thanks to the originally excellent preparation of the specimens and to the timely interference of the taxidermists on their arrival, the condition of these valuable collections is now very

satisfactory. The cleaning of skeletons and skulls has progressed as usual, with the necessary interruption due to the change of quarters, alluded to above. Mr. N. L. Brown completed the mounting of the American tapir and the Asiatic leopard mentioned in last year's report. He also tanned by hand 47 skins of large and medium sized mammals, among them 3 chimpanzees, 8 antelopes, a number of buffaloes, deer, etc. The tanning of valuable specimens by commercial tanners, as has been practiced during late years is becoming less and less satisfactory, and the hope is expressed that it may be possible to do all the necessary work of the kind in the Museum shop. Mr. Brown also assisted Mr. Wood in his bird taxidermy, skinning and making up 23 birds. Mr. George Marshall, besides assisting Mr. Brown in much of the above work, was chiefly employed in miscellaneous work connected with the moving, cleaning, and repairing of exhibits. A number of mammal skins were dismounted or made over and some bird skins prepared. Toward the end of the year much of his time was taken up with repairing the large collection of mammal heads preparatory to their being hung on the walls of the main staircase. They had suffered considerably from long storage in unsuitable cases since the Department of Biology moved into the Natural History Building. Mr. Nelson R. Wood, the bird taxidermist, was absent from the Museum during a considerable period on account of ill health. He mounted two specimens for the exhibition series, but was mostly engaged in making over skins for the study series so valuable that they could not be entrusted to less experienced hands, 141 skins being attended to in all. Mr. J. W. Scollick, the osteologist, cleaned 4 mammal skeletons, 82 bird skeletons, 5 reptile skeletons, 44 mammal skulls, and 52 reptile skulls. Under his supervision 147 mammal skeletons and 414 skulls, and 1 set of leg bones were cleaned, and 3 skeletons roughed out. Mr. C. E. Mirguet, preparator, in addition to the work incidental to moving, etc., was employed on a great variety of work, cleaning skeletons and skulls of birds and reptiles, tanning of mammal skins, including those of porpoise and sea-cow. He also mounted a large land tortoise for the exhibition series, made plaster cast of a type skull of bear, and changed the installation of the North American bear case after the opening of the exhibition. He was lately occupied with the task of hanging of the mammal heads on the walls of the main staircase. Mr. William Palmer, preparator, continued his work on the District of Columbia faunal exhibit. As mentioned in last year's report, plans were being made for a reinstallation of the District collection in the form of a series of habitat groups. One of these containing turkey vultures, bobwhite, dove, wild turkey, etc., was prepared as an experiment. He also completed the complete rebuilding of the old Flamingo group, a very difficult and time-

consuming work. He made molds and casts of turtles and fishes, also a group of green frogs for the District exhibit. For the general fish collection he made a group of a mother and four young of the cow-nosed ray (*Rhinobatus*). During the period following the moving of the exhibition cases he assisted in their reinstallation and rehabilitation.

Exhibition collections.—When last year's report closed, 41,600 square feet of floor space had already been vacated to furnish office room for the Bureau of War Risk Insurance of the United States Treasury. At that time part of the exhibits on both floors, notably the big groups of African mammals collected by the Smithsonian African expedition under direction of Col. Theodore Roosevelt, was still accessible to the public. During the first week of the year the Biological Department received orders to evacuate the rest of the exhibition space allotted to it, in order to furnish additional room for the War Risk Insurance Bureau. As a result, the big ranges on both floors were cleared of their cases by moving them into the skylight hall and the range in which are located the African groups, as it was found practically impossible to move the big habitat groups. The bird collection was moved into the adjacent alcoves and stored there. On the second floor the skeleton hall and the fish and reptile halls were cleared by moving the cases into the whale hall. The cases had to be so closely crowded that in most instances it was impossible for a man to squeeze in between them. Enough space was left, however, for an efficient inspection which was undertaken regularly every week by Dr. J. E. Benedict and two preparators, with a view to detecting possible damage by insects or any other causes. In order to save the exhibits from unnecessary exposure to the light, the curtains were kept down wherever furnished, and in special instances the cases were darkened by covering them with thick black paper. Before storing away the exhibition collection specimens which, if damaged, could not be replaced, such as the great auk, the Labrador duck, etc., were removed from the cases and placed safely in insect-proof, dust and light tight unit storage cases. As a result of these precautions and the great care in handling the cases when moving them, the collection, as a whole, suffered surprisingly little damage.

The War Risk Bureau having moved out of the building at the end of March, 1919, the task of moving the stored exhibits back into their former places was begun at once. Within a short time the first floor exhibits were placed in position. On the second floor the vertebrate skeleton hall, and the fish and reptile halls were also restored to their former state. The exhibition rooms thus cleared and reinstalled were thrown open to the public on April 11. Unfortunately it was found impracticable to move the reserve series of the

division of mammals and the Biological Survey back to the ground floor. As a consequence, the entire north and northwest range are inaccessible to the public, and the whale hall, although open to visitors, is still filled with a large amount of heterogeneous exhibits, mostly part of the synoptic series and the District of Columbia fauna.

As soon as the cases were back in their former positions, a thorough overhauling of the collection was made. Some repairs, of course, had to be made, but as already remarked, on the whole, the specimens had suffered but little. The specimens mounted in the meantime were then placed in their respective cases, thus the tapir in the great tropical American floor case filling a serious gap in the series. The floor of the North American bear case was sanded, and the specimens on polished walnut bases dismounted from their stands. At the same time a new arrangement was undertaken by which the appearance of the case was greatly improved. The ungulate case on the north side of the same hall was similarly improved.

Explorations.—The expeditions mentioned in last year's report have come to an end during the present year. Mr. H. C. Raven, who had been doing field work for the Museum in Borneo and Celebes, under the direction of Dr. W. L. Abbott, returned to this country on September 20, 1918, having been called home on account of the war. This closes, at least for the time being, a work that has been of the utmost value to the Museum, not only because of the richness of the collections, comprising as they do about 1,500 mammals and 2,800 birds, many of which are new to science, besides an extensive series of ethnological specimens, but especially because this material admirably supplements the collections previously made by Doctor Abbott himself in the more western part of the Malay Archipelago and by Doctor Mearns and others in the Philippines. The collections which Mr. Raven brought back with him cover the period from August 1, 1917, to February 28, 1918, and were made chiefly at Gimpoe, Rano Rano, and Pinedapa, in the middle region of Celebes. Dr. W. L. Abbott undertook a short expedition to Santo Domingo in the early part of 1919, reaching there at the beginning of February and returning to New York on June 14. He spent some time working in the region of Samana Bay, after which he visited the mountains, making Constanga his headquarters, whence he made several brief excursions to neighboring localities. Among the collections received were the eggs of the palm chat already alluded to and about 500 mollusks. Dr. C. D. Walcott's explorations in the Canadian Rocky Mountains during the field season of 1918, although primarily geological, resulted in several desirable additions to the mammal collection. Mr. Waldo L. Schmitt, of the Division of Marine Invertebrates, spent the months of August, September, and

October, 1918, in California, engaged in a study of the life history of the west coast spiny lobster under the auspices of the Bureau of Fisheries. Incidentally, shore and tide pool collections were made for the Museum. Dr. P. Bartsch, curator of marine invertebrates, made two trips to Florida during the spring of 1919, necessitated by his Cerion breeding experiments continued under the auspices of the Carnegie Institution of Washington. At the same time he collected a large number of specimens for the Museum, including some birds, reptiles, plants, about 10,000 mollusks, and other invertebrates. The botanical expedition under the joint auspices of the New York Botanical Garden, the Gray Herbarium, and the National Museum for the exploration of the Ecuadorean Andes was conducted very successfully by Dr. J. N. Rose, associate curator of plants. This is the first field expedition under a cooperative plan organized by the above institutions for the investigation of the flora of Northern South America, which it is hoped will not only enrich our botanical collections, but also furnish information regarding economic plants which will be of much value to the horticultural and agricultural interests of this country. The share of the Museum in this expedition was about 2,000 plants. Doctor Rose also added various other specimens, notably reptiles and fishes to the collection. During the month of August, 1918, Mr. A. S. Hitchcock, custodian of the section of grasses of the division of plants, visited certain parts of the Southwestern States for the purpose of studying the grasses. Collections were made at Fayetteville and Pine Bluff in Arkansas, Stillwater in Oklahoma, and Fort Worth, in northeastern Texas, and various other places.. A fuller illustrated report is found in the Smithsonian Exploration Pamphlet for 1918, Smithsonian Miscellaneous Collections (vol. 70, No. 2, pp. 50–61). The Collins-Garner Congo expedition in the interest of the Smithsonian Institution came to a close during the year. Mr. Garner and Mr. Aschemeier left the French Congo in March, arriving in New York in May. Major Collins was unfortunately prevented by the war from joining the party so that essentially the whole burden of collecting and preserving specimens fell on our representative, Mr. Aschemeier. As a result of his work about 1,200 mammals and more than 1,100 birds were obtained. Most of these specimens reached Washington before the end of the fiscal year, but so late that it has been impossible to include them in the accessions covered by the present report. All that have been received are in excellent condition. The collection of mammals includes, besides the smaller species, 5 gorillas, 9 chimpanzees, also numerous buffaloes, antelopes, and pigs. The material gathered by this expedition will be of great value for comparison with our East African collections, reports upon which are now being prepared by specialists.

The only new expedition sent out during the year we owe to Doctor Abbott's continued interest in the Museum. On the retirement of Mr. Raven, he generously arranged to send Mr. Charles M. Hoy to Australia for the benefit of the Museum. Mr. Hoy sailed early in May and has reported his safe arrival in Sydney. The object of his work will be mainly to procure series of the birds and mammals which are in danger of extermination. Many of these are not now properly represented in our collections. Hence this expedition promises to be of very unusual importance. The first collecting field will probably be in the vicinity of Cape York.

Distribution and exchange of specimens.—Duplicates distributed to schools, colleges, institutions, and individuals aggregated 3,917 specimens, of which 1,044 were in 6 sets of 174 mollusks, each regularly prepared for this purpose. One hundred and five bird skins from Polynesia, part of the collections made during the *Albatross* Pacific Expedition, 1899–1900, under the direction of Dr. Alexander Agassiz, were sent to the Museum of Comparative Zoology, Cambridge, Massachusetts. To the British Museum a collection of 390 named Lepidoptera was presented as well as a few isopods, and to the Bruce Museum, Greenwich, Connecticut, 1,982 specimens, mollusks, reptiles, and fishes. The remaining specimens were sent to various institutions and specialists.

Exchanges to the number of 4,352 specimens were arranged, 3,836 of which were botanical. Of the 516 zoological specimens, 57 humming birds and 100 mollusks were sent to Mr. E. Ashby, Blackwood, South Australia; 244 mollusks to Dr. F. Felippone, Montevideo, Uruguay; while the remainder were disposed of by exchange with various institutions and individuals. The largest exchanges of plants were sent to the Oregon Agricultural College; British Museum; California Academy of Sciences; Gray Herbarium, Cambridge, Massachusetts; Missouri Botanical Garden; New York Botanical Garden; Field Museum of Natural History; Collège de Longueuil, Quebec, Canada; and the Botanic Gardens, Sydney, Australia. The remaining exchanges were mostly with individual botanists.

REPORT ON THE DEPARTMENT OF GEOLOGY,

By GEORGE P. MERRILL, *Head Curator.*

The period covered by this report, as may be readily imagined, has been anomalous in the history of the department. From the beginning of the year until the April following, the exhibition halls were closed to the public, a portion of the working force was either in the Army or engaged in work incidental to the war, while the demand for expert services was so great that it was found impossible to fill important vacancies until after the declaration of the armistice in November. Further than this, the distractions incidental and consequential to this world-wide catastrophe naturally turned the attention of both the Museum workers and the world at large to purely utilitarian matters, and the Museum suffered as a result. Nevertheless, in the quiet of the laboratories, workrooms, and offices much that was of importance has been accomplished.

General administration of head curator's office.—The routine of the department has not changed materially since a report on this subject was first called for in 1912. Sundry instructions that have since been issued seemingly make it desirable to repeat in substance what was then given.

All correspondence relating to official matters passes through the office of the head curator, whence it is distributed to the proper divisions or sections. This centralization has been found necessary to avoid delays, duplication of work, and other undesirable results. In like manner it has been found advisable that all papers relating to materials pass into the hands of one individual who is made responsible for the records. These include accessions, material for examination and report, and the invoicing and packing of all specimens for distribution. This same individual, the recorder, performs or supervises the mechanical work incidental to cataloguing for all divisions of the department, thus having under observation all materials from the time they are received in the department until their final placement in the collection or return to the sender. This method, it is found, assures a uniformity and degree of accuracy impossible under the one-time prevalent system in which the head of each division or section handled matters at his own convenience and after his own methods.

All letters containing requests for information and referred to the department are likewise distributed from the head curator's office, to

be returned once more to him for approval and thence to the administrative office. During the fiscal year under consideration, 206 letters were thus referred. No record is kept of these for a longer period than one year. Reports on material sent in for examination are, however, made a matter of permanent record. We are thus able at the present time to refer back to a copy of any original report that has been made since the organization of the office.

No official papers are retained in the office longer than is seemingly necessary in order to obtain the information desired, or, in the case of accession papers, to catalogue the material. In cases where detailed cataloguing is not immediately possible, the entire lot is entered under one number and the papers returned to the official files, a cross reference to the original number being made when the specimens are finally registered individually.

The above system is an outgrowth of experience, and has been found, so far as the department has information, to answer well for all purposes. The failures, if such there be, are due to individual peculiarities which can not be overcome in all cases.

Accessions.—The additions to the collections during the year were comprised in 135 accessions, aggregating a total of approximately 30,800 specimens classified and distributed as follows: Division of Systematic and Applied Geology, 2,150; Mineralogy and Petrology, 2,600; Invertebrate Paleontology, 25,000; Vertebrate Paleontology, 50; Paleobotany, 1,000. These figures show a slight decrease from last year in number of accessions, but an increase in individual specimens. The average standard of value of the material is upheld, with a marked increase over last year in that of the paleontological accessions. There were received for examination and report 230 lots of rocks or supposed mineral-bearing materials, and 26 lots of fossils.

The accessions of especial interest are as follows:

Systematic and applied geology.—Through Mr. Frank L. Hess, of the United States Geological Survey, and honorary custodian of rare earths and rare metals, numerous additions have been made to the collection of ores of the rarer metals, particularly those used in the manufacture of steel. Among these are several examples from foreign sources, including the tungsten minerals wolframite and scheelite, the latter largely in crystal form, from Korea, donated by Mr. George R. Allen of the Chosen Mineral Co., Keijyo, Korea; wolframite from China, gift of Sir Paul Chater, Hongkong, China; and wolframite from Bolivia, presented by Mr. B. Bryan. Domestic tungsten ores are represented by a large specimen of scheelite from White Pine County, Nevada, gift of Mr. E. A. Stent, San Francisco, California, and ferberite from the Katy mine, in Boulder County, donated by Mr. H. Devries, Boulder, Colorado. A

large mass of molybdenum ore was presented by the Climax Molybdenum Co., Denver, and two specimens of ferrotungsten by the Tungsten Products Co., Boulder, Colorado.

The collection of tungsten ores was further augmented by specimens of scheelite and wolframite from Korea, presented by Dr. J. Morgan Clements, New York City, and by scheelite from Glenorchy, New Zealand, acquired by purchase.

By transfer from the United States Geological Survey was received a collection of igneous rocks and miscellaneous ores from various localities in Utah and Colorado, including the Leadville zinc ores recently described by Mr. G. F. Loughlin in Bulletin 681 of the Survey. Other materials from the same source include zirconiferous sandstone from near Ashland, Virginia, and vanadium ores from Placerville, Colorado, both described by Mr. F. L. Hess.

Collections by members of the staff comprise large exhibition specimens illustrating various geological phenomena, and several hundred pounds each of glauconite and chert, secured by Dr. R. S. Bassler; minerals and ores collected by Dr. C. E. Resser in southern Pennsylvania; rocks, minerals, and ores from New York, New Jersey, and Pennsylvania, obtained by Dr. J. C. Martin; and granite-gneiss and decomposition products showing the process of weathering, collected in Rock Creek Park by Dr. J. C. Martin and Mr. H. Warner.

Other interesting accessions include tin and bismuth ores from Bolivia, donated by Mr. Howland Bancroft, Denver, Colorado; a partial replacement cast in copper of a boulder, gift of Mr. Paul H. MacNeil, Washington, District of Columbia; and a sample of volcanic sand which fell on the deck of the Belgian steamer *President Bungo*, on October 23, 1918, supposed to be from the volcano of Hekla, Iceland, gift of Lieut. Commander John C. Soley, New Orleans, Louisiana.

To the collection of building stones was added a large slab of Mar Villa marble from Cockeysville, Maryland, gift of Mr. J. C. Matthai, Baltimore, Maryland.

Material of unusual interest, including that of two new falls, has been added to the meteorite collection. The most important of these comprises two nearly complete individuals and upward of 50 fragments of a meteorite which fell near Cumberland Falls, Whitley County, Kentucky, on the 9th of April, 1919. The stone belongs to the rare type of achondrites, and is of peculiar interest on account of its brecciated structure and other evidences of stress which it presents. The Museum is fortunate in having secured, through Prof. Arthur M. Miller of the University of Kentucky, and Mr. L. E. Bryant, Roberta, Tennessee, the largest complete individual

as well as such a quantity of fragments as to assure a full representative series of this most remarkable stone. One complete and two nearly complete individuals of a chondritic stone which fell at Richardton, North Dakota, on June 30, 1918, were also acquired through the aid of Prof. T. T. Quirke of the University of Minnesota.

In addition to these, fine large exhibition slabs of the San Angelo, Texas, and Staunton, Virginia, meteoric irons, weighing 1,917 and 1,162 grams respectively, were presented by Mr. C. S. Bement, Philadelphia, Pennsylvania, whose like public-spirited acts have been many times noted in previous reports. A slab weighing 1,393 grams, of the Kenton County, Kentucky, iron was received in exchange from Ward's Natural Science Establishment, and examples of the Crumlin, Durala, and Nellore meteoric stones, and the Uwet iron, in exchange from the British Museum, London.

Mineralogy and petrology.—A remarkably large and perfect crystal of scheelite, $3\frac{3}{8}$ inches in maximum diameter, and weighing 529 grams (about $1\frac{1}{5}$ pounds), was included in material secured by Dr. J. Morgan Clements, of New York City, while traveling in Korea in the interest of the Federal Trade Commission, and presented by him to the Museum. In form this crystal is a simple tetragonal octahedron (double pyramid), all of the faces being wholly or partly represented. It is probably one of the most perfect, if not the most perfect, crystals of its size known. Two crystals of cassiterite are also included in this accession.

Two arsenic minerals, realgar and arsenolite, from Hunan, China, especially interesting on account of the locality, were presented by Mr. Ralph W. Weymouth, New York City, through Mr. F. L. Hess; large specimens of chlorite, one with included ankerite and one with pyrite crystals, were acquired by purchase; and two rare minerals, hodgkinsonite, from Franklin, New Jersey, and riversideite, from Crestmore, California, were added by exchanges, the former received from Mr. M. L. Jandorf, York, Pennsylvania, and the latter from Mr. William F. Foshag, Berkeley, California.

An example of the new mineral ferrierite, from British Columbia, gift of Dr. W. F. Ferrier, Toronto, Canada; a large exhibition specimen of jarosite from California, transferred by the United States Geological Survey; several hundred pebbles of thomsonite and lintonite from the north shore of Lake Superior, gift of Miss Mary W. Peckham, Providence, Rhode Island; six minerals from Westfield, Massachusetts, described and presented by Mr. Earl V. Shannon; and a specimen of aguilarite from Mexico, a mineral before unrepresented in our collections, presented by Prof. William E. Ford, Yale University, are all worthy of note.

Through the Frances Lea Chamberlain Fund, the following were added to the Isaac Lea collection of gems: Five opals from Australia, of a variety heretofore unrepresented; a cut zircon weighing 51 carats; two turquoises, figured by Dr. J. E. Pogue in his memoir on The Turquoise; one kunzite, weighing 7 carats; one 16-carat black opal, from Nevada; two stones cut from the rare mineral benitoite; one pendant carved from nephrite and one, cut cameo, of chalcedony; 32 fresh-water pearls from Tennessee; and 30 gems cut from minerals in the Museum collection.

The collection of gems was further enriched by six cut garnets from Arizona, presented by Mr. Frank Springer, East Las Vegas, New Mexico, and the exhibit of imitation and artificial stones by a brilliant cut gem manufactured from uranium oxides, gift of Maj. Harry S. Bryan, Phœnix, Arizona.

But two accessions of importance were added to the petrological collections, one being a series of Brazilian eruptive rocks, gift of Dr. Mathias G. de Oliveira Roxo, Rio Janeiro, Brazil, and the other a collection from Sinaloa, Mexico, accompanied by a map of the region, sent to the United States Geological Survey for examination by Mr. Jesus G. Ortega, and thence transferred to the Museum.

Invertebrate paleontology.—Notable additions to the Cambrian collections include about 7,000 Middle Cambrian fossils, obtained by Secretary Walcott from the celebrated locality at Burgess Pass, British Columbia, recorded as a deposit from the Smithsonian Institution; approximately 400 from the classic Lower Cambrian locality at Troy, New York, gift of Prof. A. F. Foerste, Dayton, Ohio; about 500 from southern Pennsylvania, collected by Assistant Curator Dr. C. E. Resser; and 200 from the Lower Cambrian at Lancaster, Pennsylvania, obtained from Dr. H. J. Roddy, Millersville, Pennsylvania.

A valuable collection, including both invertebrates and plants, mainly from the Carboniferous and Silurian rocks of Indiana, and numbering at least 10,000 specimens, was presented by Mr. Alva Shaeffer, Brazil, Indiana. The collection is especially rich in beautifully preserved and excellently prepared crinoids, and the Museum is fortunate in having been chosen as the depository for the results of Mr. Shaeffer's life-long collecting.

Several thousand Upper Cretaceous fossils from New Jersey and about 1,500 from the Middle Ordovician of Kentucky resulted from the field work of the curator, Dr. R. S. Bassler. These were obtained chiefly for the study series, and their collection was incidental to explorations for exhibition material. A large slab of fossiliferous sandstone, crowded with well-preserved shells, and needed as an introduction to the stratigraphic series of fossils, was secured from the Eocene at Aquia Creek, Virginia.

Additions to the Tertiary collections include a large shipment of fossils from Panama, presented by Dr. D. F. MacDonald, Houston, Texas; about 500 specimens received in exchange from Dr. F. C. Clark, Los Angeles, California; and a collection from St. Paul Island, Alaska, obtained by Mr. G. Dallas Hanna and transferred by the Bureau of Fisheries.

Other accessions worthy of note comprise eight masses of limestone penetrated by the boring shell *Pholas*, especially selected for exhibition and donated by Dr. F. C. Clark, Los Angeles, California; and a collection of Cretaceous and Tertiary fossils from England, gift of Col. L. Worthington Wilmer, Ryde, Isle of Wight. The latter forms a valuable addition to the foreign stratigraphic series, to which Colonel Wilmer has contributed so generously in the past.

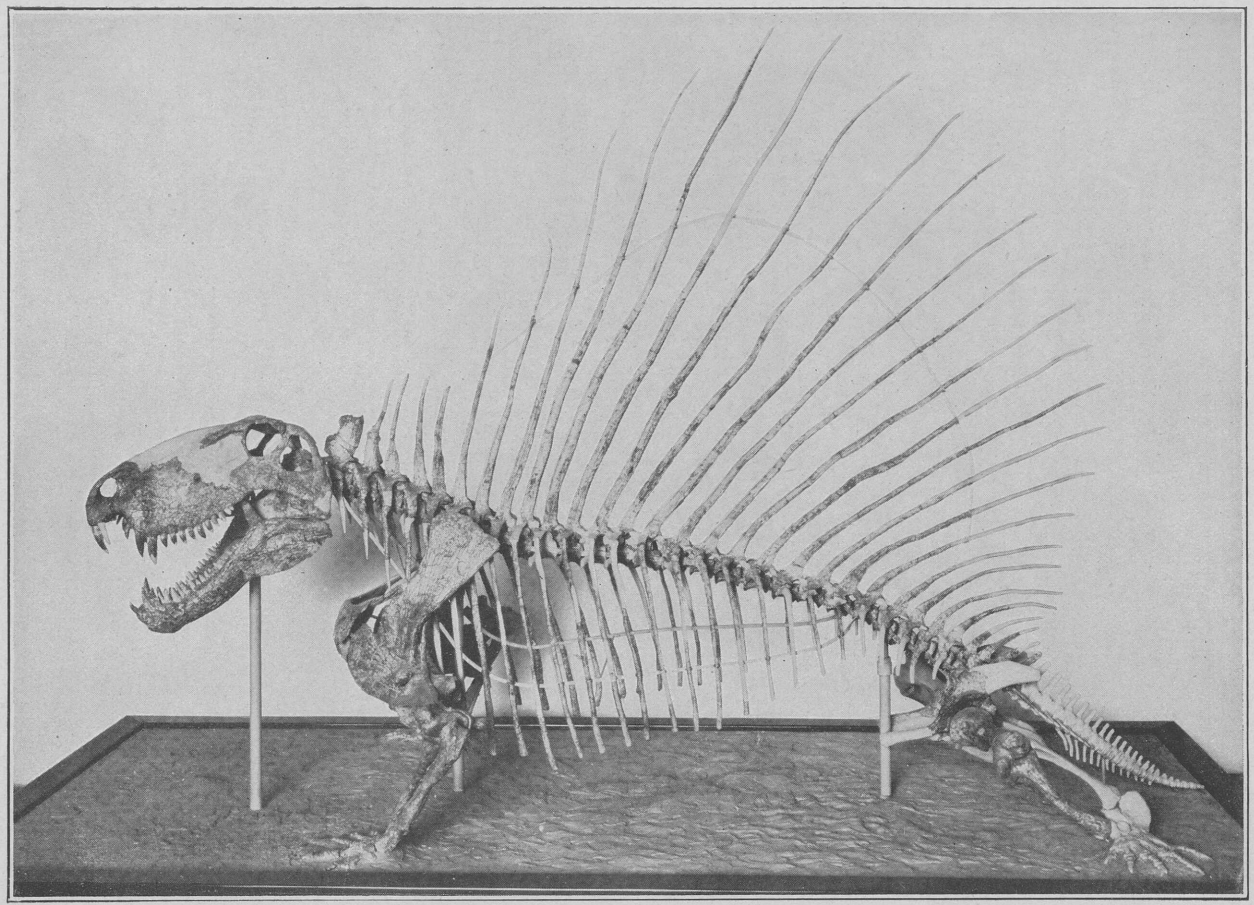
Vertebrate paleontology.—Excellent exhibition specimens, hitherto unrepresented by adequate material, were acquired during the year. These include part of a skeleton, with the skull, of *Diplocaulus copei*, a curious amphibian from the Permian of Texas; a skull of *Monoclonius;* a skull, partial skeleton, and two hind paddles of *Tylosaurus*, and an articulated series of caudal vertebrae of *Platycarpus.*

Next in importance, and forming a valuable addition to our series of types, are 24 described specimens from the Pleistocene and Miocene deposits, received from the geological department of the State of Florida as an exchange.

A considerable portion of the skeleton of a large mastodon, with which was associated the top portion of a human cranium, was donated by Mr. Frank L. Clark, Winona Lake, Indiana; the skull, lower jaws, vertebrae, and ribs of a fossil porpoise from cliffs along Chesapeake Bay, Maryland, were obtained by Messrs. Norman Boss and William Palmer of the Museum staff; a complete set of casts of the type skeleton of the giant fossil bird *Diatryma steinii*, was presented by the American Museum of Natural History, and an enlarged photograph of the skeletal restoration of the large dinosaur *Diplodocus carnegii* by the Carnegie Museum, Pittsburgh, Pennsylvania.

Paleobotany.—The fossil plants included in the collection donated by Mr. Alva Shaeffer, noted earlier in this report, constitute the most important accession received in this section. These plants were derived from the coal measures of Indiana and are a valuable addition to the stratigraphic series.

Work on the collections, special researches, etc.—Throughout the entire year, until after the middle of April, 1919, the exhibition halls of the department were closed to the public and the exhibition collections made wholly inaccessible by giving over the building to the use of the War Risk Bureau. When again they became available at the date mentioned, the first objective was their restoration to their



MOUNTED SKELETON OF DIMETRODON GIGAS COPE.

pre-war condition. Hence the cases were, for the most part, simply shifted back to their original positions, without attempting any serious rearrangement, the accumulation of dust removed, and displaced specimens readjusted. This work is not yet fully completed. The collection of gems, as noted elsewhere, it was decided to entirely rearrange and catalogue, a work which is still in progress. In the paleontological halls only, have important changes been made, to conform to the "open aisle" arrangement of the other divisions of the department. The general appearance of these halls is much improved as a result. Under the present arrangement the exhibits are better systematized and of greater value from an educational standpoint. In the hall of invertebrate paleontology an educational series showing the characteristic fossils and rocks of each geological period occupies the north side; a line of low-standing exhibits, illustrating stratigraphic paleontology, extends through the center, while a series of high cases along the south side contains the characteristic fossils of each group of the animal kingdom arranged in biological order. In this hall, therefore, three distinct aspects of paleontology are presented, and the arrangement of the cases is such that now, as in the other halls, the visitor, by merely passing through the center aisle, can gain at a glance an idea of its entire contents.

All of the large vertebrate exhibits have been thoroughly cleaned and renovated, faded labels replaced, and cases cleaned and in some instances rearranged.

The newly completed free mount of the skeleton of *Dimetrodon gigas* has been installed, and, being beyond question the most perfect skeleton of its kind anywhere displayed and the only one thus articulated, it forms a striking addition to the exhibits (see pl. 3).

A similar arrangement to that in the hall of invertebrate paleontology has been made of the cases in the paleobotanical hall, where a broad, uninterrupted aisle throughout the entire length affords the open aspect. Exhibits of fossil plants of general interest are now placed along the south wall, while standard upright cases along the north side contain the stratigraphic series.

The closing of the exhibition halls during the greater part of the year afforded an unusual opportunity for work on the study and duplicate collections and for research. This was taken advantage of in all divisions of the department. In the division of systematic and applied geology much time was devoted to the preparation of 100 sets of 21 specimens each, illustrating the secular decay of rocks and intended primarily for distribution to agricultural schools. The work of preparing 100 sets of ores and minerals has made considerable progress, but as this must be done at odd moments and no special funds can be applied to it, progress is necessarily slow. Over one-

half of the specimens have been assembled, numbered, labeled, and wrapped, ready for packing.

The study series in physical geology has been rearranged, but some work still remains to be done in the way of cleaning and labeling.

To make space for some of the larger objects of the war collections the miscellaneous large masses of iron ore that have for years lain at the west front of the arts and industries building were transferred to the east side of the natural history building. The arrangement can not be said to be satisfactory, and it is recommended that space be prepared for them along the adjoining curb to the east.

A series of wall charts, or labels, giving the salient features of distribution and genesis of the principal metals has been completed. The subjects include gold, silver, copper, lead and zinc, and iron, each chart being hung on the wall adjacent to the case in which the material characterized is exhibited.

Systmatic research, under the conditions imposed upon a head curator, naturally progresses but slowly. Incidental to his work sundry preliminary publications have been made, practically all relating to meteorites. A second report on the investigations under a grant from the J. Lawrence Smith fund of the National Academy of Science is in press, and two comprehensive papers dealing with the history of geological science in America are pending.

Much of the head curator's time was devoted to activities in connection with the war, brief mention of which was made in last year's report. While not strictly research on the collections, it is thought advisable to insert here a summary of this work.

Early in the spring of 1918 there unexpectedly arose a demand on the part of the naval experimental station at New London, Connecticut, for a considerable quantity of clear quartz crystals. As the Museum's supply was not sufficient, the head curator was authorized to visit the principal museums and cities of various States in an effort to procure a larger quantity, and was later requested to secure any suitable quartz that might come under his observation during a prospective trip into North Carolina. Shortly after the National Research Council asked that he assume the responsibility of finding a sufficient supply of the needed material from whatever sources might be found available. The matter was, therefore, taken up systematically through correspondence, and at the same time, through the interposition of Secretary Walcott and the State Department, information was sought regarding the supply that might be obtained from Brazil. The results of the work can best be

summed up in the final report made to the chairman of the National Research Council, which is given in part below:

NOVEMBER, 25, 1918.

SIR: Assuming that with the signing of the armistice with Germany my services as special agent for the purchase of quartz for supersonic purposes will be no longer in demand I beg leave to make the following report:

Acting in accordance with instructions from Secretary Walcott, and at the request of Chief Signal Officer Squier and Colonel Millikan, dated February 1, 1918, I left Washington on February 5, proceeding to Rochester and Albany, New York; Boston and Cambridge, Massachusetts; New York City; and Philadelphia in search of the desired material among private collectors and in public museums. The available supply from all sources was disappointingly small, but a couple of hundred pounds or such a matter. Incidentally, however, there was found in the hands of Tiffany & Co. approximately 900 pounds of Brazilian material, which was subsequently disposed of to the New York subcommittee of the National Research Council.

On May 10, under the same joint authorization, I proceeded to western North Carolina, visiting all the principal localities known to have furnished materials of the quality desired, and was able to secure several hundred pounds, of which perhaps 300 pounds were found to be of a quality suitable for cutting. The combined results of these two trips were delivered under proper authorization to Maj. R. W. Wood of Johns Hopkins University; to Profs. Geo. B. Pegram and H. W. Farwell of Columbia University; and Prof. Geo. E. Hale of Pasadena, California. Some 200 pounds of material now in the National Museum and of doubtful value still awaits disposal.

It having become evident that sufficient supply was not available in North Carolina, among dealers, museums, or private collectors, a somewhat extensive correspondence was entered into with parties who were thought likely to be in a position to assist in all sections of the country and in South America, and I was able to locate two lots of material imported from Brazil, one of 3,500 to 4,000 pounds in the hands of W. J. Kindgen of the Mineral Products Co., and the second of 3,368 pounds in the hands of Adolph Hirsch Co., both of New York.

* * * * * * *

In view of the possible difficulties of further importation of material from this source, it was deemed advisable to thoroughly investigate the resources of our own country, and Prof. Austin F. Rogers of Stanford, California, was authorized * * * to look into the resources of that State. Professor Rogers visited the most promising localities, found nothing immediately available, and, in view of the importance of the matter, recommended that steps be taken toward reopening an old gold mine on Mokelumne Hill which was reported to have furnished excellent material while in active operation some years ago.

Further correspondence developed uncertainty both as to the expense of reopening the mine and the probabilities of its yielding the material and also some question as to authorities in control. I therefore did not recommend the undertaking. In view of what I have to state below, I now advise strongly against it, believing such would be a very unwise and wasteful proceeding.

Very early in my work I took steps toward gaining information regarding the Brazilian sources of these quartzes, going so far as to have the Secretary of the Smithsonian ask the State Department to investigate the matter through

the various consular agents. A portion of the reply * * * I inclose herewith. You will perceive from this that there is ample supply of material at present available, and which, now that the war is over and if steps are taken within a reasonable length of time, can be landed in New York long before the approximate 900 pounds of crystals now on hand will be exhausted. It should be noted further that there still remain in the hands of the Hirsch Co. upwards of 7,500 pounds of material, a portion of which is certainly of a quality suitable for the desired uses.

Incidentally it may be mentioned that the workroom of the department was placed at the disposal of the experimental station throughout the period that the Museum was occupied by the War Risk Bureau. The offer, though tendered by Secretary Walcott, was not, however, accepted.

To the above may be added the statement that the head of the department seems still to be regarded by the Government as an expert on building stones, and subject to call for advice whenever occasion arises. No facilities whatever for acquiring the necessary information or experience are afforded, however, except as he may undertake personally and at his own expense.

It may be added here that no better illustration of the practical value of a museum could be desired than that afforded during the past two years under the exigencies of war. From the first evidences of trouble until the close of hostilities the department was subject to call for material for experimental purposes, particularly along the lines of electricity, radioactivity, light and sound transmission, from all branches of the Government, the Geophysical Laboratory, and numerous private investigators. These demands were not infrequently for quality of material and in quantities that seriously impoverished the Museum's supply, and for one particular mineral it culminated in the authorization which has been explained in detail above. Further, it was fortunate that the Museum methods (lines of procedure through which the supplying of these materials was made possible) were fully mapped out, though, through lack of means, not carried out in detail. It is safe to state, however, that the department met satisfactorily every reasonable demand made upon it during this trying period, and this notwithstanding a diminished working force, and collections in part almost inaccessible through the occupancy of the halls by the War Risk Bureau.

Since the resignation of Dr. Edgar T. Wherry, assistant curator, in August, 1917, no systematic work in the division of mineralogy and petrology has been possible. The collections have, nevertheless, been drawn upon heavily for research materials, as already indicated, but no radical changes or additions have been made, and all suggestions left for the new incumbent, Mr. William F. Foshag, who took charge of the division on June 27, only four days before the closing of the fiscal year.

The collection of gems and precious stones it is deemed advisable to separate from the mineral collections and the work of recataloguing, weighing, and measuring has been placed in the hands of Miss Margaret Moodey, recorder, in addition to her other duties. Naturally the work must progress slowly, but it is being done very satisfactorily.

In the division of paleontology preparatory work on the remainder of the material collected by Secretary Walcott's party during the field season of 1917 was completed. Other work undertaken in his laboratory was the preparation of the Middle Cambrian algae and sponges, the study of which has been the secretary's principal scientific work during the year. His paper on the Appendages of Trilobites was completed and issued in December, 1918.

The curator, Dr. R. S. Bassler, devoted much time to placing in final condition the thousands of types and thin sections figured in Bulletin 106 of the United States National Museum, in proof reading, and other work incidental to this and other paleontological papers in course of publication by the Museum. His special investigations have been directed toward the completion of a monograph on the Late Tertiary Bryozoa of North America, in collaboration with M. Ferdinand Canu, of Versailles, France, and to the determination of the geological horizon of numerous rock samples from deep-well drillings at various points along the Atlantic and Gulf Coastal Plains, submitted for report by the United States Geological Survey and other Government bureaus. This latter work was part of the war activities, undertaken in order to determine the underground geology and to locate the water zones and the geological horizons of other economically important materials. As the bryozoans can be determined from microscopic fragments, they often prove to be the only class of fossils preserved in these borings which can be used in such work. A purely scientific result was the practical completion of the monograph mentioned above. This, with its companion work on the Early Tertiary Bryozoa of North America, completes the study of the group.

Doctor Bassler has also completed a volume on the geology and paleontology of the Cambrian and Ordovician systems of Maryland, under the joint auspices of the Geological Survey of that State and the United States National Museum. Most of the paleontological material upon which the report is based is in the collections of the National Museum.

Dr. C. E. Resser has assisted in a general rearrangement of the Lower and Middle Ordovician stratigraphic collections, and spent much time in the preparation and placing of materials acquired during the year. All of the Cambrian study collections, exclusive of those under the direct charge of Secretary Walcott, which

are in the Smithsonian Building, have now been classified and assembled. Doctor Resser continued work on his bibliographic index of Cambrian fossils, but its completion was delayed in order to devote more time to a study of the Upper Cambrian rocks and fossils of the upper Mississippi Valley, in which he is collaborating with Dr. E. O. Ulrich, of the United States Geological Survey and associate in palentology, United States National Museum. Sufficient progress has been made on the latter to lead to the hope that it can be completed during the coming fiscal year.

In addition to the work just mentioned, Doctor Ulrich has extended his studies on fossil crinoids to a monographic treatment of all Ordovician crinoids in the Museum collection. Several hundred species have been determined and described, but the illustrations are still in course of preparation.

Mr. Frank Springer, associate in paleontology, on account of personal duties, was absent a large part of the year in New Mexico, from whence, however, he directed the work of his assistants, who were engaged in preliminary work looking to the preparation of a descriptive catalogue of his collection of fossil echinoderms. He hopes for the issue in the early fall of his monograph on the Crinoidea Flexibilia.

Dr. T. W. Stanton reports that the important collection of Cretaceous invertebrates from Coon Creek, Tennessee, obtained from Mr. Bruce Wade last year, has been prepared for final preservation by Mr. Williard. It proved to contain a much larger amount of valuable material than was estimated, being especially rich in gastropods and pelecypods of many species.

Dr. W. H. Dall reports that the most important work on the Tertiary collections has been carried out by the generous assistance of Mr. W. E. Crane, who has overhauled the entire collection of foreign Tertiary mollusks, put it in order, written thousands of labels, identified hundreds of specimens, and added, incidentally, from his own stores several hundred species not previously contained in the Museum collection. This work has long been needed, but the pressure of more immediate matters has obliged postponement. Doctor Dall further reports that the work of indexing the Teritiary collections is nearly complete. He has prepared a brief report upon fossils from the Pribilof Islands, and a check list of recent and Pleistocene marine mollusks of the west American coast from San Diego, California, to the Arctic coast was completed, summing up the researches of many years. A summary of observations on Alaskan volcanoes, made during his coast survey work there, was published in the Scientific Monthly. A complete revision of the recent and Tertiary Brachiopoda was made, and the collection arranged, labeled, and indexed.

Prof. T. D. A. Cockerell has completed a monograph on fossil insects from the oil-bearing shales of the west, based on material belonging to the Museum. The chief value of the work lies in the fact that insects are the most characteristic fossils of these oil shales.

Dr. Edwin Kirk, paleontologist of the United States Geological Survey, with an office in the Museum building, has aided in the care of the collections by assembling all Paleozoic faunas from the western United States and Alaska and assuming responsibility for their preservation. His researches in Alaska during the past year resulted in an unrivaled collection from that region.

In the section of vertebrate paleontology the free mount of the skeleton of *Dimetrodon gigas* was finished and placed on exhibition. Work was resumed on the mount of *Brontotherium hatcheri*, temporarily laid aside last year, and considerable time has been devoted to cleaning, repairing, and restoring Titanotherium skulls, 15 of which were completed. These will be placed on exhibition as soon as proper case facilities are provided. A skeleton of the primitive Permian reptile *Diadectes phaseolinus* Cope; a skull, lower jaws, and other parts of the skeleton of an extinct, long-snouted porpoise from Chesapeake Beach; and the type specimen of *Delphinodon dividum* True have also been prepared, the last two having been mounted for exhibition. The skeleton of the huge swimming reptile *Tylosaurus*, recently acquired, is also in course of preparation.

The preparation of fragmentary vertebrate remains designed or suited only for the study series must necessarily be secondary to that of exhibition material. Considerable progress has been made along these lines, particularly with the recently acquired *Dimetrodon* material from Texas and the dinosaurian from Canon City, Colorado. Progress has also been made in the preparation of the Cumberland Cave collections, 12 specimens of the fossil peccary *Platygonus* and several specimens of carnivores, including four fairly good skulls and other pieces representing three new species of the dog family, having been cleaned sufficiently for study. Mr. Gidley's studies of the fossil peccaries from this deposit have been completed and that of the carnivores from the same source begun. Mr. Gidley has also published a brief paper entitled Significance of divergence of the first digit in the primitive mammalian foot. Some progress was also made in continuation of the work on the Fort Union mammals and on the combined investigation of the rodents, living and extinct, the joint work of Mr. Gidley and Mr. Gerritt Miller.

Mr. C. W. Gilmore has transmitted to the United States Geological Survey for publication an extended paper on the reptilian faunas of the Torrejon, Puerco, and underlying Cretaceous formations of San Juan County, New Mexico. He has also submitted a short paper on the newly mounted skeleton of *Dimetrodon gigas*, with notes on

the skeletal anatomy, and a paper describing new fossil turtles, with notes on described species. He has continued work on the monographic study of the carnivorous dinosaur materials in the National Museum collections, and it is hoped that this long delayed paper can be brought to completion during the coming year.

Dr. F. H. Knowlton has supervised the work of arranging and labeling of the collections of Mesozoic and Cenozoic plants. He has completed a memoir on geologic climates in which the paleobotanic data was based on the study collections of the Museum, and has finished a bibliographic catalogue of Mesozoic and Cenozoic plants of North America, which is now in course of publication by the United States Geological Survey.

Mrs. Eula D. McEwan, aid, resigned early in the fiscal year, but with the appointment of Miss Lucile Simpson as her successor, active work on the plant collections was resumed. Besides assisting in general exhibition work, Miss Simpson has assembled all of the type specimens of Tertiary plants and arranged them in final Museum form. This particular collection is now located in one room and the work is up to date.

As in previous years, the collections have been studied by numerous workers not connected with the Institution, and the methods of installation, recording, and general system of management have been matters of investigation by those engaged in or about to enter upon similar work elsewhere. Among the more prominent of these were the members of the British Educational Commission; Prof. A. F. Foerste, of Dayton, Ohio; Maj. C. J. Hamlin, director of the Buffalo Society of Natural History; Prof. G. D. Harris, Ithaca, New York; Dr. S. B. Howell, Princeton University; Dr. R. Ruedemann, of the New York State Museum; Dr. Thomas L. Watson, State geologist of Virginia; Mr. Barnum Brown, of the American Museum of Natural History; Dr. Roy L. Moodie, of the University of Illinois; Prof. E. W. Berry and Dr. Harvey Bassler, of Johns Hopkins University; Miss Carlotta J. Maury, Dr. J. L. Wortman, and Dr. O. P. Hay.

Present condition of the collections.—Both the exhibition and study series in the division of systematic and applied geology are in fairly good condition as regards arrangement, labeling, and records. The division of mineralogy is, however, greatly behind and will require much care and attention to bring it back to its original standard.

In the division of paleontology, both the study and exhibition collections are now in better condition than ever before, although the amount of material received for permanent preservation each year exceeds the ability of the force to place it in final museum form. The collections are, however, accessible for reference, and while

there are a number of gaps in the series, it is hoped they may shortly be filled.

Field explorations.—The principal expedition of the year was that of Secretary Walcott during the field season of 1918 in the Canadian Rockies of British Columbia and Alberta, with the object of finding an Upper Cambrian fauna, and also ascertaining if there was any considerable variation on the strike of the Cambrian formations from the section along the Bow Valley northward. Nothing was discovered of importance with relation to the Upper Cambrian fauna and no material change found in the formations as far as the Saskatchewan River. A large number of photographs were taken, illustrating the stratigraphy and the scenery of the upper Bow Valley, also the area in the vicinity of Wolverine Pass, about 30 miles south of Lake Louise.

Explorations for large objects to illustrate the various phases of structural geology and stratigraphic paleontology were continued during the summer of 1918 by Dr. R. S. Bassler, curator. Field work was started in the Cretaceous and Tertiary rocks of New Jersey, where glauconite, calcareous marl, and numerous fossils were obtained. The Lancaster and Cumberland Valleys of Pennsylvania and Maryland were then explored and several large specimens illustrating folding and faulting and attendant phenomena were found. The east front of the Alleghany Mountains of Maryland afforded some very interesting blocks of fault breccia in which recementation had occurred, in one case by silica and in another by iron ore. Examples of these were shipped to the Museum and are now ready for exhibition. Following this work in the Appalachians, Doctor Bassler spent some time in Kentucky and Indiana locating exhibition material and collecting fossils. The most important shipment from this region was a layer of limestone so carved out by underground water that it can be used to illustrate cave formation in miniature.

Dr. E. O. Ulrich spent the field season of 1918 in stratigraphic and paleontologic work on the Upper Cambrian rocks of the upper Mississippi Valley. Important collections of fossils and several large exhibition specimens resulted from his work.

Distribution and exchange of specimens.—There have been prepared and sent out from the department 385 specimens, in 8 lots as gifts; 245 in 12 lots as exchanges; and 2,846 in 20 lots as loans for study or to be consumed in scientific research. In addition, 6 sets of invertebrate fossils, aggregating 281 specimens, have been distributed to schools.

REPORT ON THE DIVISIONS OF TEXTILES AND MEDICINES AND THE SECTIONS OF WOOD TECHNOLOGY AND FOODS,

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

1. *General administration of divisions and sections.*—Owing to the necessity of emphasizing certain lines of work due to the war activities of the country, and the fact that two assistant curators from this office had entered the military service, the attention of the curator has very largely been directed to war work and war-time exhibits, and to keeping active the work of the absent assistant curators. These conditions have prevented any very well defined plans of administration from being carried out.

1A. *Accessions of the year.*—The accessions received during the year numbered 76, 9 less than the preceding year, and without counting the large number of unlisted specimens included in the exhibit of the Medical Department of the United States Army, comprised 884 entries, which are 648 less than were received in the fiscal year 1918.

These entries may be divided into five groups, as follows: Textiles 183, medicines 293, woods 3, foods 336, and organic products 69; each group, with the exception of foods, showing fewer entries than last year. The smaller number of entries not only shows that the attention of the curator and assistant curators was given to many things outside of their special work, but also the disturbance of war-time conditions upon time and attention of all of the Museum's contributors. A large number of business firms were giving their whole attention to supplying the war needs of the Government, and could not be expected to devote time or to assist in building up the Museum's collections. Under these conditions the showing made is better than could reasonably be expected.

Accessions of importance.—By far the most important accession was that covering the material transferred from the Office of the Surgeon General, War Department. This collection consists of apparatus, hospital appliances, and field equipment used by the medical department, including the dental and sanitary divisions in the war with Germany, 1917–18, and includes examples of all the kinds of equipment used in a 1,000-bed overseas hospital. The greater part of this material may easily be arranged for exhibit purposes into six groups: The furniture and appliances used in the ward for the care of the sick and wounded; X-ray apparatus for the examination of the wounded; apparatus and instruments used in the gen-

eral operating room; the equipment for sterilization of bandages, instruments, etc., the apparatus and instruments used in operating a dental clinic and laboratory; and various types of equipment used in the field to preserve the health of the soldier and care for the wounded. To this last group belong two large specimens on wheels which have a general interest: The liberty kitchen, for preparing and serving hot food to the men on the front line; and a portable disinfector, capable of disinfecting the clothing and bedding of a company of men by means of live steam, formaldehyde, or ammonia gas.

Several important accessions received during the year represent gifts of specimens and books for the historical section of the division of medicine. Included in the plan for illustrating the development of the healing arts were exhibits intended to demonstrate the fundamental principles of different schools of medicine. To the average person health and disease are terms which define conditions, one desirable and the other to be avoided. Little thought is given the problems which perplex scientists and divide the medical profession into great factions and schools. Inquiry is often made, however, concerning the salient features of the different schools of medicine, and the division of medicine has undertaken the task of illustrating the history and principles of the more important of these schools by means of specimens, charts, and photographs. In preparing these exhibits the Museum assumes a neutral attitude so far as the relative merits of one school compared with another is concerned, the object being to show the most conspicuous and distinguishing features, so that a comparison of each series of specimens would demonstrate wherein the schools differ in theory and practice. A beginning has been made with exhibits to illustrate homeopathy and the eclectic school. The opportunity thus offered was brought to the attention of The American Institute of Homeopathy by Dr. W. A. Dewey of the Homeopathic Medical School, University of Michigan, Ann Arbor, Michigan. Doctor Dewey was designated to cooperate with the Museum in the work, and much credit is due him for the valuable assistance which he has rendered. Additions to the collections by gift through his efforts are as follows:

From Doctor Dewey, 23 specimens of photographs, engravings, etc.; Boericke & Tafel (Inc.), Philadelphia, Pennsylvania, 123 specimens of chemical, mineral, metallic, vegetable, and animal pharmaceutical products in the different forms in which they are administered, namely, tinctures, dilutions, globules, tablets, disks, and pellets, and four colored plates of medicinal plants with descriptive texts, together with a small model of the Washington Hahnemann Monument; Dr. J. B. Gregg Custis, of Washington,

District of Columbia, an original letter written by Hahnemann, and 15 volumes of the Transactions of the American Institute of Homeopathy.

The Museum is also indebted to the following persons for the contribution of books relating to homeopathic medicine:

Dr. John H. Wilms, Cincinnati, Ohio, for King's History of Homeopathy, in four volumes; Dr. John C. Calhoun, Pittsburgh, Pennsylvania, for Millspaugh's Medicinal Plants, in two volumes; Dr. William E. Leonard, Minneapolis, Minnesota, for Lindsley's Homeopathic Bibliography of the United States, Ameke's History of Homeopathy, and Cleave's Biographical Cyclopaedia of Homeopathic Physicians and Surgeons; Dr. William Boericke, San Francisco, California, for a copy of Boericke's Compend of the Principles of Homeopathy; Mr. F. L. Lewton, Washington, District of Columbia, for the twelfth edition of Laurie and McClatchey's Homeopathic Domestic Medicine; and Dr. F. M. Dearborn, New York City, for Dearborn's Diseases of the Skin.

Through the cooperation of Dr. John Uri Lloyd, of Cincinnati, Ohio, 23 volumes of the Transactions of the National Eclectic Medical Association were donated for the exhibit of eclectic medicine, by Dr. Joseph A. Munk, of Los Angeles, California.

The exhibition series arranged to illustrate a few of the more important medicinal plants was increased by the gift from Parke, Davis & Co., Detroit, Michigan, of 17 specimens of official preparations of opium products recognized in the United States Pharmacopœia and National Formulary; 18 specimens of official preparations containing nux vomica or its products, contributed by Sharp & Dohme, Baltimore, Maryland; a specimen of nux vomica and seven specimens of alkaloids and alkaloidal salts, the gift of Merck & Co., New York City, and from Eli Lilly & Co., Indianapolis, Indiana, a specimen of cascara sagrada bark and four specimens of its official preparations.

The medicinal form series which was arranged to show the material forms in which medicinal substances are used and prepared for administration was increased by 15 specimens of organic and inorganic chemicals, the gift of Chas. Pfizer & Co. (Inc.), New York City.

For the exhibit of pharmaceutical equipment, the Torsion Balance Co., of New York City, contributed a torsion counter balance, a torsion prescription balance, and sets of weights of different types. Eli Lilly & Co., Indianapolis, Indiana, also contributed three aseptic metal pocket cases for physicians, one for bacterial vaccines, another for hypodermic tablets, and the third for ampoules for hypodermic injection, all of them complete with syringe and needles.

The most important accession of textile specimens received during the year was a collection of thirty-one samples of pile fabrics and a mohju automobile rug, contributed by Sidney Blumenthal & Co. (Inc.), of New York City, in addition to the numerous specimens from their looms already on exhibition. These beautiful fabrics for dress and upholstery use, comprise all silk chiffon velvets; fur fabrics of mohair and artificial silk, made in imitation of mole, fox, beaver, and seal furs; novelty dress fabrics of artificial silk and combinations of wool, artificial silk, schappe silk, tussah, and cotton. The specimens comprising this accession were carefully chosen, and though difficult to install, present a very fine appearance.

To the Howlett & Hockmeyer Co. (Inc.), New York City, the Museum is indebted for ten specimens of cotton corduroys, twilled suitings, and leather cloth; the last-named being adapted for army trench coats, submarine coats, aviators' costumes, pocketbooks, and military novelties. Other types of waterproof textiles extensively used during the war with Germany were included in a series of coated cotton fabrics and articles made therefrom, which were contributed by the Standard Textile Products Co., New York City.

H. R. Mallinson & Co. (Inc.), New York City, replaced the samples of printed silk dress goods, formerly contributed by them, with fourteen specimens of their "La Victoire" silks illustrating the influence of the war upon textile design. From J. A. Migel (Inc.), also of New York City, were received two specimens of novelty dress silks.

The Museum's collection of oriental shawls has been enriched by the acquisition of two cashmere shawls of wonderful beauty due to the unusualness of the patterns and exceptionally fine workmanship, one received as a loan from Mrs. Ralph Cross Johnson, and the other deposited by Mrs. C. D. Walcott, both of Washington, District of Columbia.

A popular exhibit and one which attracted a great deal of attention, contributed by S. B. & B. W. Fleisher, Philadelphia, Pennsylvania, was of timely intrest, for the reason that it was received at a time when the American Red Cross, by various methods of publicity, were pointing out to the women of the United States a method by which they could be of service to their country and add to the comfort and welfare of American soldiers, who were enduring hardships and dangers of warfare on land and sea, by knitting articles of wearing apparel. This exhibit consists of a series of knitting and crocheting yarns of wool, wool and silk mixtures, and mohair, in various weights, together with a crocheted or knitted square of each specimen, to show the different pattern stitches. Also handmade garments for both personal and service wear, as well as afghans and a blanket.

For the purpose of calling attention to the importance and wide

uses of a number of native American plants, space in exhibit cases for specimens and products of potatoes, peanuts, corn, and beans was provided.

The scarcity of fats and oils for food purposes called for the preparation of exhibits pointing out neglected sources of supply of this necessary class of foods. In addition to the transfer from the Department of Agriculture and the United States Food Administration of 149 samples of food products, models of fruits and vegetables, photographs and charts, specimens of food products were contributed by the following firms:

J. B. Worth Co., Petersburg, Virginia, commercial varieties of raw peanuts; the Hauck Food Products Corporation, Kingston, New York, samples of peanut oil, peanut oil foots and grease; Beech-Nut Packing Co., Canajoharie, New York, peanut butter; the Soy-Lac Food Products Co., London, Ontario, soy bean products; California Associated Raisin Co., Fresno, California, raisin seed products; Boyer Oil Co., New York City, commercial oil seeds; The Southern Cotton Oil Co., New Orleans, Louisiana, samples of cottonseed oil; Essenkay Products Co., Chicago, Illinois, rubber substitute articles made from vulcanized corn oil.

The most important accessions of miscellaneous exhibit material derived from animal and vegetable sources received during the year, were a collection of industrial oils from Spencer Kellogg & Sons (Inc.), Buffalo, New York; chemicals used in the production of cellulose acetate from raw cotton, contributed by the Chemical Company of America, New York City; a series of specimens showing the by-products obtained in the production of oil from cotton seed, a gift from the Southern Cotton Oil Co., New Orleans, Louisiana; a rubber poncho made in Guatemala and coated with pure "Ule" gum, the gift of Mr. Wilson Popenoe, Washington, District of Columbia; and a series of twenty-nine specimens illustrating the manufacture of casein glue for waterproofing aircraft, which was transferred from the Department of Agriculture.

1B. *Work on the collections and special researches.*—At the beginning of the fiscal year an extensive exhibit illustrating the production, classification, and conservation of foods was undertaken at the request of the Food Administration, under the direction of the curator of textiles.

The rotunda in the Arts and Industries Building was temporarily assigned for this special exhibit to show the classification, use, and conservation of foods. This was opened to the public on November 1, 1918, and attracted a great deal of attention. After the closing of the activities of the United States Food Administration, the exhibit was moved to another hall.

In order to make the food exhibits as useful as possible, and to bring them to the attention of a large number of people, a cooperative arrangement was entered into with the States Relations Service of the Department of Agriculture, whereby regular demonstrations on the value, use, and preparation of different classes of foods were given at the Museum by experts from the Department of Agriculture. Under this arrangement a large room was furnished in the Arts and Industries Building as a demonstration kitchen, and exhibit space provided for foods, models, museum specimens, and household equipment.

Classes and demonstrations for housekeepers were held in the mornings and afternoons, and for war workers employed in the Government service special classes were held at 5 o'clock in the afternoon. Through the work carried on in this room over 2,100 persons were reached during the year. The work of the demonstration kitchen very soon broadened so that its name was changed to "Household Consultation Center," and the lectures and demonstrations given there included a wide range of subjects. Of the more important lectures and demonstrations given in addition to the class instruction, the following may be mentioned:

Lectures:

Business of the Household.
Food for the Family on $2 per Day.
Direct Marketing.
What Becomes of the Consumer's Dollar?
What Do You Give Your Children to Eat?
Milk, its Nutrition and Use.
Meat Substitutes.
Housekeepers' Use of Market Schedules.
The Influence of Weave Structure upon the Durability of Fabrics.

Demonstrations:

Labor Saving Appliances for the Kitchen.
Fireless Cooker.
Pressure Cooker.
Electric Washing Machine.
Dried Milk Powder.
Preserving Eggs.
One Dish Meal.
Cooking Dinner in 30 Minutes.
Invalid Cookery.
Christmas Sweets.
Sugarless Candies.
Fruit Juices in Summer Drinks.

The east and south sides of the gallery of the east hall containing the exhibition collections of the division of medicine were opened to the public since the writing of the last report, and great efforts have been made to fill all the space available. Many of the exhibits arranged for are still incomplete owing to disturbed business conditions. The

series to illustrate the homeopathic and eclectic schools of medicine have been greatly benefited by the gift of a number of rare books dealing with these subjects. All the books assigned to the division of medicine, whether specimens for exhibition or reference works, have been catalogued, both by author and subject, which will greatly facilitate their use by students. Where these volumes have not been needed as exhibits they have been placed with the books on pharmacy, materia medica, and therapeutics, which were transferred last year from the Hygienic Laboratory.

Numerous visitors made inquiry at the curator's office concerning special information suggested by the exhibits, and made particular use of the technical books in the sectional library.

Mrs. Laura Allen, for many years teacher of hand-loom weaving at the Mechanics Institute, Rochester, New York, spent several weeks studying the textile collections and the technical books in the sectional library. She gave valuable assistance in the construction of a hand loom for demonstration purposes.

Mrs. George C. Zwiebel, of Wilkes-Barre, Pennsylvania, devoted several days to studying the collections and technical books dealing with the following subjects: Artificial pearls, utilization of trade waste, and dehydration of foods.

Assistance was rendered by the curator from time to time during the year to the Salvage Board, Bureau of Ordnance, War Department, and the Bureau of Foreign and Domestic Commerce, Department of Commerce, in furnishing special information on industrial raw materials and the identification of specimens. The identification of specimens of fibers, 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 has furnished the identification of the cottons introduced by the Office of Foreign Seed and Plant Introduction and Distribution, and for inquirers outside of the Government service he has made bibliographical compilations on the hydrogenation of oils, phosphorus content of foods, composition of baking powders, conservation of sugar, a list of illustrations of the use and preparation of coffee in olden times, use of ozone as a disinfectant and bleaching agent, use of bezoars in medicine, and the siliceous substance found in bamboos.

2. *Work of preparators, modelers, etc.—Modeling.*—Four models were completed during the year in the laboratory of the division. The most important of these is a model covering a space, 9 by 12 feet, illustrating the wood pulp and paper industry, on a scale of one-forty-eighth actual size. This model shows the reduction of logs of wood by two separate processes into mechanical and chemical wood pulp, and the manufacture of this into print paper. In con-

nection with the chemical pulp, the model also illustrates the manufacture of sulphuric acid.

The second model is 2 by 4 feet, and was made to illustrate the manner of distilling oil of sweet birch in Tennessee and North Carolina.

Two small models, showing the reclamation of arid land, were made for the Interior Department.

Installing.—The time of the preparators has been fully occupied in indexing, cataloguing, and installing new exhibits and in rearranging some of the older ones. The textile exhibits received during the year have been promptly acknowledged, accessioned, and cataloged, and most of them are installed. The installation work done on the five cases of plush and upholstered goods is especially creditable, for this material is heavy and requires great skill in its hanging and arrangement. The cases containing dress silks, shawls, and knitted fabrics, each presented different problems for solution.

Several thousand samples in the study collection of textiles were dated, mounted on cards, and classified, and an exhibit of small samples showing typical weave structures was made.

The 10-saw cotton gin, which has always been an object of great interest to visitors, particularly the school children, was overhauled and as much as possible of the wood and iron work replaced by glass, so that the method of removing the cotton fiber from the seeds can be clearly seen.

In the division of medicine, four new exhibits were installed, and the cases containing the study collections were rearranged so as to separate them from the workroom where new material is held pending identification, labeling, and installation. The anatomical jars containing the glands and glandular tissues obtained from slaughtered animals were replaced by rectangular containers, and fresh Francis's preserving solution supplied.

In the absence of the assistant curator, section of wood technology, no new installation was completed other than the setting up and casing of the large model illustrating the manufacture of wood-pulp paper.

Considerable time was given to the arrangement and installation of the food exhibits. These were contained in 20 upright floor cases arranged in a circle around the rotunda, and radiating from the statue in the center. Except in a few cases where the foods were placed in shallow glass saucers or were left in original packages, the specimens other than liquids were placed in rectangular jars, and presented a fine appearance on the glass shelves.

Labeling.—The labeling of the exhibits in this division has been greatly improved. Case labels have been printed for certain exhibits on the medicine gallery and the wood court. All the gummed-letter

labels were gone over and repaired where necessary, and many typewritten cards were added. The jars containing the food specimens and those in the exhibit illustrating organotherapy were all newly labeled with gummed letters. Large temporary case labels emphasizing the importance of food conservation were prepared on the printasign machine and placed on the ends of the cases forming a circle in the rotunda.

Cataloguing.—The cataloguing on cards of the new specimens received has been kept right up to date, and with the assistance of a temporary cataloguer for a few months the large permanent consecutive registers have been practically completed, with the exception of that for the section of wood technology.

Extracting and indexing.—The examination and indexing of new textile terms and other special information contained in the large number of trade papers and periodicals sent to the section libraries of textiles, woods, medicines, and foods, occupy the time of the preparators when not engaged in other duties.

3. *Present condition of the collections.*—All of the collections under the care of the curator have been carefully inspected for insects, and certain materials like wools and foodstuffs have been fumigated several times.

In several of the halls the light has faded a number of textile specimens, but in most cases these can be replaced. Several of the large panels of Philippine woods have become warped, due to the effects of this climate, while other specimens have checked and split from the same cause. With these exceptions there has been no material deterioration of the exhibit or study material assigned to this division.

4. *Distribution and exchange of specimens.*—At the request of the National Library Service, Bureau of Education, Interior Department, two small models illustrating the reclamation of arid land were made in the laboratory of the division of textiles for the special exhibition of the work of the Interior Department in May, 1919. These models were made to show the possibilities and value of cooperation between museums and libraries in interesting and educating the public in matters of local importance.

REPORT ON THE DIVISION OF MINERAL TECHNOLOGY,

By CHESTER G. GILBERT, *Curator.*

Following the declaration of war the customary work of the Division of Mineral Technology was laid aside, as stated in the last report, in favor of special activities having a more direct bearing on the national emergency. As the war progressed the call for specialization on the part of the technical staff of the division increased, till little or no opportunity was left for developing Museum exhibits. By way of exception to this rule, however, participation in the conservation work of the Fuel Administration resulted in developing plans for an exhibit covering the natural-gas industry. The plans took shape in a remarkably fine model which brings out to advantage the tragic story of how the country's tremendous resources of natural gas have been all but squandered. Another model, the gift of the Midwest Refining Co., which aids in the telling of an altogether similar story for the still greater and more important petroleum resources of the country, was also completed and placed on exhibition. Three other accessions of incidental importance, making but 5 in all with a total of 62 catalogue entries, complete the record of additions for the year. Taken in comparison with the 33 accessions and 287 catalogue entries of the preceding year, the showing is indeed meager, but in demonstrating a change of focus to the critical issues of the day this very meagerness is a source of satisfaction rather than regret.

For the first six months of the year, while the country was still actively involved on a basis of war, scarcely a day passed without bringing calls from some governmental agency for assistance with reference to one or another industrial issue up for consideration on an emergency rating. The questions ranged from determining a fair price for mica to determining the likelihood of a paralyzing petroleum shortage, and the work of preparing their answers ranged as variously from minutes to months. As the year advanced, however, two absorbing lines of special investigation developed to such a degree that during the latter half of the year they have largely engrossed the attention of the staff of the division. Their general nature may be gathered from the titles under which the results were issued. One, A Report on the Political and Commercial Control of the Nitrogen Resources of the World,[1] represents an effort to unravel the complexities of the nitrogen situation left behind in the passing of the war. The other, The Energy Resources, a Field for Reconstruction, coordinates and summarizes the work of several years.

[1] This paper, prepared primarily for the information of officials of the Government, was issued to such only in a limited mimeograph edition, but it will later appear in print.

The natural gas exhibit already referred to as the most important accession of the year embodies a new principle in model construction. Heretofore the division's industrial models have been built to a uniform scale, commonly a quarter inch to the foot. This leaves it impossible to bring out the working of small features, however important, whereas large but relatively inconsequential features, such as warehouses, loom up in altogether undue prominence. With a view to overcoming this objection, the natural gas model was constructed to a diminishing scale of perspective. Features deserving of prominence or important as to detail, such as the operation of well-drilling, stand in the foreground with the larger and less consequential generalities relegated to the middle distance or background, which latter passes off imperceptibly into a painted landscape carrying on back to the horizon.

This newer type of model not only does away with the shortcomings attendant on adherence to a uniform scale, but lends an appealing realistic effect. Its manifold advantages proved too great to be ignored in respect to other exhibits already installed, and, after meeting the emergency calls of wartime, the remaining energies were directed to revising the soda, sulphur, and gold exhibits. In particular, the large model designed with a view to depicting the occurrence and mining of gold was practically rebuilt as to topography and industrial layout.

As it now stands this reconstructed gold model represents a beautifully realistic expanse of mountain country cut by a river valley and reaching back as far as the eye can see. All manner of gold mining project is disclosed, from the lone miner with his pan in a mountain brook to a battery of giant rams demolishing the landscape and a great dredge combing the river bottom; from the "pardners" prospecting a little claim nestled away on a mountain side to a great fully equipped lode-mining project. Here, in short, the whole story of gold mining, a month's trip, an accumulation of information beyond the range of more than the merest few specialist engineers, awaits the visitor with a minute or two to spare in passing.

The lead exhibit, too, has been notably advanced as to interest and instructiveness in the course of the year by the addition of a wall chart and systematically grouped specimens, showing the development of lead products and their uses. Otherwise the industrial exhibits in mineral technology stand much as they were when reported on a year ago with only incidental changes here and there. No field work has been carried on; there has been little or no soliciting of materials, and no distributions or exchanges negotiated. In all particulars, so far as practicable, matters of more restrictively museum import were put aside.

Dr. Joseph E. Pogue, associate curator, was furloughed to the Fuel Administration on October 1 to assist in formulating a conservation program with reference to the petroleum resources, and since his return to the division staff in April has continued researches on the same subject. Mr. Carl W. Mitman, who was earlier on the division's staff and severed his connection in June, 1917, returned to the Museum early in the year and has been devoting his time to furthering the work on the metals, notably lead and gold. Mr. Joseph A. Doyle, of New York, though not regularly associated on the Museum's staff, contributed so largely of his services that his share in the year's activities deserves special mention in this connection. Much of the credit for what the division has been able to accomplish in its work on the energy resources belongs to Mr. Doyle. Likewise to Mr. Samuel S. Wyer, of Columbus, Ohio, belongs the credit for a large share of the results achieved for natural gas.

In conclusion, the work of the division during the past year of national emergency has been largely investigative with reference to special problems, notably the energy resources and the nitrogen situation. To a great extent the results have been contributed in the form of reports for governmental use and are not yet generally available at this writing. Completed researches have, however, resulted in the publication of three papers prepared jointly by the two curators, Mr. Chester G. Gilbert and Dr. Joseph E. Pogue, three papers by Doctor Pogue, a paper by Doctor Pogue assisted by Mr. Isador Lubin, and a paper by Mr. Samuel S. Wyer.

In "Power: Its significance and needs," Mr. Gilbert and Doctor Pogue develop the general nature of the power situation in this country, where tremendous emphasis is placed on the use of power resulting in a growing burden on transportation and suggest the character of remedial action demanded.

Another paper by the same authors, "Petroleum: A resource interpretation," is particularly timely, since of all our important resources petroleum is the most limited and involves the highest percentage of waste, scarcely one-tenth of the value of the resource being recovered under present circumstances, while the unmined supply available under current practice is only about 50 barrels to each person. This is an economic study of the resource and the industry engaged in its development, tracing the causes of waste to certain maladjustments in the economic situation and pointing out how these may be remedied by a constructive economic policy. The desirability of developing shale oil to replace petroleum and the advisability of using benzol and alcohol as substitutes for gasoline are considered, and the natural-gas industry is also treated.

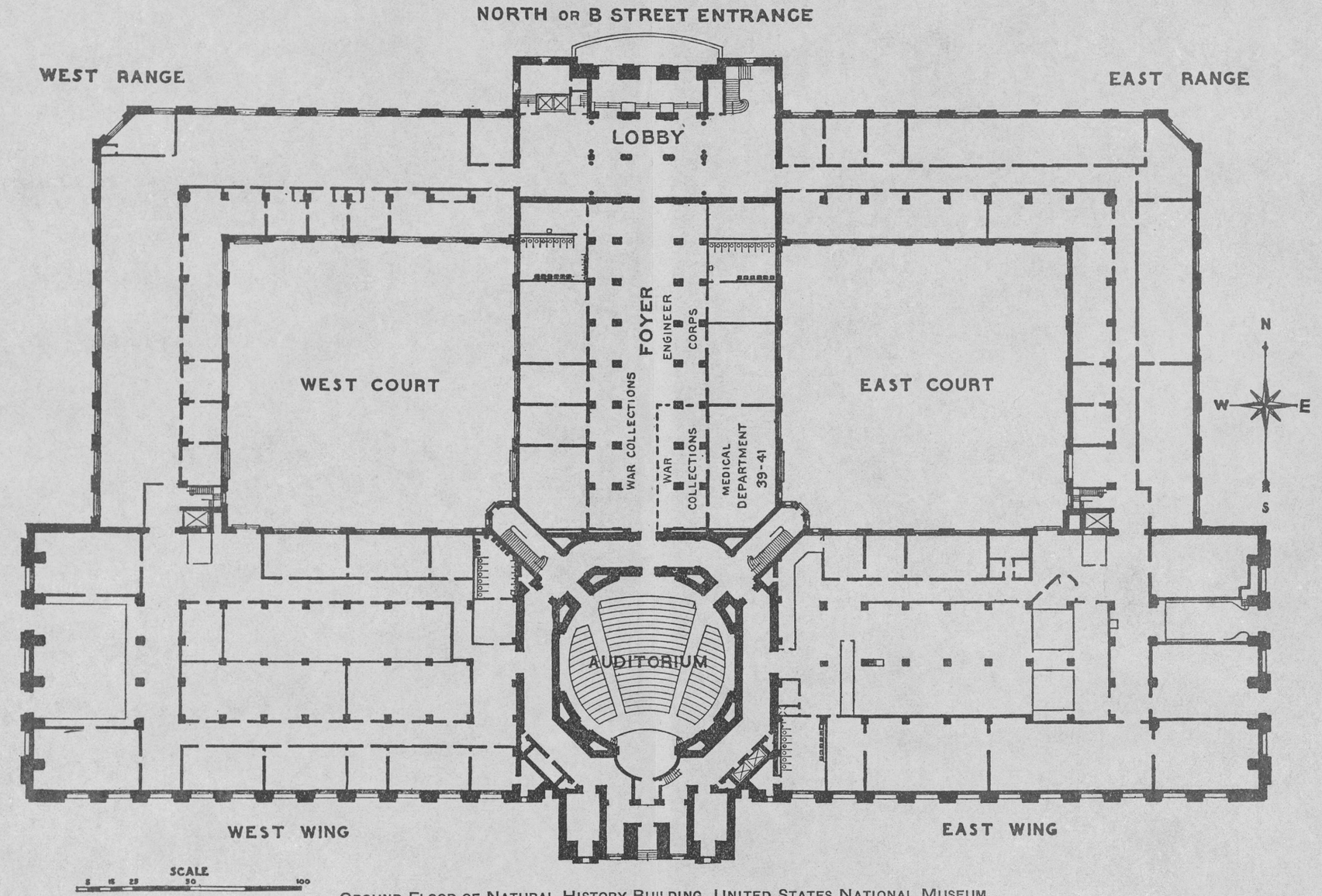
The third paper by the two curators, "The energy resources of the United States: A field for reconstruction," mentioned elsewhere

as coordinating and summarizing the work of several years, contains the substance of the two preceding papers and of an earlier one on coal published last year, together with an introduction and a conclusion that coordinate the details of the discussion and draw forth the main issues. It is concluded that the whole matter involves the threefold problem of fuel supply, power supply, and transportation, and that the entire field may be cleared by (1) providing a common-carrier system of electric transmission lines which will (*a*) lead to a balanced development of coal-power and water-power, and (*b*) serve as a coordinating influence in stimulating by-product recovery from coal in central power stations and especially in municipal public utility fuel plants; and by (2) applying a constructive economic policy and appropriate legislation to the conditions surrounding petroleum production, so as to bring the method of production into conformance with the geological occurrence of the resource. It is believed that these measures would affect economies offsetting, in large part, the cost of the war.

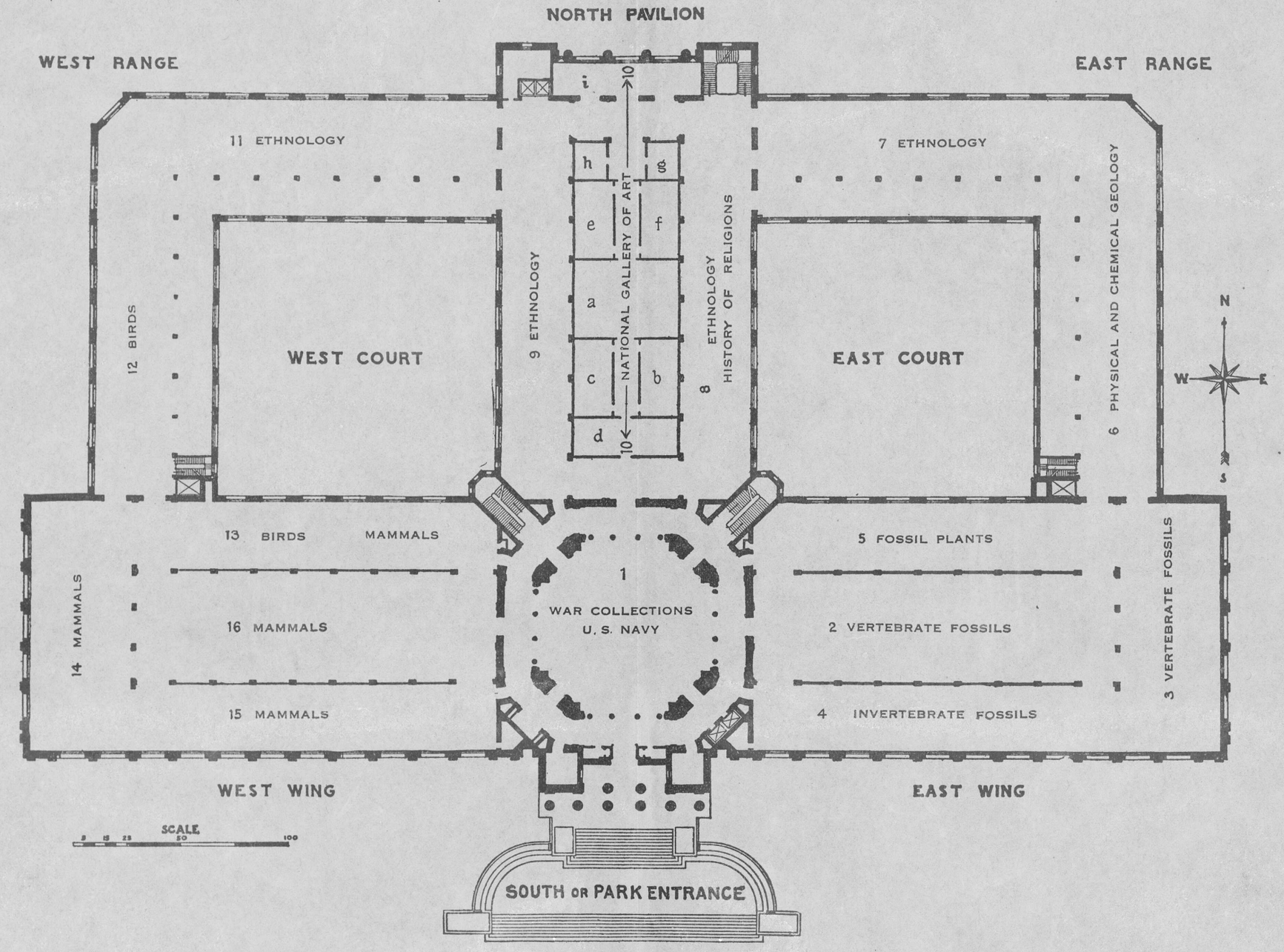
Mr. Wyer in "Natural gas: Its production, service, and conservations," aims to analyze the cause of waste of natural gas—the least appreciated, and, consequently, the most abused of the mineral resources in popular use—with a view to pointing the way to adequate remedial measures.

Assisted by Mr. Lubin, Doctor Pogue prepared a paper, published by the Fuel Administration and the War Industries Board, entitled "The prices of petroleum and its products during the war," in which is included an evaluation of the price factors peculiar to the exploitation of petroleum; a commercial history of the petroleum industry, and a detailed record and interpretation of the run of prices for petroleum and its products from 1913 to 1918.

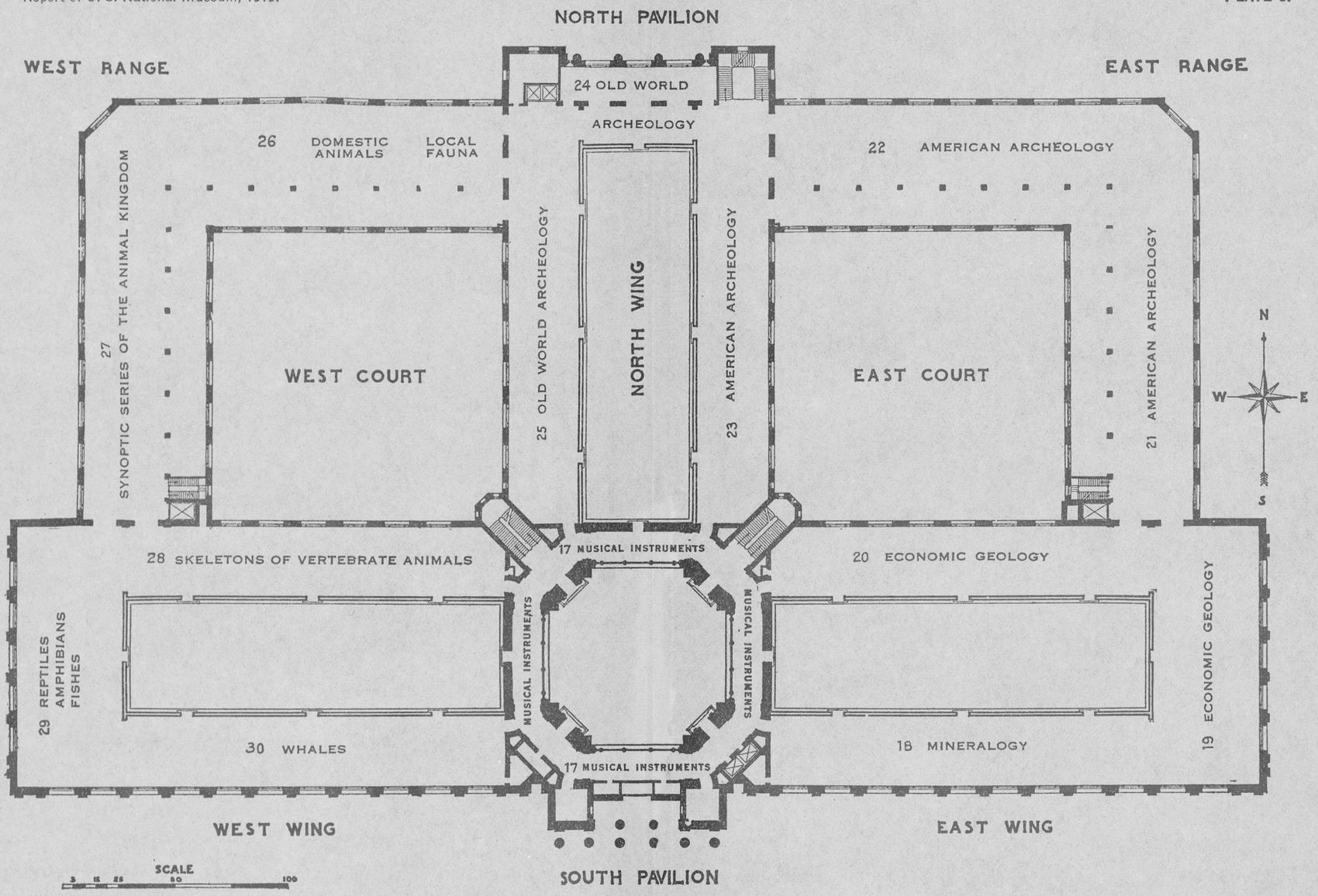
The three papers solely by Doctor Pogue were published through other than Governmental agencies. Doctor Pogue gives a detailed analysis of the motor-fuel problem in An interpretation of the engine fuel situation in the Journal of the Society of Automotive Engineers for April, concluding that the automotive engine must so adapt itself as to gain higher thermal efficiency and to use less volatile fuel. In "A review of the motor-fuel situation," appearing in Automotive Industries of June 12, 1919, he reviews the limitations and possibilities of the various fuel sources, discusses the interrelation of engine and fuel developments, and comments on the essentials of a research organization needed. In his third paper, "The engine-fuel problem," printed by the Society of Automotive Engineers, Doctor Pogue analyzes the motor-fuel problem and urges the formation of a motor-fuel research organization with the threefold function of economic analysis, laboratory research, and industrial coordination.



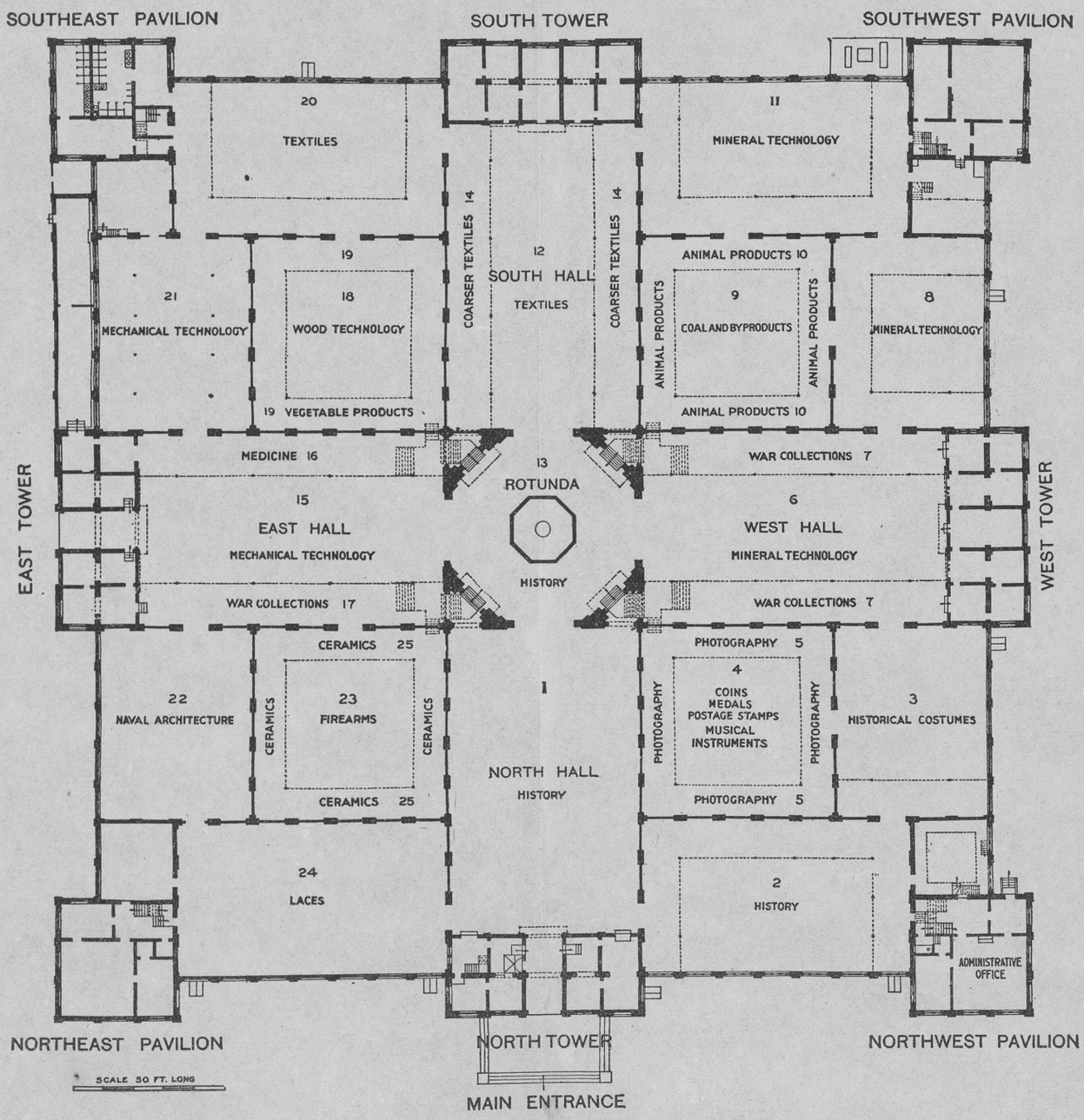
GROUND FLOOR OF NATURAL HISTORY BUILDING. UNITED STATES NATIONAL MUSEUM.



FIRST FLOOR OF NATURAL HISTORY BUILDING, UNITED STATES NATIONAL MUSEUM.



SECOND FLOOR OF NATURAL HISTORY BUILDING, UNITED STATES NATIONAL MUSEUM.



FLOOR AND GALLERY OF ARTS AND INDUSTRIES BUILDING, UNITED STATES NATIONAL MUSEUM.

THE MUSEUM STAFF.

[June 30, 1919.]

CHARLES D. WALCOTT, Secretary of the Smithsonian Institution, Keeper *ex officio*.

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

SCIENTIFIC STAFF.

DEPARTMENT OF ANTHROPOLOGY:

William H. Holmes, Head Curator.

Division of Ethnology: Walter Hough, Curator; J. W. Fewkes, Collaborator; Arthur P. Rice, Collaborator.

Division of American Archeology: Neil M. Judd, Curator.

Division of Old Word Archeology: I. M. Casanowicz, Assistant Curator.

Division of Physical Anthropology: Aleš Hrdlička, Curator.

Division of Mechanical Technology: R. G. Paine, Aid.

Division of Graphic Arts: Paul Brockett, Custodian; Ruel P. Tolman, Aid.

Section of Photography: Loring W. Beeson, Custodian.

Division of History: T. T. Belote, Curator; Marie V. Schiffer, Aid; Joseph B. Leavy, Philatelist.

Associates in Historic Archeology: Paul Haupt, Cyrus Adler.

Collaborator in Archeology: Philip A. Means.

DEPARTMENT OF BIOLOGY:

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Division of Mammals: Gerrit S. Miller, jr., Curator.

Division of Birds: Robert Ridgway, Curator; Charles W. Richmond, Associate Curator; J. H. Riley, Aid; Edward J. Brown, Collaborator.

Section of Birds' Eggs: Bradshaw H. Swales, Custodian.

Division of Reptiles and Batrachians: Leonhard Stejneger, Curator; F. N. Blanchard, Aid.

Division of Fishes: Barton A. Bean, Assistant Curator.

Division of Insects: L. O. Howard, Honorary Curator; J. M. Aldrich, Associate Curator; A. H. Pottinger, Aid; B. Preston Clark, Collaborator.

Section of Hymenoptera: J. C. Crawford, Custodian; W. M. Mann, Assistant Custodian.

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

Section of Diptera: J. M. Aldrich, in charge; Charles T. Greene, Assistant Custodian.

Section of Muscoid Diptera: C. H. T. Townsend, Custodian.

Section of Coleoptera: E. A. Schwarz, Custodian.

Section of Lepidoptera: Harrison G. Dyar, Custodian; William Schaus, Assistant Custodian.

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

Section of Hemiptera: Edmund H. Gibson, Custodian.

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

Division of Marine Invertebrates: Paul Bartsch, Curator; William H. Dall, Honorary Curator of Mollusks; Waldo L. Schmitt, Assistant Curator; Austin H. Clark, Assistant Curator; William B. Marshall, Assistant Curator; C. R. Shoemaker, Aid; Pearl L. Boone, Aid; H. K. Harring, Custodian of the Rotatoria; Harriet Richardson Searle, Collaborator; Mary Breen, Collaborator.

DEPARTMENT OF BIOLOGY—Continued.

Division of Marine Invertebrates—Continued.

Section of Helminthological Collections: C. W. Stiles, Custodian; B. H. Ransom, Assistant Custodian.

Division of Plants (*National Herbarium*): Frederick V. Coville, Honorary Curator; J. N. Rose, Associate Curator; W. R. Maxon, Associate Curator; P. C. Standley, Assistant Curator; Emery C. Leonard, Aid.

Section of Grasses: Albert H. Hitchcock, Custodian.

Section of Cryptogamic Collections: O. F. Cook, Custodian.

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

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

Section of Diatoms: Albert Mann, Custodian.

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

Associate in Botany: John Donnell Smith.

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George P. Merrill, Head Curator.

Division of Physical and Chemical Geology (Systematic and Applied): George P. Merrill, Curator; E. V. Shannon, Assistant Curator.

Division of Mineralogy and Petrology: F. W. Clarke, Honorary Curator; W. F. Foshag, Assistant Curator; W. T. Schaller, Custodian of Gems and Precious Stones; Frank L. Hess, Custodian of Rare Metals and Rare Earths.

Division of Paleontology: R. S. Bassler, Curator; Charles E. Resser, Assistant Curator.

Section of Invertebrate Paleontology: T. W. Stanton, Custodian of Mesozoic Collection; William H. Dall, Associate Curator of Cenozoic Collection; T. Wayland Vaughan, Custodian of Madreporarian Corals.

Section of Vertebrate Paleontology: Charles W. Gilmore, Associate Curator; James W. Gidley, Assistant Curator of Fossil Mammals.

Section of Paleobotany: David White, Associate Curator; F. H. Knowlton, Custodian of Mesozoic Plants; Lucile Simpson, Aid.

Associates in Paleontology: Frank Springer, E. O. Ulrich.

Associate in Petrology: Joseph P. Iddings.

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William deC. Ravenel, Director.

Division of Textiles: Frederick L. Lewton, Curator.

Section of Wood Technology: William M. N. Watkins, Assistant Curator.

Division of Medicine: Charles Whitebread, Assistant Curator.

Associate in Medicine: James M. Flint, United States Navy (retired).

Division of Mineral Technology: Chester G. Gilbert, Curator; Joseph E. Pogue, Curator; C. W. Mitman, Assistant Curator.

NATIONAL GALLERY OF ART:

William H. Holmes, Curator.

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Chief of Correspondence and Documents, H. S. Bryant.

Disbursing Agent, W. I. Adams.

Superintendent of Buildings and Labor, J. S. Goldsmith.

Editor, Marcus Benjamin.

Assistant Librarian, N. P. Scudder.

Photographer, Loring W. Beeson.

Registrar, S. C. Brown.

Property Clerk, W. A. Knowles.

Engineer, C. R. Denmark.

LIST OF ACCESSIONS TO THE COLLECTIONS DURING THE FISCAL YEAR 1918–19.

[Except when otherwise indicated, the specimens were presented or were transferred by bureaus of the Government in accordance with law.]

ABBOTT, THOMAS. (See under Britannia Mining Company, Havana, Cuba.)

ABBOTT, Dr. WILLIAM L., Philadelphia, Pa.: 359 ethnological specimens, 1 specimen of banana fiber, about 425 mammals, 19 reptiles, 5 marine invertebrates, 12 insects, and 929 birds collected in the Celebes by Mr. H. C. Raven (62904); 84 birds, 10 eggs, 8 reptiles, 500+ specimens, 25 species of land and fresh-water shells, 70 insects, 5 specimens of plants, 37 bats, and a miscellaneous lot of bones and 4 archeological specimens, all from Santo Domingo (63531).

ABRAMS, Prof. LE ROY. (See under Leland Stanford Junior University.)

ADAMS, Miss ELIZABETH OGDEN, South Lincoln, Mass.: Water-color painting of the Rhone Valley by John M. W. Turner (63739, loan).

ADAMS, J. B., Stuart, Fla.: Skin of great horned owl, *Bubo virginianus*, from Florida (63642).

ADRIAN, Dr. H., Tampico, Tamps, Mexico (through Dr. J. Walter Fewkes): Pillar stone found at Cerro Cebadilla, State of Vera Cruz, Mexico (63523).

AGRICULTURE, DEPARTMENT OF:

Bureau of Animal Industry: A series of 29 specimens illustrating the manufacture of casein glue for use in waterproofing aircraft (63216).

Bureau of Biological Survey: 3 specimens of cacti, *Mamillaria*, from North Dakota (62598); 10 specimens, 2 species, of mollusks and 3 specimens, 2 species, of crustaceans from various localities (62661); 112 specimens of plants from Florida, collected by Mr. A. H. Howell and Mr. C. H. M. Barrett (62664); specimen of eel, *Ophichthus retropinnis* (62705); 129 specimens of plants from Utah, collected by Mr. Alex. Wetmore (62722); 2 specimens of plants collected in New Mexico by Dr. A. K. Fisher (62946); 30 specimens of plants, chiefly from North Carolina (62959); collection of alcoholic mammals, birds, reptiles, amphibians, and fishes (63010); 124 birds (80 alcoholics and 44 skeletons) from the western United States (63181); 23 specimens of birds (alcoholics and skeletons) (63428); 445 specimens, 96 species, of coleoptera; 675 specimens, 17 species, of hymenoptera; 50 specimens, 10 species, of diptera, and 3 vials of collembola (1 type) (63617).

Bureau of Chemistry: Samples of sugar substitutes and dehydrated foods (63215).

Bureau of Entomology: 10 specimens of mollusks, *Helix* (*Euparypha*) *pisana*, collected at La Jolla, Calif. (63140); type and 24 paratypes of coleoptera, *Attica woodsi* (63429); mollusk, *Zonitoides minusculus*, taken by N. Perrine at Arlington Farm, Virginia (63582); 3 land shells collected on citrus trees near

AGRICULTURE, DEPARTMENT OF—Contd.
Downey, Calif., by R. S. Woglum (63579); 2 isopod crustaceans, *Armadillidium vulgare*, from boxwood imported from Naardan, Holland, and located at Gude Nursery in Anacostia, D. C. (63747).

Office of Exhibits: Sample ears of various types of sugar corn, and heads of two types of grain sorghums (63213).

Federal Horticultural Board: 21 specimens, 2 species, of land shells collected at San Diego, Calif. (63210).

Office of Foreign Seed and Plant Introduction: 10 photographs illustrating the manufacture of soy bean products (63214). (See under O. Gaylord Marsh.)

Bureau of Plant Industry: 31 specimens of plants from California (62596, 62685, 63149, 63152); 108 specimens of plants (62602); 2 specimens of plants from South Carolina (63631, 62644); 799 specimens of grasses (62655, 62921, 63183); 62 specimens of grasses from Jamaica (63562); 377 specimens of Hawaiian plants collected by Mr. A. S. Hitchcock (62688, 62695, 62923, 63176); 4 specimens of plants collected in Colorado by Mr. Hitchcock (62790); 15 specimens of plants from Maryland, collected by Mr. Frederick V. Coville (63112, 63816); part of type specimen of *Juncus tracyi* from Utah (62871); 2 specimens of plants from the vicinity of Washington, D. C. (62896); 3 specimens of plants from Florida (62949, 63477, 63527); specimen of fern, *Cheilanthes*, from Arizona (62955); 3 specimens of fern from Algeria (62996); 25 specimens of plants collected by Mr. R. M. Harper (63114); 2 specimens of plants collected in Arizona by Mr. E. O. Wooton (63178); specimens of seeds, nuts, fruits, and sirups, models of potatoes and apples, and photographs of orchards and field crops (63212); 2 specimens of plants from Delaware (63390); 5 specimens of ferns from Florida, collected by Messrs. J. B. Norton and R. M. Jones (63469); specimen of plant from Jamaica (63450); 2 specimens of plants from Texas (63528, 63679); through Mr. G. P. Van Eseltine, 2 specimens of *Selaginella* collected in California by Mr. H. M. Hall (63559); specimen of plant from Honduras, and 2 specimens of plants from Guatemala (63595, 63673); specimen of plant from Mississippi (63662); 2 specimens of plants from Mexico, collected by Mr. Wilson Popenoe (63686).

AGRICULTURE, DEPARTMENT OF—Contd.

AINSLIE, GEORGE G., Knoxville, Tenn.: 11 mollusks, *Limax maximus*, from Knoxville, Tenn. (62727).

ALLEN, Mr. ANDREW HUSSEY. (See under Mrs. Abby Knight McLane.)

ALLEN, GEORGE R., Chosen Mineral Co., Keijyo, Korea (through Mr. Frank L. Hess): Specimen of scheelite, largely showing crystal form, and of wolframite, from Korea (63470).

AMERICAN AMBASSADOR TO FRANCE. (See under France, Government of, French ministry of foreign affairs.)

AMERICAN AMBASSADOR TO ITALY. (See under Italy, Government of, the ministry for foreign affairs.)

AMERICAN COMMITTEE FOR ARMENIAN AND SYRIAN RELIEF, New York City: 5 posters (63360).

AMERICAN EMBASSY AT LONDON, ENGLAND. (See under Great Britain, Government of.)

AMERICAN JEWISH RELIEF FUND, Washington, D. C.: Poster, "Jewish War Sufferers," by Leo Mayer (63361).

AMERICAN LIBRARY ASSOCIATION, Library of Congress, Washington, D. C.: 3 posters (63373).

AMERICAN MUSEUM OF NATURAL HISTORY, New York City (through Dr. W. T. Schaller): Casts of 4 platinum nuggets brought from Russia by Mr. F. W. Draper in 1917 (62682); complete set of casts of the skeleton of a fossil bird, *Diatryma* (63203); about 50 specimens of exotic Diptera, most of which are paratypes (63392); casts of limb bones of 3 specimens of the fossil primate *Notharctus* (63417); 4 paratypes as follows: turtle, *Clemmys nuchalis*; salamander, *Plethodon yonahlossee*; 2 lizards, *Eremias nitida garambensis*, and *Chamaeleon ituriensis* (63622).

AMERICAN NUMISMATIC SOCIETY, New York City: Cuban Army insignia (96 specimens) (63410, loan). (See also under J. Sanford Saltus.)

AMERICAN RED CROSS, THE, Washington, D. C.: 145 posters (63368).

AMERICAN RED STAR ANIMAL RELIEF, National Headquarters Military Department, Albany, N. Y.: 5 posters (63353).

AMERICAN SMELTING AND REFINING Co., New York City (through Tacoma Smelting Co., Tacoma, Wash.): Specimen of metallic arsenic (63552).

AMES, OAKES, North Easton, Mass.: 187 specimens of orchids from the Philippine Islands (62652, 62686, exchange).

ANDERSON, E. M., Regina, Saskatchewan, Canada: About 2,000 insects (the private collection of the donor) (62927).

ANDERSON, J. M. (See under Britannia Mining Co.)

ANDREWS, W. S., Schenectady, N. Y.: An old style portable Howell voltmeter (63413).

ANECT, Brother, St. Paul's College, Covington, La.: 61 specimens of plants from Louisiana (63652).

APOLLINAIRE-MARIE, Brother, Bogota, Colombia: 169 specimens of plants from Colombia, collected by Brother Ariste-Joseph (63599, 62811); small collection of coleoptera (63046). (See also under Bogota, Colombia, Instituto de la Salle.)

ARMOUR & Co., Chicago, Ill.: 3 tubes of plain sterile surgical catgut ligatures, and 3 tubes of chromic sterile surgical catgut ligatures (63500).

ARMSTRONG, E. J., Erie, Pa.: 100 specimens of New York Devonian bryozoans (63009, exchange).

ARSÈNE, Brother G., Philadelphia, Pa.: Several thousand specimens of plants, chiefly from Mexico (62601); 615 specimens of plants from Maryland and New Jersey (62832).

ARTHUR, Dr. J. C., Purdue University, Lafayette, Ind.: 4 specimens of plants (63535).

ASHBY, EDWIN, Blackwood, South Australia: About 2,000 specimens, 89 lots, of mollusks, Chitonidae, from Australia (62706); 13 bird skins from Australia (63739, exchange).

ASHERMAN, GEORGE, Cincinnati, Ohio: 50 specimens of Upper Ordovician trilobites, sponges, and crinoids (63050).

ASHEVILLE MICA Co., Asheville, N. C.: 5 specimens grade A mica (63772).

ASHWORTH, W. W., Hopewell, Va.: Bronze military belt buckle of the period of the Civil War (63224).

AUGUSTE, Mrs. FLORENCE S., Richmond, Va.: Medicine scales of the colonial period in case, and doll and doll's bed of the early part of the nineteenth century (63379).

AUSTRALIAN MUSEUM, THE. (See under Sydney, New South Wales, Australia.)

BAIN, Dr. and Mrs. H. FOSTER, Washington, D. C.: A collection of Chinese, Japanese, and other art objects (63571, loan).

BAKER, Prof. C. F., Los Banos, P. I.: About 1,500 specimens of lepidoptera from the Philippine Islands (63478).

BAKER, Dr. CHARLES LAWRENCE, Berkeley, Calif. (through Dr. O. P. Hay): Molar tooth of a mammoth, *Elephas columbi*, from Bexar County, Tex. (62925).

BAKER, Dr. FRED., Point Loma, Calif.: 18 specimens, 5 species, of marine shells from Japan and Siam (63654).

BAKER, Dr. F. H., Richmond, Victoria, Australia: 40 specimens of Australian insects (63555, exchange).

BAKER, JOHN A., Washington, D. C.: Golden eagle, *Aquila chrysaëtos*, from near Upperville, Va. (63329).

BALDWIN, Maj. B. T., S. C., U. S. Army, Takoma Park, D. C.: Incomplete skeleton from an old Indian burying place at Northbrook, on west branch of the Brandywine, Chester County, Pa., collected by the donor (63563).

BALL, C. R., Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.: 9 specimens of willows, chiefly from the western United States (63015).

BANCROFT, HOWLAND, Denver, Colo. (through Mr. F. L. Hess): 5 specimens of tin ore and 2 of bismuth from Bolivia (62825).

BARBER, H. S., Bureau of Entomology, U. S. Department of Agriculture, Washington, D. C.: Snake, *Elaps* (63159). (See also under Dr. E. A. Schwarz.)

BARBER, MANLY D., Knoxville, Tenn.: 150 specimens of fossils from the Holston (Ordovician) marble of Tennessee (63029, exchange); 43 specimens, 7 species, of mollusks from France and the United States (63728).

BARBOUR, Dr. THOMAS, Museum of Comparative Zoology, Cambridge, Mass.: Specimen of lizard, *Sceloporus woodi* (63512).

BARRETT, EDWARD. (See under Indiana, Department of Geology.)

BARRETT, H. L., Silver Spring, Md.: Young snake from Maryland (62768).

BARTSCH, HENRY, Washington, D. C.: A salamander from Maryland (62761).

BATTLE CREEK, MICH., MUSEUM OF THE PUBLIC SCHOOLS: 2 exhibition slabs from the Lower Carboniferous rocks of Michigan (63144, exchange).

BAUTHELLS, Mrs. THEODOR WILLIAM, Washington, D.C.: An album of flowers of the Holy Land, bound in covers of olive wood (63715).

BEACH, FROMAN A. (See under J. W. Mackelden.)

BEECH-NUT PACKING CO., Canajoharie, N.Y. (through H. C. Thompson, U.S. Department of Agriculture): Samples of peanut butter put up in three sizes of jars (62774).

BEMENT, C. S., Philadelphia, Pa.: An etched slab of San Angelo, Tex., meteoric iron weighing 1,917 grams, and one of Staunton, Va., weighing 1,162 grams (63261).

BENEDICT, J. E., jr., Woodside, Md.: Shrew (alcoholic) (62676); 11 salamanders and 3 lizards (63161); 6 specimens of fishes comprising 4 dace, *Leuciscus* sp., and 2 black-nosed dace, *Rhinichthys atronasus*, collected near Occoquan, Virginia, June 14, 1919 (63732).

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

BENJAMIN, Dr. MARCUS, U. S. National Museum: Bound volume containing 2 sets of chromolithographic progressive proofs, showing the process of printing the illustrations for Dr. George F. Kunz's "Gems and Precious Stones," Louis Prang, lithographer (101 specimens) (62885).

BERRY, Mrs. GRACE, and Mrs. CHARLES W. RICHARDSON, Washington, D. C. (through Mrs. Julian-James): Shawl of Persian design printed on cashmere (63255, loan).

BERRY, S. S., Redlands, Calif.: 2 crab claws from the Pleistocene, Point Loma, Calif. (62982); 2 specimens

BERRY, S. S.—Continued.
of mollusks, representing the species *Ischnochiton* (*Lepidozona*) *asthenes* and *L. heathi*, paratypes, from California (63661).

BERWICK, F. C., Washington, D. C.: Wooden statuette of a saint holding the Christ child, found in a deserted shrine near Porto Velho, Brazil (63983, loan).

BETHEL, ELLSWORTH, Denver, Colo.: 32 specimens of plants from New Mexico and Colorado (62746, 62818, 63111).

BILLINGTON, C. (See under Chandler, estate of B. F.)

BLAKE, S. F., care U. S. Department of Agriculture, Washington, D. C.: Specimen of plant, *Lycopodium*, from New Hampshire (62862).

BLANCHARD, F. N., U. S. National Museum: Snake, *Lampropeltis*, from Emmett County, Mich. (63421); 2 snakes and 2 salamanders (63451); 4 snakes, 5 salamanders, 1 lizard, and 9 frogs from Maryland (63625, 63627, 63650); 15 snakes, 8 lizards, and 4 turtles from Virginia (63623, 63624, 63626, 63690).

BLANCHARD, R. W., Washington, D. C.: Water snake from Great Falls, Md. (63618).

BLEECKER, WARREN, president, Tungsten Products Co., Boulder, Colo. (through Mr. F. L. Hess): Specimen of ferrotungsten (62650).

BLUMENTHAL, SIDNEY & Co. (INC.), New York City: 31 samples of pile fabrics for decorative upholstery and dress wear, and a Mohju rug (62834).

BOERICKE, Dr. WILLIAM, San Francisco, Calif. (through Dr. W. A. Dewey, Ann Arbor, Mich.): Copy of Boericke's "Compend of the Principles of Homeopathy" (63482).

BOERICKE AND TAFEL, Philadelphia, Pa. (through Dr. W. A. Dewey, Ann Arbor, Mich.): 123 specimens of homeopathic medicinal preparations,

BOERICKE AND TAFEL—Continued.
3 colored plates of medicinal plants with descriptive text, and 1 small model of the Hahnemann monument in Washington (63405).

BOGOTÁ, COLOMBIA, INSTITUTO DE LA SALLE: 84 specimens of plants from Colombia; also anthropological material (63235, 63682).

BONAPARTE, Prince ROLAND, Paris, France (through H. Heuvrard): 2 photographs of type specimen of a fern, *Pteris latiuscula* (63289, exchange).

BOONE, Miss PEARL L., U. S. National Museum: Specimen of snake from Virginia (62626); specimen of plant from Maryland (63680).

BORDAGES, Mons. L., Paris, France: Collection of stone implements, cast of a Greco-Roman cameo, a piece of Gallo-Roman mosaic, and a clay bead (63532, exchange).

BOUTWELL, J. M., Grand Canyon, Ariz. (through Dr. Charles D. Walcott): Cambrian brachiopoda from the Grand Canyon, Arizona (62883).

BØVING, Dr. A. G. (See under J. P. Kryger.)

BOYER OIL Co., New York City (through Dr. J. H. Shrader): 6 samples of oil seeds (62783).

BRACKETT, Mrs. JULIA S. McG. (See under Mrs. E. N. McGowan.)

BRAMLET, Lieut. HUBERT B., Chemical Warfare Service, U. S. Army, Washington, D. C.: Hat cord of the type worn by the enlisted men of the U. S. Chemical Warfare Service, 1918 (63093).

BRIGHAM, Miss G. R., Smithsonian Institution: Crested English canary (63275).

BRIND, W. L., New York City: Specimen of a goby, *Gobius pleurostigma*, from Soerabaia, Java (62743).

BRITANNIA MINING Co., Havana, Cuba (through Thomas Abbott and J. M. Anderson): Sample of Cuban Malva blanca fiber, *Urena lobata* (63008).

BRITISH MUSEUM (NATURAL HISTORY). (See under London, England.)

BRITTON, Dr. N. L. (See under New York Botanical Garden.)

BROADWAY, W. E., Port of Spain, Trinidad, British West Indies: Specimen of fern, *Pteris grandifolia* from Trinidad (62903); 3 specimens of ferns and 3 specimens of plants from Trinidad (63414, 63619, 63651); pocket herbarium booklet of Tropical American ferns (63072).

BROCKETT, PAUL, Smithsonian Institution: 1 four-color relief reproduction and 1 chromolithographic reproduction (63364); collection of four-color halftones, collotype and chromolithograph (14 specimens) (63759).

BROOKE, Maj. Gen. John R., U. S. Army (retired), Washington, D. C.; Jeweled sword presented to the donor by American and Cuban friends in 1899, and saddle, saddle cloths, chapeau, uniform belts, epaulets, and pieces of military insignia owned by him (40 specimens) (63543); a miscellaneous collection of historical photographs (54 specimens); historical books, a bolo, a dagger, and a copper replacement of a boulder (63760).

BROWN, A. J., Sulphur City, Ark.: 100 specimens, 17 species, of land shells from Sulphur City, Ark (63147).

BROWN, C. G. (See under William H. Gray.)

BROWN, Edward J., Los Angeles, Calif.: 137 bird skins and 4 bird skeletons from southern California (63018).

BROWN, STEPHEN C., U. S. National Museum: Sponge, 24 corals, 14 echinoderms, 1 barnacle, 350 mollusks, 1 sawfish blade, 60 shark teeth, turtle shell, 1 arrow, 55 arrowheads, 4 stone hatchet heads, iron lamp (1835), 60 minerals and rocks, 12 fossils and 15 plants (63229); a copy of "The Conchologist's Text-Book," ninth edition, by William Macgillivray, Esq. (63230); early American newspapers, namely, Ulster County Gazette, vol. 2, No. 88, January 4, 1800 (copy); the Maryland Journal and the Baltimore Advertiser, vol. 1, No. 1, Aug. 20, 1773 (copy), and the Daily National Intelligencer, vol. 19, No. 1, 5807, September 16, 1831 (63465).

BROWN, STEPHEN C.—Continued.

BRUCE, Mr., Rampart, Alaska (through Hon. Charles A. Sulzer): Skin and sternum of a whistling swan, *Olor columbianus*, from Alaska (62725)

BRYAN, B., Washington, D. C. (through Mr. F. L. Hess): Specimen of wolframite from Bolivia (62740).

BRYAN, Maj. HARRY S., Phoenix, Ariz.: A cut gem manufactured from uranium oxides (63505).

BRYANT, L. E., Virginia Mining Co., Roberta, Tenn.: 190 grams of meteoric stone which fell at Cumberland Falls, Whitely County, Ky., on April 9, 1919 (63605).

BUCKINGHAM, Mrs. B. H., and Miss ISABELLE C. FREEMAN, Washington, D. C.: Collection of lacquers, porcelains and glassware, ethnological, archeological, and historical objects, also a glass sponge (63783).

BUENOS AIRES, ARGENTINA, INSTITUTO DE BOTÁNICA Y FARMACOLOGIA: 286 specimens of plants from Argentina (63583, exchange).

BULLOCK, D. S., University of Wisconsin, College of Agriculture, Madison, Wis.: 25 specimens of fishes collected in Chile (63534).

BURNHAM, STEWART H., Hudson Falls, N. Y.: 12 specimens of plants from New York (63293).

BURRELL, G. S. (See under Navy Department.)

BUSCK, Dr. AUGUST, U. S. Department of Agriculture, Washington, D. C.: 2 turtles from C. Lerdo, Durango, Mexico (63327).

BUSH, B. F., Courtney, Mo.: 264 specimens of plants from Missouri (63079,

BUSH, B. F.—Continued.
63236) ; 2 specimens of plants and a specimen of fern, *Cheilanthes eatoni*, from Oklahoma (62926, 63069).

BUSHNELL, D. I., Jr., Washington, D. C.: A necklace and wristlet of wampum (about 125 years old) from Oldtown, Me. (62711, exchange) ; blowgun and dart, Choctaw Indians, Louisiana, and a pocket sundial and compass, Nuremberg, Germany (62828).

CALDWELL, Col. BERT M., M. C. N. A., Office of the Surgeon General, War Department, Washington, D. C.: A stone metate or mealing plate (62964).

CALHOUN, Dr. JOHN C., Pittsburgh, Pa. (through Dr. W. A. Dewey, Ann Arbor, Mich.) : Millspaugh's Medicinal Plants in two volumes (63422).

CALIFORNIA ACADEMY OF SCIENCES, San Francisco, Calif. (through Miss Alice Eastwood) : Specimen of plant from California (62795) ; 1631 specimens of plants (63272, exchange).

CALIFORNIA ASSOCIATED RAISIN CO., Fresno, Calif. (through Dr. J. H. Shrader, U. S. Department of Agriculture) : 6 samples of raisin seed products (62772).

CALLOW, ROBERT RICHARD, Washington, D. C.: The head of a mollusk, *Loligo pealei*, taken off the bar, Bar Harbor, Me. (62978).

CANADA, BIOLOGICAL BOARD OF, Nanaimo, B. C. (through Dr. C. McLean Fraser) : 5 specimens, 2 species, of Pinnotherid crabs from Mudge Island and Nanoose Bay (62939).

CANADA, GEOLOGICAL SURVEY OF, Ottawa, Ontario, Canada (through James M. Macoun) : 5 specimens of ferns from Arctic Canada (63341) ; 17 specimens of Canadian ferns collected in Jasper Park (63468, exchange).

(See also under Dominion.)

CANDLER, Hon. E. S. (See under Mrs. Anne Jonas McWilliams.)

CARNEGIE MUSEUM, Pittsburgh, Pa. (through Dr. O. E. Jennings) : 143 specimens of plants, chiefly from the Isle of Pines, Cuba, and 115 specimens of plants from Ontario (62997, 63073, exchange) ; a copy of the plate showing restoration of the fossil reptile *Diplodocus carnegii* (63581).

CARTER, R. E., Naskeag, Me.: Small collection of miscellaneous skulls and bones from Maine, and an arrow point of black slate (63081).

CASE RESEARCH LABORATORY, Auburn, N. Y.: Dyscrasite box and receiving tube, of the type used in the U. S. Army, 1917–1918 (63751).

CASE, T. W., Auburn, N. Y. (through Dr. G. Winchester, Wyoming, Ill.) : 4 audions showing Western Electric Co. construction ; 8-inch receiving dyscrasite mirror, 4 dyscrasite tubes, and holder for dyscrasite tube, of the type used during the European War, 1914–1918 (63700).

CAULDWELL, Mrs. ELEANOR SHERMAN THACKARA. (See under Miss Mary Elizabeth Thackara.)

CAVANAUGH, Col. J. B., U. S. Army. (See under James F. McIndoe.)

CAYMAN ISLANDS, GOVERNMENT OF THE (through the Colonial Secretary's Office, Kingston, Jamaica, and the Secretary of State for the Colonies at London, England) : Postage stamps issued by the Cayman Islands during the European War, 1914–1918 ; 3 London printings (12 specimens) (63462).

CEARA, BRAZIL, MUSEU ROCHA : 60 specimens, 12 species, of mollusks from Brazil (63257).

CHACE, E. P., Los Angeles, Calif.: Mollusk, type of a new species, from San Pedro, Calif. (62869) ; 2 bryozoans, 15 annelids, 10 ophiurans, 312+crustaceans, 10 pycnogonids, 25+insects, and 2 nudibranch mollusks from the coast of California (63299) ; 7 sponges, 6 worms, 12 echinoderms, 131 crustaceans, 3 mollusks, and 12 insects from California (63382, exchange).

CHAMBERLAIN, A. M., La Grulla, Tex.: Nest of an oriole from Texas (63094).

CHAMBERLAIN, E. B., New York City: 8 specimens of plants from the vicinity of Washington, D. C. (63420).

CHAMBERLAIN FUND, FRANCES LEA, Smithsonian Institution: 1 black opal (16.65 carats) and 1 kunzite (7.15 carats) (63037); 1 nephrite pendant composed of 3 carved links, and 1 chalcedonic pendant, cut cameo style (63038); 1 cut gem of zircon (51.30 carats) (63146); 2 cut gems of turquoise and 2 of benitoite (63268); 5 cut opals from Australia (63575); 129 specimens, 79 lots, of land shells from various localities, purchased from Commandant E. Caziot, director, Museum of Nice, Nice, Alpes Maritimes, France (63600); 32 fresh water pearls, from near Knoxville, Tenn. (63734); 30 cut gems, including amazonstone, thomsonite, unakite, satin spar, moss agate, lapis lazuli, and beryl (63735).

CHAMBERLIN, T. S., Chicago, Ill.: Printed and written papers bearing on the discovery of chloroform by Dr. Samuel Guthrie (63319).

CHANDLER, ESTATE OF B. F. (through C. Billington, executor, Detroit, Mich.): Private herbarium of B. F. Chandler, consisting of about 500 ferns and flowering plants of Michigan (63530).

CHASE, Mrs. AGNES, U. S. Department of Agriculture, Washington, D. C.: Specimen of plant from Maryland (62913).

CHATER, Sir PAUL, Hongkong, China (through Ralph W. Weymouth, New York City): A specimen of wolframite from the New Territory, Hongkong, China (63324).

CHEMICAL CO. OF AMERICA, THE, New York City: A sample each of acetic anhydride, acetic acid (glacial), raw cotton and cellulose acetate, manufactured at Springfield, N. J. (63189).

CLAPP, W. F., Cambridge, Mass.: 16 specimens, 4 species, of Philippine mollusks (62735); 2 specimens of a land shell, *Camaena avus*, from the Philippine Islands (62753).

CLARK, AUSTIN H., U. S. National Museum: Young house sparrow, *Passer domesticus*, showing partial albinism (62651); photographic copy of the painting in the Bristol Art Gallery by Ernest Board, R. W. A., depicting the marriage of William Penn and Hannah Callowhill at the Friends' Meeting House, Bristol, on January 5, 1696 (63132); a 25-cent note issued by the Dominion of Canada, January 2, 1900 (63165).

CLARK, B. PRESTON, Boston, Mass.: 35 specimens, 2 species, of Philippine landshells, *Amphidromus*, from Kidapan, Mindanao (62989); 5 specimens of Diptera from North Borneo (63439).

CLARK, Dr. F. C., Los Angeles, Calif.: 500 specimens of invertebrate fossils from the Pleistocene at Santa Monica, Calif. (62848, exchange); 8 exhibition specimens of limestones bored by Pholas (63260).

CLARK, FRANK L., Winona Lake, Ind.: A collection of mastodon bones (63194).

CLEMENTS, J. MORGAN, New York City: 3 samples of mica from Korea and a pebble of antimony oxide from China (62763); tungsten minerals, including scheelite, wolframite, and cassiterite from Korea (63601).

CLEVELAND, CHAS. E., Overly, N. Dak.: Specimen of an abnormal egg of a domestic fowl (62831).

CLIMAX MOLYBDENUM CO., Denver, Colo. (through Mr. F. L. Hess): A specimen of molybdenum ore from Climax, Colo. (63251).

CLOKEY, IRA W., Denver, Colo.: 160 specimens of plants from Colorado (62894, exchange).

COCKERELL, Prof. T. D. A., University of Colorado, Boulder, Colo.: 2 specimens of plants (62612); 18 speci-

COCKERELL, Prof. T. D. A.—Continued. mens of plants from Colorado (62723, 62789); 8 cotypes of Philippine *Halictus*; 7 other named Philippine bees and 16 other Hymenoptera (63330, exchange, gift).

COE, CYRIL, Grand Cayman, West Indies (through the Governor of Jamaica, Colonial Secretary's Office, Jamaica, West Indies): 8 postage stamps, 4 each of the first and second local printing, issued by the Cayman Islands during the European War, 1914–1918 (63378).

COKER, Prof. W. C., Chapel Hill, N. C.: 7 specimens of plants from North Carolina (62648).

COLE, Miss LILLIAN A., Union, Me.: 85 specimens of plants from Maine (62656, 62857).

COLEGIO DE "SAN PEDRO APOSTOL," Cartegena, Colombia: 4 snakes, 1 turtle, 4 fishes, 1 myriapod, 1 spider, 1 plant, and 17 marine invertebrates from Cartegena, Colombia (63300).

COLLINS-GARNER CONGO EXPEDITION, Fernan Vaz, French Congo, Africa: 217 mammals, 30 bird skins, a turtle, and a small collection of plants, collected by Mr. C. R. Aschemeier (63233, collected for the Museum).

COLUMBIA GRAPHOPHONE Co., Baltimore, Md. (through W. S. Parks, manager): A type L–2 grafonola equipped with the nonset automatic stop (63376).

COMMERCE, DEPARTMENT OF: Italian revenue stamps as follows: 5, 10, 20, 25 centesimi, in duplicate (8 specimens) (62816); 4 posters (63358); postage stamps of Honduras issued 1907–1918 (174 specimens) (63639).

Bureau of Fisheries: 10 specimens of larvae of the spiny lobster from Key West, Fla. (62701); 1 specimen of fish, *Apsilus dentatus*, from the Campeche Banks, Gulf of Mexico, received from the Warren Fish Co., of Pensacola, Fla. (62794); 27 specimens of fishery products and 1 mounted specimen of cod (62824, loan); 12 specimens of fresh-water Medusae from Augusta, Ga. (62830); specimens of fishes, reptiles, and invertebrates collected in the summer of 1918 by S. F. Hildebrand at Augusta, Ga., and vicinity (62980); 6 specimens of sperm whale teeth (62889); 117 skins and skulls of mammals, mostly seals, a small collection of birds, 102 specimens of plants, and a collection of Tertiary fossils, collected by Mr. G. Dallas Hanna in Alaska (63047); 21 bird eggs from Alaska (63054); bearded seal, skin and skull, from St. George Island, Alaska (63271); type specimens and others of macruroids collected by the steamer *Albatross* in the Philippine Islands (31 specimens) (63048); skull of a crab coon, *Procyon* (63234); lobster, *Homarus americanus*, with abnormal claw, purchased in New York City (63246); skull of a walrus from Round Island, Bering Sea (63294); 20 specimens of plants collected in Iowa by H. Walton Clark (63731); miscellaneous reptiles and batrachians from Berrian County, Ga. (63744). (See also under Prof. N. Gist Gee, and Dr. George Mott.)

Bureau of Foreign and Domestic Commerce: Dutch postage, postage due, receipt, statistics, security tax, and government savings bank stamps (111 specimens) (63030).

COMMERCIAL MUSEUM, THE, Philadelphia, Pa.: 8 samples of foreign food products (62765, exchange).

COMMITTEE ON PUBLIC INFORMATION, DIVISION OF FILMS, New York City:

Bureau of War Photographs: 16 photographs ($6\frac{1}{2}$ by $8\frac{1}{2}$ inches) illustrating military aerial activities in the United States and France (63031).

CONROW, WILFORD SEYMOUR, New York City: Portrait of Maj. E. Alexander Powell, and portrait of Miss Clara J. Gordon, by Wilford Seymour Conrow, 1919 and 1916, respectively (63770, loan).

CONZATTI, Prof. C.: Oaxaca, Mexico: Specimen of lichen from Mexico (63113).

CORBIN, Mrs. H. C., Washington, D. C.: Miniature model of a 10-inch disappearing gun, made in the Electrician Sergeant's Department, School of Submarine Defense, Fort Totten, N. Y., and presented by the school to Lieut. Gen. H. C. Corbin, U. S. Army (62851, loan).

CORNELL UNIVERSITY, Department of Botany, Ithaca, N. Y. (through Prof. K. M. Wiegand): 31 specimens of plants from New York (62807, exchange).

COSTA, Dr. J. SIMAO DA. (See under Para, Brazil, Museu Goeldi.)

COX, PHILIP, University of New Brunswick, Fredericton, New Brunswick: 4 specimens of dace, *Leuciscus perleyi* (63499).

CRAIGHEAD, F. C., Bureau of Entomology, U. S. Department of Agriculture, Washington, D. C.: Specimen of young tortoise, *Gopherus agassizi*, from Arizona (62669); 2 snakes, *Carphophis amoenus*, from Fairfax County, Va. (63589).

CRANE, W. E., Washington, D. C.: 414 specimens of land and marine shells from various localities, collected by the donor (63674).

CROMPTON, C. E., St. George, Pribilof Islands, Alaska: 2 crustaceans, *Pagurus alaskensis* and *Oregonia gracilis*, fish stomach contents, from the vicinity of St. George Island (62677).

CROVO & Co., Washington, D. C. (through Smithsonian Institution, National Zoological Park): Specimen of tree frog, imported in a bunch of bananas (62621).

CURRAN, H. M., Laurel, Md.: Sample of carapicho fiber, *Triumfetta*, sp., collcollected by the donor at Bahia, Brazil (63345).

CUSTIS, Dr. J. B. GREGG, Washington, D. C. (through Dr. W. A. Dewey, Ann Arbor, Mich.): 15 volumes of

CUSTIS, Dr. J. B. GREGG—Continued. Transactions of the American Institute of Homeopathy (63510); an original letter written by Hahnemann, the founder of homeopathy, in 1805 (63558).

DALL, Dr. W. H. (See under Dr. R. H. Tremper.)

DANFORTH, Mrs. CHARLOTTE ELLIS, Washington, D. C.: An English hunting watch, gold case (62760); ethnological and archeological material from various localities, nest of a wren from Ireland, section of bark of California redwood, 15 specimens of Ordovician trilobites and crinoids, and a fossil plant (63206); an ivory and pearl shell silk reel, a scent bottle of Bohemian red glass, and a perforated spade-shaped gorget (slate) from Ohio (63456); a French cashmere shawl, an old Paisley shawl, an Indian scarf, a Turkish hanging, a Russian art-iron watch stand, and 2 Cypraea shells (63507); small Swiss watch, blue enamel with initials O. M. E., set with brilliants, which formerly belonged to the owner's mother, Olive M. Ellis (63569, loan); furniture of the early part of the nineteenth century (10 specimens) (63663).

DANGLADE, ERNEST, Vevay, Ind.: Mollusk, *Quadrula heros*, collected in Eagle Creek, Ky., October 10, 1917 (63083).

DARTON, N. H., U. S. Geological Survey, Washington, D. C.: A fragment of meteoric iron from San Rafael, N. Mex. (62880).

DAVIDSON, Dr. A., Los Angeles, Calif.: 14 specimens of plants from California (62624, 63202, 63419).

DAVIS, Sergt. A. H., Washington, D. C.: Skin, skull, and skeleton of a Belgian police dog (63237).

DAVIS, GEORGE H., Mount Rainier, Md.: An exhibition specimen of fine-grained sandstone containing fossil tracks (63187).

DAVIS, Rev. JOHN, Hannibal, Mo. (through Prof. A. S. Hitchcock): 5 specimens of plants, Cyperaceae (62930).

DAVIS, Col. WM. B., U. S. Army, The Hospital, U. S. Soldiers' Home, Washington, D. C.: Ethnological material ("Cut Head" Sioux Indian) collected by the donor about 1878 at Fort Totten, Dakota Territory (63135).

DEAM, CHARLES C., Bluffton, Ind.: 28 specimens of plants from Indiana (63397).

DEARBORN, Dr. F. M., New York City (through Dr. W. A. Dewey, Ann Arbor, Mich.): Copy of "Diseases of the Skin," by Frederick M. Dearborn, M. D. (63706).

DELIENS, PAUL, San José, Costa Rica: Skin of a hummingbird, *Lophornis adorabilis*, from Costa Rico (63095).

DENSLOW, Rev. H. M., New York City: 75 specimens of orchids from the eastern United States (62941, exchange).

DENSMORE, Miss FRANCES, Red Wing, Minn.: A string of dried squash, Mandan Indian, Fort Berthold, Minn. (63519); ethnological material from the Chippewa Indians of Minnesota, and the Mandan, Hidatsa, and Teton Sioux of North Dakota, 12 specimens collected by the donor (63564).

DETMERS, Miss FREDA, The Ohio State University, Columbus, Ohio: 2 specimens of plants from Ohio (63280).

DEVRIES, H., Boulder, Colo. (through Mr. F. L. Hess): A specimen of tungsten ore (ferberite) from Katy mine, Boulder County, Colo. (62846).

DEWEY, Dr. W. A., Ann Arbor, Mich.: 23 specimens of photographs, engravings, labels, and printed documents on the subject of Homeopathic Medicine (63404). (See also under Dr. William Boericke, Boericke & Tafel, Dr. John C. Calhoun, Dr. J. B. Gregg Custis, Dr. F. M. Dearborn, Dr. William E. Leonard, Dr. John H. Wilms.)

DIONNE, Mons. C. E. (See under Laval University, Quebec, Canada.)

DIXON, H. N., Northampton, England: 2 specimens of mosses (62617).

DOANE COLLEGE, Crete, Nebr.: Specimen of plant, *Laciniaria*, from Nebraska (62786, exchange).

DODGE, PICKERING, Washington, D. C.: Pair of ladies' slippers of the early part of the nineteenth century, and 2 fragments of an Egyptian wooden coffin, painted and inscribed (63250).

DOMINION COMMISSION OF FISHERIES, Department of Naval Service, Ottawa, Canada: 4 echinoderms representing the species *Strongylocentrotus drobachiensis*, collected at Station 63–D, Walker Bay, Prince of Wales Strait, by the Canadian Arctic Expedition (63484).

DOMINION ENTOMOLOGICAL LABORATORY, Fredericton, New Brunswick: 17 specimens of Diptera from New Brunswick (63561).

DORIAN, Mrs. JAMES M., East Falls Church, Va.: Basket bowl, Kern Valley, Calif., collected by Mr. Edward L. Brooks (63518, loan).

DORSEY, N. W., Smithsonian Institution: 2 specimens of manganese ore, pyrolusite, from 3 miles west of Linden, Va. (62962).

DREW, WILLIAM J., and FRED I. NOBLES, Washington, D. C.: Photogravure copy of the joint resolution of Congress declaring that a state of war exists between the Imperial German Government and the Government and the people of the United States, April 6, 1917, supplemented by facsimile autographs of the Members of Congress at the time of the passing of the resolution (63610).

DU BOIS, Capt. RICHARD CATLIN, U. S. Army (retired), Hallstead, Pa.: Collection of archeological relics from ancient village sites on the north bank of the Susquehanna River at Great Bend, Pa. (62770).

DUNN, E. R., Alexandria, Va.: Snake skin, 8 salamanders and 1 frog; 4 skinks; snake, *Coluber constrictor*, and 2 young turtles, all from Virginia (62891, 63515, 63533, 63614).

DUPRE, D. L., National Zoological Park, Washington, D. C.: Snake, *Coluber constrictor*, from Washington, D. C. (62950).

DYER, FRANCIS J., American consul at Tegucigalpa, Honduras, and Nogales, Sonora, Mexico: A collection of insects and cacti (62712); 20 specimens of plants and some entomological specimens from Honduras (63075); specimen of cactus, *Opuntia* (63620); 3 specimens of cacti (63683); horned lizard, *Phrynosoma solare*, and some insects (63691); 5 specimens of living cacti, earthworm, oak galls and insects, 2 lizards and a frog (63777). (See also under W. Cameron Townsend.)

EARLE, CHARLES T., Palma Sola, Fla.: Skeleton of an Indian found in a shell mound on Snead's Island, Manatee County, Fla. (63455).

EASTMAN KODAK Co., Rochester, N. Y.: 5 dorotypes (62850).

EASTWOOD, Miss ALICE. (See under California Academy of Sciences.)

EBERT, Col. R. G., Vancouver, Wash. (through Brig. Gen. T. E. Wilcox, U. S. Army (retired): 3 specimens of plants from Washington, collected by Mary and Frances Fiala (63656).

EDGE, E. E., Washington, D. C.: Flintlock pistol and Indian bow (62973).

EDMONSTON, A., Chevy Chase, Md.: Skins and skulls of 2 flying squirrels, *Glaucomys* (63304).

EDWARDS, VINAL N., Woods Hole, Mass.: 2 specimens of hornpout, *Amiurus* sp., attacked by fungus growth (63006).

EGGLESTON, W. W., U. S. Department of Agriculture, Washington, D. C.: 15 specimens of plants from Indiana (63035).

EMERINE, CHARLES A., Baltimore, Md.: 3 notes issued by the Susquehanna

EMERINE, CHARLES A.—Continued. Bridge & Bank Note Co. in 1831, as follows: $5, No. 4252; $10, No. 484, and $20, No. 699 (63541).

ENGBERG, Dean CARL C., University of Nebraska, Lincoln, Nebr.: Crab, *Pinnixa franciscana*, from Friday Harbor, Wash. (62872); 26 specimens, 11 species, of mollusks from San Juan Island, Gulf of Georgia, Wash. (63027).

ERWIN, RICHARD P., Boise, Idaho: 12 salamanders from Idaho (62759).

ESSENKAY PRODUCTS Co., Chicago, Ill. (through Dr. J. H. Shrader): 10 samples of rubber substitute products made from vulcanized corn oil (62812).

EVANS, Prof. A. W. (See under Yale University, New Haven, Conn.)

FALKLAND ISLANDS, GOVERNMENT OF (through the Governor of the Colony, Stanley, Falkland Islands, and the Secretary of State for the Colonies, London, England): Half penny, 1 penny, and 1 shilling postage stamps of the Falkland Islands overprinted "War Stamp" issued during the European War, 1914–1918 (3 specimens) (63738).

FELIPPONE, Dr. FLORENTINO, Montevideo, Uruguay: 1 barnacle; 69 specimens, 46 species, of mollusks; and 1 specimen of cordate, *Cephalodiscus dodecalaphus*, from various localities in South America (63058).

FENTON, CARROLL LANE, Charles City, Iowa: A large exhibition specimen of fossil coral, *Stromatopora*, from the Devonian of Iowa (62976, collected for the Museum).

FERRERO, JOSEPH, Washington, D. C.: A tree frog, *Hyla septentrionalis*, imported in a bunch of bananas from Cuba (63481).

FERRIER, Dr. W. F., Toronto, Ontario, Canada: Specimen of a new mineral (ferrierite) from British Columbia (63139).

FEWKES, Dr. J. WALTER. (See under Dr. H. Adrian, and Dr. John M. Muir.)

FIELD MUSEUM OF NATURAL HISTORY, Chicago, Ill.: 7 small mounted mammal skins and skulls from North America (63295).

FILLIUS, JAMES P., Berwyn, Md.: Specimen of hawk from Maryland (62733).

FINLEY, Miss BLISS. (See under Mrs. Calvin White.)

FINLEY, Mrs. HENRY J., Washington, D. C.: Chantilly lace shoulder shawl originally owned by Mrs. Abraham Lincoln (63502, loan).

FISH AND GAME COMMISSION OF CALIFORNIA, Long Beach, Calif.: Isopod crustacean, *Tylos punctatus*, from Long Beach, Calif. (63726).

FISHER, GEORGE L., Houston, Tex.: 201 specimens of plants from Texas (62654, 62910, 62968); 94 specimens of plants from Missouri (63503).

FISHER, Dr. WALTER K., Stanford University, Calif.: 16 specimens of lizards from Antigua Island, West Indies (62707); 21 bats, 9 of *Artibeus* and 12 of *Nyctinomus*, in alcohol (62748).

FISKE, WILBUR A., Librarina, Chaffey Library, Ontario, Calif.: Chaffey Library bookplate (62935).

FLEISHER, S. B. & B. W. (Inc.), Philadelphia, Pa.: A series of worsted knitting and crocheting yarns and handmade articles showing the use of these yarns (63045); 3 specimens of crocheted and knitted sweaters showing the use of worsted yarns (63756).

FLORIDA FEDERATION OF WOMEN'S CLUBS, Homestead, Fla. (through C. A. Mosier): Specimen of turtle, *Kinosternon bauri*, from Florida (62681).

FLORIDA, GEOLOGICAL DEPARTMENT OF THE STATE OF, Tallahassee, Fla. (through Dr. E. H. Sellards): Types of 24 vertebrate fossils from Florida, including 16 reptiles, 3 birds, and 5 mammals (63124, exchange).

FLORIDA, GEOLOGICAL DEPARTMENT OF THE STATE OF—Continued.

FLORIDA STATE MUSEUM, Gainesville, Fla. (through T. Van Hyning): Mollusk from Florida (62868).

FLOYD, F. G., West Roxbury, Mass.: Specimen of plant from Nantucket Island, Mass. (63049).

FOERSTE, Prof. AUGUST F., Dayton, Ohio (through Dr. Charles D. Walcott): 400 specimens of Lower Cambrian fossils from Troy, N. Y. (63020).

FOOTE, Mrs. E. M., New York City: 3 specimens of plants, *Botrychium*, from Connecticut (63001).

FOOTE, Dr. J. S., College of Medicine, The Creighton University, Omaha, Nebr.: 2 Indian skulls found by H. O. Drew in the first bluff of the Missouri River opposite Omaha, Nebr. (63017).

FORBES LITHOGRAPH MANUFACTURING CO., THE, Boston, Mass.: 1 set of chromo-lithographic progressive proofs of the painting for the calendar of the Edison Lamp Works of the General Electric Co. (29 specimens) (63365).

FORD, Prof. WILLIAM E., Sheffield Scientific School, Yale University, New Haven, Conn.: A specimen of aguilarite from Mexico (63553).

FORNEY, R. L., Forsyth, Mont.: Pebbles of chalcedony, fragments of silicified wood and specimens of invertebrate fossils (63433).

FOSHAG, WILLIAM, Berkeley, Calif.: A specimen of riversideite and 1 of wilkeite from Crestmore, Riverside County, Calif. (62854, exchange).

FRANCE, GOVERNMENT OF: (through French Ministry of Foreign Affairs and the Department of State): French Red Cross and Orphans of the War stamps issued 1914–1917 (14 specimens) (62972); French postage stamps issued during the European War, 1914–1918 (54 specimens) (63103).

FRANCIS, Miss MARY E., Elva, Fla. (through Mr. W. E. Safford): 140 specimens of plants from Florida (62806).

FRASER, Dr. C. MCLEAN. (See under Canada, Biological Board of.)

FREEMAN, Miss ISABELLE C. (See under Mrs. B. H. Buckingham.)

FRENCH PICTORIAL SERVICE, New York City: 6 photographs illustrating the adjustment of human and equine gas masks (63539).

FRIERSON, L. S., Frierson, LA.: 2 pearly fresh-water shells from Patsaliga Creek, Ala. (62797).

FULTON, ROBERT BURWELL, 2d, Washington, D. C.: Silver cross from an Indian burying ground about 4 miles northwest of Tupelo, Miss., and 17 jasper beads found in Copiah County, Miss. (63153).

FURLONG, Maj. C. W., U. S. Army, care Salmagundi Club, New York City: Reptiles, fishes, marine invertebrates, spiders, scorpins, and insects from various localities (62986).

GARNER, G. W., Snyder, Tex.: A concretion of pyrite imitating in form a small lower limb and foot (63138).

GARRETT, A. O., Salt Lake City, Utah: 2 specimens of plants from Colorado and Wyoming (62908).

GAUMER, Dr. GEORGE F., Izamal, Yucatan: 5 specimens of banana opossum, *Marmosa*, alcoholics (63173).

GEE, Prof N. GIST, Soochow University, Soochow, China: About 30 specimens of freshwater mollusks and 110 insects from China (62608); 10 insects from China (62742); (through Department of Commerce, U. S. Bureau of Fisheries): 48 specimens, 2 species, of isopods, including the type and paratypes of a new species, 2 leeches and about 20 nemathelminthes parasitic on the Chinese carp (62796).

GENERAL ELECTRIC CO., ENGINEER DIVISION, Schnectady, N. Y. (through Dr. G. Winchester, Wyoming, Ill.): 5 hand signal lamps and a russet leather electric signal battery case, of the type used during the War with Germany, 1917–18 (63701).

GENERAL ELECTRIC CO.—Continued.

GERMAN, A. T., Alexandria, Va.: A specimen of fossil wood and a pot-shaped concretion (62607).

GETTYS, L. A., Shelby, N. C.: A crystal of magnetite (62642).

GILBERT AND ELLICE ISLANDS COLONY, Office of the Resident Commissioner, Ocean Island (through the Secretary of State for the Colonies, London, England): Sheet of war tax postage stamps issued by the Gilbert and Ellice Islands, 1918 (60 specimens) (63435).

GILBERT, E. O., Berkeley, Calif.: Specimen of plant from California (63034).

GILBRETH, Maj. FRANK B., Army War College, Washington, D. C.: Chronocyclegraph motion devices for measuring achievements (models) (62920).

GILL, DE LANCEY, Bureau of American Ethnology, Washington, D. C.: Objects of slate, fractured naturally, resembling artificial forms, from the shore of Conesus Lake, western New York (62784); an Eskimo harness for a seven-dog team (63219, exchange).

GOCHENAUER, BROOKE B., Upperville, Va.: Bald eagle, *Haliæetus leucophalus*, from Virginia (62938).

GODSON, Lieut. W. F. H., U. S. Army, Washington, D. C.: Bow and arrows made by the Negritos living near Camp Stotsenbury, Pampanga, Luzon, P. I. (63434).

GOLDSMITH, G. W., College Station, Tex.: 2 swamp treefrogs, *Pseudacris ornata* (63175).

GORDON, JOHN, Rio Janeiro, Brazil (through H. S. Washington, Geophysical Laboratory): Samples of monazite sand from the State of Espiritu Santo, Brazil (62756).

GORMAN, M. W., Portland, Oreg. (through C. V. Piper): 4 specimens of plants from Oregon (63489).

GORTON, G. R., San Diego, Calif.: 4 mollusks, *Helix (Euparyphya) pisana*, from San Diego, Calif. (62994).

GRAVES, E. W., Spring Hill, Ala.: Specimen of plant, *Ophioglossus*, from Alabama (63487).

GRAY, GEORGE M., Marine Biological Laboratory, Woods Hole, Mass.: 2 lizards from Florida (63026, exchange).

GRAY, WILLIAM H., Washington, D. C., and C. G. Brown, Texarkana, Tex. (through Mrs. Mary J. Roach): Medicine scales with case used by Dr. Gustavus Richard Brown of Maryland during his attendance upon George Washington at the time of his last illness in 1799 (63609).

GREAT BRITAIN, GOVERNMENT OF: (through the American Embassy at London, England, and the Department of State): 6 stamps of the British occupation of Palestine, issued 1918, as follows: four 1 piaster and 2 milliemes on 1 piaster (63835). (See also under Cayman Islands, Falkland Islands, Gilbert and Ellice Islands Colony, India, Jamaica, Leeward Islands, New Foundland, St. Kitts, St. Lucia, Straits Settlements, Tringanu, Federated Malay States, Trinidad.)

GREELY, Maj. Gen. A. W., U. S. Army (retired), Washington, D. C.: 1,000 marine mollusks, 3 corals and 8 echinoderms from the Philippine Islands, about 61 pieces of Chinese money and 3 painted masks (63675).

GREENE, F. C., Tulsa, Okla.: Specimen of fern, *Cheilanthes tomentosa*, from Oklahoma (62943).

GREENMAN, Dr. J. M. (See under Missouri Botanical Garden.)

GREGG, Mrs. ALFRED PIERCE, Atlantic City, N. J.: A coat of dark-green cloth with green velvet collar and

GREGG, Mrs. ALFRED PIERCE—Contd. four shoulder capes, which belonged to William H. Love, a Quaker of Philadelphia, Pa., about the year 1829 (63437, loan).

GRIGGS, ROBERT F. (See under Ohio State University.)

GRINNELL, GEORGE BIRD, New York City: 53 specimens of plants from Montana (62619).

GRUBBS, Lieut. Col. ROBERT B., U. S. Army (retired), Walter Reed General Hospital, Takoma Park, D. C.: Fragments of shell showing shrapnel imbedded in sulphur and rosin, and lead bullets for shrapnel (63284).

HALL, HENRY R., Indianhead, Md.: A specimen of folded quartz from Indianhead, Md. (63632).

HANNA, G. DALLAS, U. S. Bureau of Fisheries, Washington, D. C.: 23 specimens of mollusks from Unalaska (62948).

HANSON, HERBERT C., Houston, Tex.: 479 specimens of plants from Texas (62909, 63118, 63179, 63302, 63418, 63630, 63723).

HARPER, ROLAND M., U. S. Department of Agriculture, Washington, D. C.: Specimen of plant from Maryland; specimen of plant, *Cuscuta*, from Maryland; specimen of plant, *Lycopodium lucidulum*, from Virginia (62647, 62961, 62914).

HARVARD UNIVERSITY, Cambridge, Mass.:

Arnold Arboretum (Jamaica Plain) (through Dr. C. S. Sargent): 383 specimens of plants from Alaska (62898, exchange).

Gray Herbarium: 154 specimens of plants collected on the island of Curacao, and 285 specimens of plants from northern Venezuela, collected by Messrs. Curran and Haman (62988, 63586); photograph of type specimen of a plant, *Alomia dubia*, from Brazil (63022); specimen of fern from Guatemala (63347); 59

HARVARD UNIVERSITY—Continued.
mounted specimens of ferns collected in Venezuela by A. Fendler (63697). Exchange.

Museum of Comparative Zoology: 20 specimens of reptiles and batrachians (62805, exchange).

HAUCK FOOD PRODUCTS CORPORATION, THE, Kingston, N. Y. (through Dr. J. H. Shrader): 5 samples of peanut oil, foots and grease (62691).

D'HAUTPOUL, COUNTESS, Paris, France (through Department of State): Brass seal with onyx handle owned by George Washington (62800).

HAWAII, THE COLLEGE OF, Honolulu, Hawaii (through J. F. Rock, botanist): 62 specimens of plants from the Hawaiian Islands (63458, exchange).

HAY, Dr. O. P., Carnegie Institution of Washington, Washington, D. C.: Sora, *Porzana carolina* (62861). (See also under Dr. Charles Lawrence Baker and R. L. More.)

HEDLEY, CHARLES, Australian Museum, Sydney, New South Wales, Australia: 20 specimens, 4 species, of brachiopod mollusks from New South Wales (63678).

HEINER, Mrs. ADAM, Baltimore, Md.: Cap pistol adapted from flintlock ("Grosmann, Giessen"); and flintlock horse pistol found in an old house at Baltimore (63480).

HEITMULLER, ANTON. (See under Miss Isobel H. Lenman.)

HENDERSON, JOHN B., Washington, D. C.: About 30,000 lots (approximately 400,000 specimens) of Antillean land mollusks (62858); 300 + miscellaneous marine invertebrates dredged off Florida by the yacht *Eolis* (63707).

HERING, CARL, Philadelphia, Pa.: Melotrope (very early mechanical player for piano) with accessories (62985).

HERRERA, Dr. A. L. (See under Mexico, Mexico, Museo Nacional de Historia Naturale.)

HESS, FRANK L. (See under George R. Allen, Howland Bancroft, Warren

HESS, FRANK L.—Continued.
Bleecker, B. Bryan, Climax Molybdenum Co., H. Devries, Molybdenum Products Co., E. A. Stent, Tungsten Products Mining Co., The, Ralph W. Weymouth.)

HEUVRARD, H. (See under Prince Roland Bonaparte.)

HEYDENREICH, R. R., Staunton, Va.: Specimen of semi-albino crow, *Corvus brachyrhynchos*, from Virginia (63061).

HIGH COMMISSION OF THE FRENCH REPUBLIC IN THE UNITED STATES, Washington, D. C.: Gas masks, with accessories, of the type used in the French Army during the European War, 1914–1918, and a German gas mask captured in 1918 (17 specimens) (63198).

HILL, Dr. J. M., Wise, Va.: Pig, *Sus*, in alcohol (62749).

HILL, THOMAS S., Entwistle, Alta, Canada: 5 specimens, 3 species, of mollusks from western Canada (63141).

HINCKLEY, ROBERT, Washington, D. C.: Archeological material from the region adjacent to San Salvador, together with specimens of recent origin made in imitation of objects of prehistoric ceramic art, collected by Thomas Hinckley, late United States Consul General and First Secretary of Legation at Salvador, 1911–1913 (192 specimens) (63265, loan).

HIORAM, Brother, Guantanamo, Oriente, Cuba: 6 specimens of ferns from Colombia (63012).

HIORTDAHL, Mrs. FRITHJOF, Hyattsville, Md.: Piece of art needlework, oriental landscape (62674).

HITCHCOCK, A. S. (See under Agriculture, Department of, Bureau of Plant Industry, and Rev. John Davis.)

HOES, Mrs. R. G., Washington, D. C. (through Mrs. Julian-James): A bound volume entitled "Godey's Lady's Book" (Philadelphia, 1868,

HOES, Mrs. R. G.—Continued.
384 pages) (63769, loan). (See also under Miss Catherine W. Philipse, and Mrs. Francis Leroy Satterlee.)

HOFFMAN, W. A., Monticello, Fla.: 70 specimens of Diptera from Florida (63492).

HOLCOMB, BENTON, Simsbury, Conn.: 32 specimens, 5 species, of mollusks from Connecticut (63091).

HOLMES, WILLIAM H., U. S. National Museum: Bronze medal designed by Theodore Spicer-Simson, commemorating the entrance of the United States into the war against Germany, April 6, 1917 (62781); an ax of fribrolitic schist (as identified by Howe), collected in 1875 by the donor at Cliff House, Mesa Verde Park, Colo.; an earthenware bottle, jar, toy jar, pottery spindle, and 2 rosaries (63438).

HOLWAY, Prof. E. W. D., Minneapolis, Minn.: 10 specimens of plants from British Columbia (62911); 7 specimens of fungi from British Columbia (62984, exchange).

HOPKINS, A. A., New York City: 5 photographs illustrating the manufacture of steel trench helmets for use in the U. S. Army during the War with Germany, 1917–18 (63712, loan).

HOPKINS, Dr. ALFRED S., Bethesda, Md.: A collection of early American and foreign swords, also miscellaneous relics of the period of the Civil War (82 specimens) (63377, loan).

HORNE, Commander FREDERICK J., Office of Naval Intelligence, Navy Department, Washington, D. C.: Sword and scabbard of the latter part of the seventeenth century, presented to Commander Frederick J. Horne, U. S. Navy, by the Association of Japanese Shipbuilders in recognition of his courtesy and fairness while in charge of the Ship and Steel Exchange with the United States Shipping Board, Tokyo, Japan, March 22, 1919 (63573, loan).

HOUGH, Dr. WALTER, U. S. National Museum: 80 specimens of land shells, and 14 specimens of plants from Arizona (62605, 62609).

HOUSTON, THOMAS TRUXTUN, Washington, D. C.: Gold medal awarded by act of Congress, March 29, 1800, to Capt. Thomas Truxtun, U. S. Navy, and a letter written to him by John Adams, November 30, 1802 (63339, loan).

HOWLETT & HOCKMEYER Co. (Inc.), New York City: 10 specimens of corduroy, cotton suiting, and leather cloth (63634).

HOYT, H. C., Rochester, N. Y.: Album containing envelopes made during the period of the Civil War and decorated with patriotic designs (63574, loan).

HRDLIČKA, Dr. A., U. S. National Museum: Skins, skulls and 1 embryo of squirrels, *Sciurus* (62675, 62900, 63172, 63259); skin and skull of a jumping mouse, *Zapus* (62750); flageolet of the San Carlos Indians, Arizona (62821); models (reduced) of 2 horses as they appeared at the coronation ceremonies of the present Emperor of Japan, and 3 figurines of ethnic types, presented to the donor by Dr. Mitsuru Okada, of Tokyo, Japan (62888); 3 coon skulls, *Procyon*, and skull of a rabbit, *Sylvilagus* (63120); 4 archeological specimens from the Valley of Mexico (63522); 155 specimens of textiles from Peru, collected by the donor (63780).

HUMPHREY, ALLEN, Glen Echo, Md.: Ring-necked snake and a water snake (63607).

HURLEY, EDWARD N., President, U. S. Shipping Board, Emergency Fleet Corporation, Philadelphia, Pa.: Bronze coin of Diocletian, 284–305, A. D. (62918).

HUTSLER, Lieut. FRANCIS L., U. S. Army, Washington, D. C.: Drum carried during the Civil War by John

HUTSLER, Lieut. FRANCIS L.—Contd.
C. Hutsler, when drummer boy, Company H, Seventh Maryland Volunteers (63466, loan).

HYACINTH, Bro. F., Ammendale, Md.: 388 specimens of plants from Maryland (63080, 63239).

ILLINGWORTH, Dr. F. L., Meringa, near Cairns, North Queensland, Australia: 48 specimens of named beetles and parasites (16 species of beetles and 3 species of parasites) from Australia and Fiji (63549).

INDIA, GOVERNMENT OF (through Secretary of State for the Colonies, London, England): Postage stamps of the Indian Expeditionary Forces in Europe, 1914, as follows: 3 pies, ½, 1, 2, 2½, 3, 4, 8, 12 annas, and 1 rupee (63269).

INDIANA, DEPARTMENT OF GEOLOGY, Indianapolis, Ind. (through Edward Barrett, State Geologist): Specimen of plant, *Laciniaria*, from Indiana (62977, exchange).

INDIANA HISTORICAL COMMISSION, Indianapolis, Ind.: Bronze medal commemorating, 1916, the centennial anniversary of the admission of the State of Indiana to the Union, 1816, and a bound volume entitled "The Indiana Medal" (63003).

INGERSOLL, WILLIAM R., National Director, Department of Four Minute Men, Committee on Public Information, Washington, D. C.: Written and printed documents, posters, and photographs concerning the activities during the War with Germany of the Department of Four Minute Men of the Committee on Public Information (43 specimens) (63464).

INSTITUTO DE BOTÁNICA Y FARMACOLOGIA. (See under Buenos Aires.)

INSTITUTO DE LA SALLE. (See under Bogota, Colombia, and Brother Apollinaire-Marie.)

INTERIOR DEPARTMENT: 32 posters (63352).

United States Geological Survey: Igneous rocks and miscellaneous ores from various localities in Utah and Colorado (62606); zirconiferous sandstone from near Ashland, Va., described by Mr. F. L. Hess in Virginia Geological Survey Bulletin No. 8 and U. S. Geological Survey Bulletin 530–P (62844); a specimen of metallic bismuth from the American Smelting & Refining Co.'s Omaha plant (62859); specimens of vanadium ore from Placerville, Colo., described by Mr. F. L. Hess in Bulletin 530, U. S. Geological Survey; also miscellaneous bismuth and other specimens (62882); jarosite sent to the survey by Mr. Frank Chaney, Cima, Calif. (63019); Pleistocene fossils representing 12 species, from terraces at Scammon's Lagoon, Lower California, collected by Messrs. H. S. Gale and E. R. Lloyd, May 1, 1918 (63071); a specimen of zircon-bearing sandstone from Ashland, Va. (63087); 4 specimens of Triassic crinoids from Alaska, including types described by Dr. F. A. Bather (63323); a collection of rocks, with list and map, sent to the survey for examination by Mr. Jesus G. Ortega, Mazatlan, Sinaloa, Mexico (63446).

IRENEO, Bro. G., La Salle College, Ancon, Canal Zone: 38 specimens of Lepidoptera (63059).

ITALY, GOVERNMENT OF: (through the Ministry for Foreign Affairs and the Department of State): Collection of Italian postage stamps showing the types issued during the European war (49 specimens) (62937).

ITURBE, Dr. JUAN, Caracas, Venezuela: 1 specimen of crab, *Pseudothelphusa*, near *garmani*, from Rio Guiare, near Caracas, Venezuela, August 4, 1918, through Dr. A. S. Pearse (62764); 11 specimens of fresh-water crabs from Venezuela (63427).

JACKSON, Dr. HARTLEY H. T., U. S. Department of Agriculture, Wash-

JACKSON, Dr. HARTLEY H. T.—Contd. ington, D. C.: Landshell from Wisconsin (62947).

JACKSON, The Misses SHELDON, Washington, D. C.: Carved slate plaque inlaid with ivory, Haida Indians, southeastern Alaska (63011).

JACOT, ARTHUR, Brooklyn, N. Y.: 25 Pyramidellid mollusks from Beaufort, N. C. (62969).

JAMAICA, GOVERNMENT OF, Kingston, Jamaica, British West Indies (through the Governor of Jamaica and the Secretary of State for the Colonies, London, England): 12 Jamaican war stamps (63070); 4 specimens each of the 1 penny and 3 penny War Stamps of Turks and Caicos Islands, issued 1916–1918 (8 specimens) (63155).

JAMAICA, GOVERNOR OF. (See under Cyril Coe.)

JAMES, C. W., Newport, Oreg.: 2 specimens of mollusk, *Pholadidea penita*, embedded in rock, from Oregon (63320).

JAMES, Mrs. JULIAN-, Washington, D. C.: Photograph of John Bigelow, Minister to France, 1865–66 (62628); a platinum and gold chatelaine of the latter part of the nineteenth century (63016); 2 white embroidered dresses formerly the property of Mrs. Abby Knight McLane (63306); an umbrella with pearl handle, a pair of white satin slippers, and a lady's basque of blue camels hair (63568); a boot or shoehorn which belonged to "T. B. M." (63766, loan). (See also under Mrs. Grace Berry, Mrs. R. G. Hoes, Mrs. Abby Knight McLane, Mrs. Sidney Mason, Mr. and Mrs. Partington, Mrs. Charles W. Richardson, and Miss du Viviers.)

JANDORF, M. L., York, Pa.: A specimen of hodgkinsonite from Parker Shaft, Franklin, N. J. (63616, exchange).

JENNINGS, Dr. O. E. (See under Carnegie Museum, Pittsburgh, Pa.)

JOHANSEN, FRITS. (See under Victoria Memorial Museum, Ottawa, Canada.)

JOHNES, WILLIAM FOULKE (through Mrs. Myrtle Giffen Johnes, executrix, New York City): Sword presented to Col. Stephen H. Long, U. S. Topographical Engineers (1784–1864), in recognition of his Rocky Mountain and other explorations, 1818–1824 (62887, bequest).

JOHNSON, CHARLES, keeper, Tortugas Light, by way of Key West, Fla.: 20 specimens of birds (alcoholics) from Dry Tortugas, Fla. (63191, 63724).

JOHNSON, RALPH CROSS, Washington, D. C.: 24 oil paintings (63755).

JOHNSON, Mrs. RALPH CROSS, Washington, D. C.: A German Bible of the year 1704 (63591); Cashmere shawl (63784, loan).

JONES, MARCUS E., Salt Lake City, Utah: 3 specimens of plants, cacti, from Utah (63645).

JONES, M. B. (See under New England Telephone & Telegraph Co.)

JUDD, NEIL M., U. S. National Museum: A shell bead found by the donor on the Old Post parade ground at Fort Sill, Okla., in December, 1918 (63127).

JUDSON, Mrs. HOSEA F., Fullerton, Nebr.: An American powder horn and ox-team whip, 1852–53 (62867).

KANSAS STATE AGRICULTURAL COLLEGE, Manhattan, Kans.: 2 specimens of plants, *Laciniaria* (62633, exchange).

KEAN, Brig. Gen. JEFFERSON RANDOLPH, Medical Corps, U. S. Army, Washington, D. C.: Silver-mounted telescope owned by Thomas Jefferson, and a miniature portrait of him by St. Memin (63004, loan).

KELLERS, Lieut. H. C., U. S. Navy, Seattle, Wash.: 114 lizards, 25 snakes and 2 fishes (63538).

KENNEDY, WILLIAM, Fort Worth, Tex.: Skull and leg bone of a bear, *Ursus* (63119).

KEYSER, E. W., Washington, D. C.: Sampler made by Jane Godfray, aged 7 years, 1814 (63163); ethno-

KEYSER, E. W.—Continued.
logical material from various parts of the world, and a Russian embroidered ecclesiastical square (63668, exchange).

KILLIP, ELLSWORTH P., Pittsford, N. Y.: 109 specimens of ferns and plants from Panama (63254, 63593); 8 specimens of plants from New Jersey (63721).

KIMBALL, Miss KATHARINE D., Smithsonian Institution: Specimen of plant from New Jersey (62663).

KINGSTON, JAMAICA. (See under Cayman Islands, Government of the.)

KIRK, Dr. EDWIN, U. S. Geological Survey, Washington, D. C.: 6 Haida skulls and a lot miscellaneous bones, and a Tlingit skull, collected by the donor during the summer of 1918 (62866); ethnological material collected by the donor in southeastern Alaska during the summer of 1918 (63245).

KONDO, EIZO, New York City: 1 unused Japanese wood-block for wood-block cutting (63567).

KRYGER, J. P., Gentofte, Denmark (through Dr. A. G. Bøving): Collection of insects (63158).

LABOR, DEPARTMENT OF:
United States Housing Corporation; United States Home Registration: 1 poster (63351).

LA GARDE, Mrs. RICHARD D., Washington, D. C. (through the Misses Long): Brussels lace fichu, 1840 (63501, loan); pair of mounted mallard ducks, mounted on a plaque (63716).

LANGFORD, GEORGE, Joliet, Ill.: 4 plaques with relief figures of restorations of prehistoric animals, and 2 plaques with relief figures of restorations of prehistoric man (63655).

LANGLAIS, Madame CLAUDE, Washington, D. C.: French Army winter and summer uniforms worn during the European War by Monsieur Claude Langlais, Machine Gun Unit, Thirty-third Infantry (8 specimens) (63496, loan).

LANGLAIS, Madame CLAUDE—Contd.

LATHROP, Mrs. JOHN E., Washington, D. C.: 2 pieces of Auraucanian pottery from Chile, South America (62732, loan).

LAUGHLIN, Miss EMMA E., Barnesville, Ohio: 2 secimens of plants (62618); 3 specimens of plants from Ohio (63722).

LAVAL UNIVERSITY, Quebec, Canada (through Mons. C. E. Dionne, curator of the Zoological Museum): 6 skulls and some fragmentary bones, and 5 potsherds and a fragment of a pipe, found in the cemetery of a Huron village called Ihonatiria, County of Simcoe, Province of Ontario, Canada (63395, exchange).

LAVARRE, WILLIAM J., Jr., New York City: Poisoned arrows, poisoned arrow case, and basket for silk tree fiber, used by the Akawoia Indians of British Guiana, collected on the upper Mazaruni River, British Guiana, in 1917, by the donor (63736).

LAWRENCE, Prof. WILLIAM E. (See under Oregon State Agricultural College.)

LAYTON, Miss FLORENCE W., Washingington, D. C.: 2 specimens of plants (62646); specimens of plants from Maryland (63491, 63649).

LEARN, GEORGE A., Wood Island, Kodiak, Alaska: 43 specimens of marine mollusks, 1 barnacle, 1 worm tube, 1 fragmentary bryozoan, and 1 fragmentary calcareous alga from Kodiak Island, Alaska (63657).

LEEWARD ISLANDS, GOVERNMENT OF (through the Governor, and the Secretary of State for the Colonies at London, England): Postage stamps of the Leeward Islands issued during the European War, 1914–1918 (32 specimens) (63463).

LELAND STANFORD JUNIOR UNIVERSITY, Stanford University, Calif. (through Prof. Le Roy Abrams): Specimen

LELAND STANFORD JUNIOR UNIVERSITY—Continued.
of fern, *Polystichum dudleyi*, from California (62863); specimen of a fern, *Woodwardia*, from California (63584, exchange).

LENMAN, Miss ISOBEL H., Washington, D. C. (through Mr. Anton Heitmuller): Collection of ethnologica from North American Indians, the Philippine Islands, Solomon Islands, British Columbia, and Europe (31 items) (62752); ethnological and archeological specimens from various localities (63057); 3 blankets of the Amasari Indians, Bolivia, South America (63375); collection of antiquities, including specimens from Egypt, Asia, Scandinavia, and New Guinea (29 specimens) (63754, loan).

LEON, Brother, Colegio de la Salle, Vedado, Havana, Cuba: 38 specimens of plants and 24 specimens of ferns from Cuba (63003, 63677).

LEONARD, Dr. WILLIAM E., Minneapolis, Minn. (through Dr. W. A. Dewey, Ann Arbor, Mich.): 3 books illustrating the History of Homeopathic Medicine (63403).

LEWTON, F. L., U. S. National Museum: German trench helmet, gas mask, and belt buckle used during the European War, 1914–1918 (63389, loan); copy of Laurie and McClatchey's Homeopathic Domestic Medicine, 12th edition (63485).

LILLY & Co., ELI, Indianapolis, Ind.: 6 bromide enlargements, 8 by 10 inches, of photographs showing stages in the manufacture of elastic filled capsules (62787); 3 asceptic metal pocket cases for physicians; No. 39 bacterial vaccine case, No. 47 hypodermic case, and No. 50 ampoule case (63282); specimen of Cascara sagrada bark and 4 specimens of official preparations of Cascara sagrada (63636).

LINDMAN, Dr. CARL. (See under Stockholm, Sweden.)

LLOYD, Dr. JOHN URI. (See under Dr. Joseph A. Munk.)

LODING, Dr. H. P., Mobile, Ala.: 5 salamanders, *Ambystoma opacum*, from near Mobile (63393); salamander, *Necturus punctatus* (63495).

LONDON, ENGLAND, BRITISH MUSEUM (NATURAL HISTORY): Samples of the Crumlin (Ireland), Durala (India), and Nellore (India) meteoric stones, and of the Uwet (Southern Nigeria) meteoric iron (63506, exchange).

LONG, M. C., Kansas City, Mo.: An Indian skull showing slight deformation, found in some dredging operations in the Missouri River near Kansas City (63190).

LONG, the Misses. (See under Mrs. Richard D. La Garde.)

LONGUEUIL, COLLEGE OF, Longueuil, Quebec, Canada (through Brother Marie-Victorin): 379 specimens of plants from Quebec (63504, exchange).

LOOMIS, Miss MARTHA L., Sherborn, Mass.: 91 specimens of plants from Massachusetts (62593, 62714, 62726); 7 specimens of plants (62623).

LOVERIDGE, ARTHUR, The East Africa and Uganda Natural History Society, Nairobi, British East Africa: Skins and skulls of 6 bats from German East Africa (62792); 4 elephant shrews, *Rhynchocyon*, and 3 mongoose, *Helogale* (alcoholics) (63705).

LOWE, H. N., Long Beach, Calif.: 8 specimens of mollusks, *Ephiphragmophora traskii traskii*, collected by the donor between Point Fermin and Point Vincent, Calif. (62615); 35 specimens, 10 species, of Californian crustaceans (62625).

LOWE, S. H., Leechville, N. C.: A specimen of fossil coral from Hyde County, N. C. (63296).

LUDLOW, Dr. CLARA SOUTHMAYD, Washington, D. C.: Addition of 20 family relics to "The Sutphen-Schenck-Hunt Memorial Collection" (63517).

LUDWIG, GEORGE W., Camp Lee, Va.: A specimen of fossil wood from the Lower Cretaceous at Camp Lee (63424).

LUMMIS, GEORGE M., Fort Myers, Fla.: 3 specimens of plants from Florida (63729).

MCATEE, W. L., U. S. Department of Agriculture, Washington, D. C.: 79 specimens of plants from Maryland and Virginia (62683, 63055, 63193); 3 specimens of plants (63150).

MACDONALD, Dr. D. F., Houston, Tex.: 16 boxes of fossils from Panama (63188).

MCGOWAN, Mrs. E. N. (through Mrs. Julia S. McG. Brackett, Washington, D. C.): 2 Alaskan Indian boxes (1 carved and 1 painted) (63274).

MCINDOE, JAMES F., care Col. J. B. Cavanaugh, U. S. Army, Office of the Chief of Engineers, War Department, Washington, D. C.: A miscellaneous collection of fragments of the German airships *L–49* and *L–50* (27 pieces), and a copy of the French magazine Illustration of October 27, 1917, containing a view of *L–49* (63781, loan).

MCLANE, Mrs. ABBY KNIGHT (Mrs. ALLAN MCLANE) (through Mrs. Julian-James, Washington, D. C.): White Canton crêpe shawl, solidly embroidered, with long, heavy fringe, accompanied by a lacquer box to hold the shawl (63307); (through Mr. Andrew Hussey Allen, executor): The Hussey-Knight-McLane Collection of ethnologica, art objects, souvenirs, porcelains, etc., from various parts of the world, and engraved, lithographic, and photographic portraits of the Presidents of the United States (1789–1917) (63786, bequest).

MCMILLAN, B. S., Brewton, Ala.: Nest of a hornet (63315).

MCWILLIAMS, Mrs. ANNE JONAS, Alexandria, Va. (through Hon. E. S. Candler): Printed copy of a poem entitled "In Memoriam" and written on the back of a Confederate

MCWILLIAMS, Mrs. ANNE JONAS—Con. note in 1865 by Maj. S. A. Jones, Confederate States Army, bearing the autograph of the author (62780).

MACKELDEN, J. W., St. Louis, Mo., and FROMAN A. BEACH, Jerseyville, Ill.: 9 Evans king snakes from Illinois and 3 young mice disgorged by one of the snakes (63453).

MACKELDEN, J. W., St. Louis, Mo.: 10 snakes from Missouri and Illinois (63342).

MACKLE, Mrs. H. I., Washington, D. C.: Commission of James R. Stephenson, second lieutenant, Seventh Regiment of Infantry, U. S. Army, dated February 1, 1822, and signed by President James Monroe and Secretary of War, J. C. Calhoun (62878, loan).

MACNEIL, PAUL H., Washington, D. C. (through Mrs. Elizabeth D. Macneil, Hammond, Ind.): Partial cast, in copper, of a bowlder, and bone and stone implements from various localities in the United States, and a minute Chinese drum (63088).

MACOUN, JAMES M. (See under Canada, Geological Survey of.)

MAIDEN, J. H. (See under Sydney, Australia, Botanic Gardens.)

MAIZE, Mrs. MARY READY, Lakeland, Fla.: A walrus tusk with engraving in black by a native Eskimo artist, collected by William H. Ready, brother of the donor, while in Alaska with the Stoney Expedition in 1880 or 1884 (63197).

MALLINSON & Co. (Inc.), H. R., New York City: 14 samples of "La Victoire" silks, illustrating the influence of the war upon textile design (63204).

MAN, ALBERT P., Washington, D. C.: A sandstone concretion from Brightwood, D. C. (63425).

MANN, Dr. WILLIAM M., U. S. Department of Agriculture, Washington, D. C.: 1,000 specimens, 5 species, of mollusks from The Bluff, Eleuthera, Bahamas, and 13 specimens, 2 spe-

MANN, Dr. WILLIAM M.—Continued. cies, of isopod crustaceans from Porto Rico (62614); sponge from Isabel, British Solomon Islands (63209); 11 specimens of beetles, Cicindelidae, etc., from Brazil (63430); 35 specimens of Lycidae from Brazil and 21 specimens of Telephoridae (63431, deposit); 433 specimens of beetles from Brazil and Africa (63432).

MANSFIELD, Mrs. RICHARD, New London, Conn.: The Richard Mansfield collection of theatrical costumes and accessories, worn by Mr. Mansfield in his principal historical rôles, 1882–1907 (478 specimens) (62906).

MARIE-VICTORIN. (See under Longueuil, College of.)

MARRIOTT, CRITTENDEN, Washington, D. C.: Collection of prehistoric flint implements and bone fragments from the valley of the Izere River, Department of Dordogne, France, collected by Crittenden Marriott, Y. M. C. A., and M. Peyrony, representative of the French Government, January, 1919 (63670).

MARSH, Mrs. CHARLES C. (See under Capt. Edward H. Watson, U. S. Navy.)

MARSH, O. GAYLORD, U. S. consul, Progreso, Yucatan, Mexico (through U. S. Department of Agriculture, Office of Foreign Seed and Plant Introduction): A miniature bale of Henequen fiber (63391).

MARSHALL, ERNEST B., Laurel, Md.: 2 squirrels, *Sciurus* (62899); 3 bird skins from Laurel, Md. (63040); skulls of 2 coons, *Procyon*, skulls of 18 muskrats, *Ondatra*, skull of a squirrel, *Sciurus*, and skulls of 4 minks, *Mustela* (63116, 63171, 63406); marsh hawk, *Circus hudsonicus* (63160).

MARSHALL, GEORGE, U. S. National Museum: 6 specimens of pirate perch, *Aphredoderus sayanus*, and 1 specimen of darter, *Hadropterus peltatus* (62662); 8 specimens of plants from Maryland (62693).

MASON, Mrs. SIDNEY, Philadelphia, Pa. (through Mrs. Julian-James, Washington, D. C.): Child's bonnet of shirred pink satin and blonde lace (63220); pair each of red, white, and blue cotton socks, worn by Miss Helen Mason, of Philadelphia (63767). Loan.

MASSACHUSETTS HORTICULTURAL SOCIETY, Boston, Mass. (through Wm. P. Rich, secretary): Fragment from the type specimen of a fern, *Cheilanthes fibrillosa*, from California (62741).

MASSACHUSETTS MOHAIR PLUSH Co., Boston, Mass.: 2 samples of mohair pile fabrics (63635).

MATTHAI, J. C., Baltimore, Md.: A large slab of Mar Villa marble from Cockeysville, Md. (63042).

MAYFIELD, W. H., Miami, Ariz.: Specimen of moth, *Telea polyphemus* (62757).

MEAD, W. J., University of Wisconsin, Madison, Wis.: 2 concretions from Panama (63602).

MERCK & Co., New York City: Specimen of nux vomica seeds and 7 specimens of nux vomica products (63745).

MERRIAM, Dr. C. HART, Washington, D. C.: 2 specimens of a fern, *Polystichum munitum*, from California (63340).

MESTAYER, Miss MARJORIE K., Wellington, New Zealand: 64 specimens, 20 species, of New Zealand mollusks, including the paratypes of 5 new species (62678, part).

MESTAYER, R. L., Wellington, New Zealand: 4 slides of Foraminifera, including 1,241 specimens from a dredging off the "Poor Knights" islands, east coast of New Zealand, by H. M. S. *Hinemoa* (62678, part).

MEXICO, MEXICO, MUSEO NACIONAL DE HISTORIA NATURALE (through Dr. A. L. Herrera, director): 1 gorgonocephalid echinoderm, the type of *Astrocynodus herrerai*, from the Gulf of Mexico (62979); 13 Mexican

MEXICO, MEXICO MUSEO NACIONAL DE HISTORIA NATURALE—Continued.
turtles (63123); 10 microscopical preparations of Bio - artifacts (63207).

MEYER, H. F., Smithsonian Institution: Mollusk, *Pleurodonte aspera*, found on a bunch of bananas in Washington, D. C. (63733).

MICHIGAN, UNIVERSITY OF, Ann Arbor, Mich.: 277 specimens of plants from Michigan (62645, exchange).

MIDWEST REFINING CO., Denver, Col.; Model of Salt Creek (Wyo.) oil field (63776).

MIGEL, J. A. (Inc.), New York City: 2 samples of dress silks (62992).

MILLER, G. S., jr., U. S. National Museum: Bat, *Nycteris borealis* (alcoholic) (63115).

MILLIKAN, Lt. Col. R. A. (See under Edward E. Nichols.)

MILLNER, I. B., U. S. Geological Survey, Washington, D. C.: Basket of interlaced palm leaf from Tutuila, Samoa (63400).

MINER, Mrs. M. J., Washington, D. C.: A straw basket brought from Madeira in 1840, and a cup and saucer of old English ware (62730).

MINNESOTA, UNIVERSITY OF, Minneapolis, Minn.: A complete individual of meteoric stone weighing 1.180 kilograms, from Richardton, N. D. (63126, exchange).

MISAK, FRED, Infantry School of Arms, Camp Banning, Columbus, Ga. (through Mr. W. E. Safford): A specimen of fossil cephalopod from near Columbus, Ga. (63386).

MISSOURI BOTANICAL GARDEN, St. Louis, Mo. (through Dr. J. M. Greenman, curator): Specimen of a fern, *Cheilanthes feei*, from Missouri (62912); specimen of plant, *Selaginella landii*, from Mexico (63014, exchange).

MITCHELL, S. A., U. S. Food Administration, Washington, D. C.: Rubber life-saving suit for use in case of submarine attack, of the type worn during the European War, 1914–1918 (63264).

MOLYBDENUM PRODUCTS CO., Minneapolis, Minn. (through Mr. F. L. Hess): Concentrates of molybdenite (62847).

MOONEY, WALWORTH MERRITT (through Miss Carolina J. Mooney, Brooklyn, N. Y.): A collection of 151 horsenails (62853).

MORBY, Miss MILDRED, Chenowith, Wash.: Specimen of oil beetle, *Meloe stringulosus* (63592).

MORE, R. L., Vernon, Tex. (through Dr. O. P. Hay): Tooth and jaw or mammoth and bone fragments of an edentate (62922).

MOREIRA, Dr. CARLOS, Museu Nacional, Rio de Janeiro, Brazil: Crustacean, *Aeglea intermedia*, collected in Santa Catharina, Brazil, by the donor (63287).

MORSE, EDWARD L., Pittsfield, Mass.: Marble bust of S. F. B. Morse, by Horatio Greenough, 1831 (with pedestal) (63089).

MOSIER, C. A., Homestead, Fla.: Box turtle from Homestead, Fla. (63396). (See also under Florida Federation of Women's Clubs.)

MOTT, Dr. GEORGE, Caxambas, Fla. (through Bureau of Fisheries): Specimen of fish, *Dules subligarius*, collected by fishermen at Caxambas (62839); 8 specimens, 8 species, of echinoderms, crustaceans and mollusks from Caxambas (63536).

MOTTER, Dr. MURRAY GALT, Washington, D. C.: 4 old books on the subject of Materia Medica and Therapeutics (63688).

MOXLEY, GEORGE L., Los Angeles, Calif.: Specimen of fern, *Cheilanthes covillei*, from California (62673); specimen of fern from Vera Cruz, Mexico (63560).

MUIR, Dr. JOHN M., Tampico, Tamps, Mexico (through Dr. J. Walter Fewkes): 3 well-made clay heads from the neighborhood of Panuco, Mexico (63524).

MUNK, Dr. JOSEPH A., Los Angeles, Calif. (through Dr. John Uri Lloyd, Cincinnati, Ohio): 23 volumes of the Transactions of the National Eclectic Association (63689).

MUNROE, Miss HELEN, Smithsonian Institution: Small piece of German cloth woven from paper yarn, picked up at Fère-en-Tardenois, France, at a ruined German railhead by the brother of the donor, a member of the American Expeditionary Forces (63121).

MUSEU GOELDI. (See under Para, Brazil.)

MUSEU ROCHA. (See under Ceara, Brazil.)

MUSEUM OF THE AMERICAN INDIAN, THE HEYE FOUNDATION, New York City: Skeletal material from excavations at Hawikuh, New Mexico, collected during the field seasons of 1917 and 1918 by Mr. F. W. Hodge (63196).

MYER, W. E., Carthage, Tenn.: Mollusk, *Io spinosa*, from Tennessee (63232).

MYERS, GEORGE HEWITT, Washington, D. C.: Collection of art rugs embracing the principal varieties from Persia, Asia Minor, Syria, Armenia, Anatolia, Turkestan, Bakhara, Caucasia, etc. (50 specimens) (63570, loan).

MYNTTI, MIKE, Ophir, Alaska: A jawbone and other bones of a fossil horse from Alaska (62860).

NATIONAL LEAD CO., New York City: Lead ore (3,000 pounds); "pig" lead (2 specimens); corroded and uncorroded buckles; 5 corroding pots, and 11 specimens of lead compounds (2 quarts each) (63775).

NATIONAL SOCIETY OF THE COLONIAL DAMES OF AMERICA, Washington, D. C. (through Mrs. Carolyn Gilbert Benjamin): Shoe buckle, match box, and seal owned by Gen. Washington and a pin decorated with a miniature portrait of him; eyeglass, 2 pins, and a piece of lace owned by Mrs. Washington; original inaugural address of President James Monroe and a pair of gloves worn by him, lent to the society by Miss Nannie Randolph Heth (63544, loan).

NATIONAL WAR GARDEN COMMISSION, Washington, D. C.: 8 posters (63350).

NAVY DEPARTMENT (through G. S. Burrell and Commander John Rodgers, U. S. Navy): An Indian skeleton, 2 bones of which are penetrated by metal arrowheads, found by G. S. Burrell, civil engineer, during recent excavations at United States submarine base, New London, Connecticut, and forwarded through Commander John Rodgers, U. S. Navy, commander of the base (62729); 2 emergency rations of the type used in the U. S. Navy, 1918 (62945); United States naval uniforms, equipment, rating badges and specialty marks, 1918 (225 specimens) (62954); United States naval rating badges as follows: Chief signalman (blue); signalman, first class (blue); chief carpenter's mate (white) (63110); (through M. D. Schaefer, Washington, D. C.) 29 recruiting posters issued by the U. S. Navy Department, 1917–18, during the European War (63313).

Bureau of Construction and Repair: Models of the U. S. cruiser *Denver*, and the battleships *Connecticut*, *Vermont* and *Oklahoma*, launched, respectively, 1902, 1904, and 1914 (63749, loan).

Bureau of Navigation: 2 bronze badges of the type awarded by the Navy Department for services during the Nicaraguan campaign, 1912, and the Haitian campaign, 1915, respectively (62966).

U. S. Coast Guard: 46 U. S. Coast Guard rating badges, 1918 (62952).

U. S. Marine Corps: Uniform and equipment of the type issued to enlisted men of the U. S. Marine Corps, 1918 (12 specimens) (62971); uniform chevrons and specialty marks

NAVY DEPARTMENT—Continued.
of the type worn by noncommissioned officers and enlisted men of the U. S. Marine Corps, 1918 (85 specimens) (63062); winter field uniform of the type worn by enlisted women of the U. S. Marine Corps, 1918 (9 specimens) (63266);

U. S. Marine Corps, Recruiting Publicity Bureau: 25 recruiting posters (63370).

NEUFELDT, Mrs. JOHN, Zionsville, Pa.: 13 freshwater pearls from near Palm, Pa. (63445).

NEW ENGLAND TELEPHONE & TELEGRAPH CO., Boston, Mass. (through M. B. Jones, first vice president): 2 sections of submarine telephone cable (62631).

NEWFOUNDLAND, GOVERNMENT OF, St. Johns, Newfoundland (through Secretary of State for the Colonies, London, England): War stamps of Newfoundland issued in 1919 (24 specimens) (63243).

NEW JERSEY ZINC CO., THE, New York City: 43 specimens of metallic zinc products and zinc compounds (63773).

NEW YORK BOTANICAL GARDEN, Bronx Park, New York City (through Dr. N. L. Britton, director): 8 specimens of plants and 4 specimens of ferns from Jamaica (62604, 63192, 63713); specimen of plant from New York (62611); 5 specimens of ferns and 1 specimen of moss from the West Indies (62820, 63587); specimen of plant from Florida (62877); 14 specimens of plants from the Isle of Pines, Cuba (62987, 63169); 94 specimens of mosses from the United States and Canada (62995); 293 specimens of mosses, chiefly from the United States (63145); 20 specimens of plants (63238, 63594); specimen of fern from South Carolina (63318); specimen of fern from Colombia (63415); 500 specimens of plants collected in Colombia by Messrs. Rusby and Pennell (63526); 3 specimens of ferns from Tortola (63646). Exchange.

NEW YORK BOTANICAL GARDEN—Contd.

NICHOLS, EDWARD E., Manitou Springs, Colo. (through Lieut. Col. R. A. Millikan): Specimen of smoky quartz, 1 of milky quartz, and 3 of iron pyrites (62704).

NICHOLSON, Miss GRACE, Pasadena, Calif.: A series of 21 photographs showing the method employed and various stages in the chipping of obsidian blades by Theodore Orcutt, a Karok Indian, of northern California; also a series of 16 chisels of antler, one attached to handle, illustrating the different sizes used by Mr. Orcutt in the chipping process (63276).

NITOBE, Mrs. INAZO, Tokyo, Japan (through Dr. Charles D. Walcott): 2 Malay head hunter's bags from the east coast of Formosa Island, Japan (63068).

NOBLES, FRED I. (See under William J. Drew.)

NORTON, J. B., U. S. Department of Agriculture, Washington, D. C.: Specimen of plant from Massachusetts (62856).

NOYES, FRANK B., Washington, D. C.: Portrait of Hon. Franklin K. Lane, by Ossip Parelma (62670).

NOYES, JOHN, R., Kenwood, N. Y.: United States 5-cent piece issued 1913 (63063).

OHIO STATE UNIVERSITY, Columbus, Ohio (through Prof. Robert F. Griggs): 3 specimens of plants from Alaska (63444).

OHLINGER, Mrs. F. E., Frostproof, Fla.: Specimen of plant from Florida (63687).

OLDROYD, Mrs. T. S., Stanford University, Calif.: 21 specimens, 11 species, of mollusks from California (62886); 300+ crustaceans from the west coast of the United States (63148).

OLMSTED, Mrs. H. F., Washington, D. C.: Foot stove made during the Colonial period by Benjamin Farmer of Rutland, Vt. (1742–1840) (63164).

OPPENHEIM, RICHARD, Roseville Nurseries, St. Helier, Channel Islands: 12 specimens of *Tiarella singularis* and 1 specimen of *Helecium pusillus* (coelenterates) from the British Channel Islands (62793).

ORCUTT, CHARLES R., La Jolla, Calif.: 17 species of shells from the beach at La Jolla (63007); 30 species of Quaternary fossils from La Jolla (63256); 4 salamanders from San Diego, Calif. (63467).

OREGON STATE AGRICULTURAL COLLEGE, Corvallis, Oreg. (through Prof. William E. Lawrence): 148 specimens of plants from Oregon (62798, 62907, 63720, exchange); 139 specimens of plants from Oregon (63084, 63494); through Miss Grace M. Cole: specimen of plant from Oregon (62782).

OSBURN, RAYMOND C., Ohio State University, Columbus, Ohio: 79 microscopic slides with notes and sketches made by Oscar Harger in connection with his report on New England isopods (62897).

OSTERHOUT, GEO. E., Windsor, Colo.: 5 specimens of plants from Colorado (62855).

O'SULLIVAN, THOMAS B., Washington, D. C.: An oil painting entitled "The Madonna and Child," attributed to Raphael (63669, loan).

OUELLET, Rev. J., Outremont, Quebec: 2 specimens of flies—*Hippelates* n. sp., and *Hydrellia cruralis* (63603).

OWEN, E. T., University of Wisconsin, Madison, Wis. (through Mr. William Schaus): About 1,000 Lepidoptera and 500 Hymenoptera from Argentina (63331).

PACK, H. J., Salt Lake City, Utah: 15 lizards from Great Salt Lake, Utah (62785).

PALMER, WILLIAM, U. S. National Museum: Skin and skull of a mounted rabbit, Sylvilagus (63228); specimen of summer flounder, *Paralichthys dentatus*, from near South Chesapeake Beach, May 7, 1919 (63557); flicker, *Colaptes auratus luteus*, from Virginia (63727).

PALMER, WILLIAM—Continued.

PARA, BRAZIL, MUSEU GOELDI (through Dr. J. Simao da Costa, Director): 1,017 specimens of plants collected in Brazil by Dr. A. Ducke (63262, exchange).

PARKE, DAVIS & Co., Detroit, Mich.: 18 official preparations of opium, and a series of specimens showing steps in the manufacture of glass ampoules (63550).

PARKS, W. S. (See under Columbia Graphophone Co.)

PARTINGTON, Mr. and Mrs. F. E. (through Mrs. Julian-James, Washington, D. C.): Specimens of infants' wearing apparel of 1856–7, and a lady's velvet handkerchief-bag of 1830, all from the State of Maine (63765, loan).

PASKA, JOHN, Selleck, Wash.: Barnacle from Point Gamble, Wash. (63303).

PATERSON, WILLIAM, Cresson, Pa. (through David White): Fragments of mineral charcoal from No. 7 mine of Pennsylvania Coal & Coke Corporation at Amsby, Gallatin Township, Cambria County, Pa. (63326).

PEARL PRODUCTS CO., THE, Benton Harbor, Mich.: 2 mollusks of the species *Lymnaea palustris*, bred from unknown parentage (63247).

PEARSE, Dr. A. S., University of Wisconsin, Zoological Laboratory, Madison, Wis.: 13 specimens, 3 species, of decapod crustaceans collected in Venezuela (63043). (See also under Dr. Juan Iturbe.)

PECKHAM, Miss MARY W., Providence, R. I.: Pebbles of thomsonite and lintonite collected by Stephen F. Peckham on the north shore of Lake Superior (63085).

PELANT, CHARLES, Czechoslovac National Alliance, New York City: Postage stamps of Austria, Czechoslovakia and Jugo-Slavia, issued 1916–17 (38 specimens) (63710).

PENNY, F. W., Pointe-à-Pierre, Trinidad, British West Indies (through Dr. T. Wayland Vaughan): A collection of fossil corals from Trinidad (63186).

PEREZ, GILBERT S., Lucena, Tayabas, P. I.: 75 specimens, 4 species, of shells, including the types of 3 new subspecies from the Philippine Islands (62703).

PERKINS, CECIL F., Ogonquit, Me.: A cluster of fish eggs, probably sculpin, *Myoxocephalus* sp. (62640).

PERRY, LEWIS E., U. S. National Museum: Specimen ear of White Leaming corn grown in Perry Township, Fayette County, Ohio (63039).

PESTER, Capt. L. C., Chicago, Ill.: Shed skin of a blacksnake, *Coluber constrictor* (63693).

PFIZER & Co. (Inc.), CHAS., New York City: 15 specimens of organic and inorganic medicinal chemicals (63208).

PHILIP, Hon. HOFFMAN, care Department of State, Washington, D. C.: Bronze statuette of Dionysius on a marble base; part of stone statuette of an Egyptian lady or goddess; a Phenician iridescent glass vase found in Syria and a Neopolitan dressed terra-cotta figurine of a Kurdish porter at Cairo, Egypt (63520); an oil painting "The Infant Jesus and St. John," by Rubens (1633) (63521, loan).

PHILIPPINE ISLANDS, GOVERNMENT OF THE, Manila, P. I.:

Bureau of Science: 12 photographs of type specimens of plants (62643); 5,600 specimens of plants chiefly from the Philippine Islands (63185.) Exchange.

PHILIPSE, Miss CATHARINE W., New York City (through Mrs. R. G. Hoes): White cotton counterpane, 2 polonaise dresses (incomplete), and a pair of white kid gloves, of the latter part of the nineteenth century (63025, loan).

PHILIPSE, Miss CATHARINE W.—Con.

PILSBRY, Dr. HENRY A., Academy of Natural Sciences, Philadelphia, Pa.: 15 specimens, 2 species, of mollusks from Bermuda and California, topotypes of *Vertigo* (62970); land shell, *Bulimulus nigromontanus*, from Pina Blanca Canyon, above Oro Blanco road, Pina County, Ariz., collected by J. H. Ferriss (63708).

PIPER, Prof C. V., U. S. Department of Agriculture, Washington, D. C.: Type specimen of a plant, *Vaccinium coccineum* (62610); 5 land shells from Moclips, Wash., collected by the donor (62754). (See also under M. W. Gorman.)

PITTIER, H., U. S. Department of Agriculture, Washington, D. C.: 900 specimens of Venezuela plants (63036, 63288); about 600 specimens of plants from Venezuela (63184).

POOLE, A. J., Washington, D. C.: Skin and skull of a white-footed mouse, *Peromyscus* (62747).

POPENOE, WILSON, Washington, D. C.: Rubber poncho made in Guatemala and covered with pure gum "Ule" (63788).

PORTERFIELD, CHARLES, Charles Town, W. Va.: Daguerreotype portrait of Alexander D. Bache (1806–1867) (63317).

POST, GEORGE, Sebastopol, Calif.: Collection of obsidian chips and rejects found beneath the surface near Sebastopol, Calif. (62802).

POST OFFICE DEPARTMENT: 10 sets of specimen stamps, etc., in triplicate (1,324 specimens) received from the International Bureau of the Universal Postal Union, Berne, Switzerland (62632, 62736, 62884, 63060, 63066, 63134, 63332, 63490, 63577, 63779); United States postage stamps, issued in 1918 (21 specimens) (62700); United States postage stamps as fol-

POST OFFICE DEPARTMENT—Continued. lows: Ordinary stamps, offset printing, imperforate, three sheets of 400 3-cent stamps each; ordinary stamps, current series, three $2 stamps and three $5 stamps, airplane stamps, current series, three 16-cent stamps (1,209 specimens) (62801); United States stamped envelopes, circular die, 1, 2, 3, 4, and 5 cent denominations, on white, amber, buff, blue, and manila paper, design of 1915 (66 specimens) (62843); Belgian and French Red Cross postage stamps in triplicate (51 specimens) (63013); United States postage stamps, in triplicate, namely, 1-cent, offset printing; 6-cent, air mail; and 13-cent (63211); 3 specimens of the 3-cent Victory stamp, issued in 1919 (63388); postage of the Czecho-Slovak Republic issued in 1919 (16 specimens) (63443).

POWELL, Mrs. W. H., New York City: 2 oil portraits by William H. Powell, A. N. A.; "Washington at Valley Forge," and "Alphonse Marie Louis de Lamartine," 1790–1864, painted from life (62779, loan).

PREBLE, E. A., Washington, D. C.: Specimen of wood turtle from Virginia (62744).

PRETZ, HAROLD W., Allentown, Pa.: 80 specimens of plants from Pennsylvania (63052, exchange).

PRINCE, Prof. EDWARD E., Ottawa, Canada: 2 specimens of crabs, *Elamene lacustris*, from Lake Takapunza, Auckland, New Zealand, collected by the donor in September, 1914 (62745).

PRINCE, HAROLD W., Detroit, Me.: A type specimen of fossil pelecypod, *Grammysia* (*Grammysioidea*) *princiana* (62957, exchange).

RAMSDEN, CHARLES T., Guantanamo, Cuba: 5 specimens, 2 species, of crustaceans from Cuba (63454).

RAND, NATHANIEL D., Columbus, Ohio: 2 watches (63005, loan).

RAVENEL, W. DEC., U. S. National Museum: Service uniform coat with insignia, breeches, cap, hat, leather puttees, shoes, gauntlets, woolen sweater and helmet, and leather coat, worn by a second lieutenant, Aviation Section, Signal Corps, U. S. Army (62826); the certificate of graduation of William deC. Ravenel, jr., from the United States School of Military Aeronautics, Princeton, N. J., dated November 17, 1917; his honorable discharge from the United States Army as private, first class, Aviation Section, Signal Enlisted Reserve Corps; and his commission as second lieutenant Aviation Section, Signal Officers' Reserve Corps, both dated April 25, 1918 (63277). Loan

RED CROSS, THE INTERNATIONAL COMMITTEE OF, GENEVA, SWITZERLAND (through Department of State): Collection of foreign envelopes showing various types of stamps and franks used during the European War (93 specimens) (62932).

REED, F. M., Riverside, Calif.: 19 specimens of ferns from California (63074, 63177, 63253).

REID, EARL D., U. S. National Museum: A series of otoliths (ear stones) dissected from the heads of codfish, haddock, whiting, weakfish, red snapper, black bass, yellow perch, rockfish, cero, and salmon, obtained in the Washington market (63097); 58 pairs of otoliths (ear stones) dissected from the heads of fishes obtained in the markets of Washington, namely, shad, snook or sergeant fish, black-spotted sea trout, pickerel, silver jenny, spot, flounder, kingfish, large mouth black bass, mullet, mullet sucker, yellow perch, rockfish, and channel bass (63597).

REKO, Dr. B. P., Oaxaca, Mexico: 243 specimens of plants from Mexico (62713, 62875, 63077, 63596); 2 specimens and 3 photographs of cacti (62813).

RENSON, Dr. CARLOS, San Salvador, El Salvador: 12 specimens of plants from El Salvador (63349).

REYNE, A., Entomologist, Agricultural Experiment Station at Paramaribo, Dutch Guiana: 5 specimens, 3 species, of wood-boring marine mollusks from Dutch Guiana (63640).

REYNOLDS, A. G., Gulfport, Fla.: Specimen of Gulf toad fish, *Opsanus tau pardus* (63100).

RICH, WM. P. (See under Massachusetts Horticultural Society.)

RICHARDSON, Mrs. CHARLES W., Washington, D. C. (through Mrs. Julian-James): 3 ladies' bonnets and a bandbox of the early part of the nineteenth century, and 5 small books for children, same period (62936); a bound volume entitled "Godey's Lady's Book" (Philadelphia, 1857, 570 pages) (63768) Loan. (See also under Mrs. Grace Berry.)

RIDGWAY, ROBERT, Olney, Ill.: 18 snakes and toads, 5 mice, 2 bats, and 1 shrew (63449).

RIEDEL, F. A., Rocky Ford, Col.: Fish teeth from the Cretaceous, Rocky Ford, Colo. (63551, exchange).

RILEY, J. H., U. S. National Museum: 16 bird skins from Argentina (63633).

ROACH, Mrs. MARY J. (See under William H. Gray.)

ROCK, J. F. (See under Hawaii, The College of.)

RODDY, Dr. H. JUSTIN, Millersville, Pa.: A fine exhibition slab of Lower Cambrian trilobites (62639, exchange).

RODGERS, Commander JOHN, U. S. Navy. (See under Navy Department.)

ROGERS, Maj. Gen. H. L., Quartermaster General, U. S. Army: Trench mortar, rifles, helmets, armor, cartridge cases, and other relics of the war with Germany, 1917–18 (64 specimens); United States cartridge clip with fragment of shrapnel imbedded therein showing a direct hit, found September 12, 1918, in the Forest of Nesles, France; German steel man trap, military insignia, and small paraphernalia, captured by the American forces during the war with Germany, 1917–18 (51 specimens) (63472; 63638; 63782, loan); German military paraphernalia made of paper during the European War, 1914–18 (43 specimens) (63590).

ROIG, Dr. MARIO SANCHEZ, Havana, Cuba: 22 specimens of isopod crustaceans representing the species *Ligyda baudiana*, from La Puntilla, Vedado, Havana, Cuba (63201); 11 species of fossil invertebrates from Tejar Consuelo, Cerro Cienaga, and Marianao Beach, near Havana, probably Pleistocene (63695).

ROLLER-SMITH Co., New York City: An early lamp indicator engine-room voltmeter (63067).

ROPER, Miss IDA M., Redland, Bristol, England: Map of the United States (18 by 30 inches), published by J. H. Colton, 1862 (63131).

ROUNDY, PAUL V., U. S. Geological Survey, Washington, D. C.: 58 specimens of marine mollusks from Maine (63612).

ROWAN, Mrs. HAMILTON, Washington, D. C.: 4 paintings of native Philippine life, by Filipino artists, brought from Manila by Vice Admiral S. C. Rowan in 1870, and 5 specimens of Sioux and other Indian beadwork (63666).

ROWLEE, Prof. W. W., Cornell University, Ithaca, N. Y.: 12 specimens of plants, *Ochroma*, from Central America (63621).

ROWLETT, Mrs. S. C., Monroe, Va.: Specimen of dragon plant, *Dracunculus vulgaris* (63714).

ROXO, MATHIAS G. DE OLIVEIRA, Rio Janeiro, Brazil: A collection of Brazilian eruptive rocks (62791).

RUTH, Prof. ALBERT, Polytechnic, Tex.: 50 specimens of cacti and plants from Texas (62597, 62940).

RUTHVEN, Dr. ALEXANDER G., University Museum, Ann Arbor, Mich.: Type and paratype of *Ambystoma stejnegeri* from Iowa (62905).

SAFFORD, W. E., Washington, D. C.: Piece of striped cotton fabric used by Guatemalan Indians as a garment, purchased by the donor in Guatemala City (63787). (See also under Miss Mary E. Francis and Fred Misak.)

ST. GEORGE, R., East Falls Church, Va.: Worm snake, *Carphophis amoenus* (63513).

ST. KITTS, WEST INDIES, GOVERNMENT OF (through Secretary of State for the Colonies, London, England): 4 specimens of each of the war stamps of St. Kitts-Nevis, namely, 1½-pence war stamp and ½-penny war tax stamp issued during the European War, 1914–1918 (63195).

ST. LUCIA, BRITISH WEST INDIES, GOVERNMENT OF (through Secretary of State for the Colonies, London, England): 50 specimens of the St. Lucia 1-penny war tax stamp issued during the European War, 1914–1918 (63199).

SALTUS, J. SANFORD (through the American Numismatic Society, New York City): A silver copy and a bronze copy of the medal by T. Spicer Simson commemorating the aerial crossing of the English Channel by the King and Queen of the Belgians, 1918 (63442).

SANCHEZ, Dr. MARIO, Sr., Havana, Cuba: 100 specimens, 50 species, of mollusks and 2 specimens, 1 species, of echinoderms from Cuba (63343).

SANFORD, Dr. LEONARD C., New Haven, Conn.: 11 skins of petrels from the west coast of South America (63182, exchange).

SAN JOSÉ, COSTA RICA, MUSEO NACIONAL (through A. Tonduz): Specimen of plant from Costa Rica (63078).

SARGENT, Dr. C. S. (See under Harvard University, Cambridge, Mass., Arnold Arboretum.)

SATTERLEE, Mrs. FRANCIS LEROY, New York City (through Mrs. R. G. Hoes): White cotton petticoat, polonaise dress, pair of white kid gloves, pair of slippers, and pair of white silk stockings, of the latter part of the nineteenth century (63024, loan).

SCHAEFER, M. D. (See under Navy Department.)

SCHALLER, Dr. W. T. (See under American Museum of Natural History.)

SCHAUS, WILLIAM. (See under Prof. E. T. Owen.)

SCHMID, EDWARD S., Washington, D. C.: 4 weaver birds (63644); white cockatoo, *Cacatua galerita* (63717).

SCHROEDER, Miss EM-SIDELL, Middleburg, Va.: 11 specimens of woven and dyed fabrics, and 3 Japanese stencils (63498, loan).

SCHUCHERT, Prof. CHARLES, Yale University, Department of Geology, New Haven, Conn.: 15 species of Pleistocene shells from the "Leda clays" of western Newfoundland, collected by Dunbar and Edwards 1 mile south of Parson's Point, a few feet above the sea (62963).

SCHULZ, Miss ELLEN B., San Antonio, Tex.: 6 specimens of plants from Texas (63471, 63629).

SCHWARZ, Dr. E. A. and Mr. H. S. BARBER, Bureau of Entomology, U. S. Department of Agriculture, Washington, D. C.: 3 tree frogs and 2 lizards from Florida (63381).

SCOFIELD, KENDRICK, Washington, D. C.: A bottle-form vase from British Guiana, amphora from Cyprus, and a pierced copper foot warmer from western China (63525, exchange).

SCOTT, GEORGE S., New York City (through Dr. Edgar T. Wherry): A specimen of iridescent quartz (62809).

SELLARDS, Dr. E. H., University of Texas, Austin, Tex.: 16 specimens of landshells from Texas (63297). (See also under Florida, Geological Department of the State of.)

SEWALL, HAROLD I., New York City: 2 gold lacquer chests, Japan (62852, loan).

SHAEFFER, ALVA, Brazil, Ind.: A collection of fossil invertebrates and plants from the Carboniferous and Silurian rocks of Indiana, and the Tertiary rocks of Mississippi and Florida (62638).

SHANNON, EARL V., U. S. National Museum: 6 specimens of minerals from Westfield, Mass., described by the donor (63599).

SHARP & DOHME, Baltimore, Md.: 18 specimens of official preparations of Nux Vomica (63746).

SHELDON, G. L., Denver, Colo.: 7 specimens of fluorspar from Jamestown, Central Mining District, Boulder County, Colo. (63615).

SHERARD, Mrs. JOHN H., Sherard, Miss.: Nest of a Baltimore oriole, *Icterus galbula*, from Mississippi (63096).

SHERFF, EARL E., Chicago, Ill.: 21 specimens of plants (62738, exchange).

SHERMAN, Miss MARY ELIZABETH, Boston, Mass.: United States flag with pole and cord, and United States Army Headquarters flag with pole and cord, owned by Gen. William T. Sherman, U. S. Army (62827).

SHERMAN, P. T. (See under Miss Mary Elizabeth Thackara, and Mrs. Eleanor Sherman Thackara Cauldwell.)

SHRADER, Dr. J. H. (See under Boyer Oil Co., California Associated Raisin Co., Essenkay Products Co., the Hauck Food Products Corporation, the Southern Cotton Oil Co., Spencer Kellogg & Sons (Inc.).)

SHUFELDT, Dr. R. W., U. S. Army (retired), Washington, D. C.: Banana rat, *Nyctomys*, and young (alcoholic) (62718); 2 salamanders (63452); 2 lizards, 2 salamanders, 2 butterflies and a spider (63578); 7 lizards from various localities in the United States (63604); a toad and a lizard from Florida, and 2 turtle eggs (63628); 2 weaver birds, *Erythura prasina* (63643); salamander, *Plethodon glutinosus*, from Dyke, Va. (63671).

SIMPSON, C. B., Okeechobee, Fla.: Tooth of a mastodon, from near Okeechobee, Fla. (62766).

SIMPSON, JAMES, Banff, Alberta, Canada (through Dr. Charles D. Walcott): A small collection of carboniferous fossils from the Brazeau River District, Alberta, Canada (63021).

SIMPSON, Mrs. W. J., Selah, Wash.: A specimen of opal (63032).

SLATER, Mrs. H. D., Washington, D. C.: 27 specimens of plants from Texas (62680).

SMILLIE, THOMAS W. (through Miss Lydia E. Smillie, Washington, D. C.): Bronze statuette, "The genius of Photography," by Lafon de Camarsac (63136).

SMITH, ALLYN G., Berkeley, Calif.: 12 specimens, 7 species, of mollusks from California, including the types of 4 new species (62870).

SMITH, CHARLES PIPER, Maryland Agricultural College, College Park, Md.: 34 specimens of plants from the United States (62924).

SMITH, C. R., Toledo, Ohio: Foot warmer of Binghamton ware, 80 or more years old (62641).

SMITH, Capt. JOHN DONNELL, Baltimore, Md.: 18 specimens of plants from Central America (62653); specimen of plant from Costa Rica (63200); 4 specimens of mosses from Florida (63647).

SMITH, MALCOLM, Bangkok, Siam: Snake, *Thalassophis anomalus* (63076, exchange).

SMITHSONIAN INSTITUTION:

About 7,000 specimens of Cambrian fossils (63702, deposit).

Bureau of American Ethnology: 2 skeletons and 2 skulls found on the property of the Roxana Petroleum Co. of Oklahoma, South Wood River, Ill., and presented to the Bureau (62630); 12 prehistoric pottery heads found in Huaxtec mounds, and presented to Dr. J. Walter Fewkes by John M. Muir, of Tampico, Mexico (62931); archeological specimens obtained by Mr. F. W. Hodge at Hawikuh, N. Mex., in 1917, as part of the cooperative work of the Bureau of American Ethnology and the Museum of the American Indian, Heye Foundation (63154); archeological specimens and an Indian skull from different localities in Arizona, collected by Dr. Walter Hough in 1918 (63156); archeological specimens and skeletal remains from Gourd Creek, Mo., collected by Mr. Gerard Fowke in 1918 (63157); a specimen of slag with embedded charred corn collected by Dr. J. Walter Fewkes from a ruin in Mancos Valley 3 miles west of the bridge on the Cortez Ship-rock Road, Colo. (63174); sandstone pipe found on Black Warrior River, Tuscaloosa County, Ala., and presented to the Bureau by Mr. F. H. Davis, U. S. Engineer Office, Little Rock, Ark. (63509).

National Museum, collected by members of the staff: Bartsch, Paul: Logger-head sponge from Florida (63283); specimen of cactus, *Opuntia*, collected in Florida (63684); a collection of birds, reptiles, fishes, insects, mollusks, and other marine invertebrates from Florida (63725). Bassler, R. S.: 32 large exhibition specimens illustrating geological phenomena, 300 pounds of glauconite, 250 specimens of chert, several thousand specimens of Upper Cretaceous invertebrates from New Jersey, and

SMITHSONIAN INSTITUTION—Contd.

1,500 Middle Ordovician fossils from Kentucky (62762); an exhibition slab of fossiliferous sandstone from the Eocene at Aquia Creek, Va. (63694). Boss, Norman H. and William Palmer: Skull, lower jaws, vertebrae, and ribs of a fossil porpoise from the cliffs along Chesapeake Bay (62810). Hrdlička, A.: Conch shells, pick-like implement without the haft, from Hamilton's Hammock, Lostman's River, Fla., November, 1918 (62984). Martin, Dr. J. C.: Collection of rocks, minerals, and ores for school duplicates, from New Jersey, Pennsylvania, and New York (62667). Martin, J. C. and H. Warner: A collection of granite gneiss and decomposition products showing the process of weathering from Rock Creek Park, for school series (62879). Resser, Charles E.: A collection of approximately 200 specimens of minerals and ores and 500 specimens of Lower Cambrian fossils (62637). Rose, J. N.: 2,000 specimens of Ecuadorean plants, also shells, 2 birds, skull of a mammal, and a specimen of fossil leaf collected in Ecuador in 1918 (63041). Schmitt, Waldo L.: 26 specimens of fishes collected in the tidepools at La Jolla, Calif. (63448). Standley, Paul C.: 5 specimens of plants from the vicinity of Washington, D. C. (63730). Walcott, Charles D.: Skin, skull, and leg bones of a deer, *Odocoileus*; skin, skull, and ankle bones of a goat, *Oreamnos;* skins of 2 sheep, *Ovis*, and skin and skull of a wolverine, *Gulo luscus* (62901); skin and skull of a black bear, *Ursus;* skulls and leg bones of 2 sheep, *Ovis*; and skull of a moose, *Alces* (63170).

National Museum, obtained by purchase: 2 copies in bronze of the medal issued by the American Numismatic Society in commemoration of the visit to New York of the French and British War Commissioners in 1917 (62708); insignia

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of the United States Army, Navy, Marine Corps, Coast Guard, Public Health Service, Army Transport Service, Shipping Board, Boy Scouts, Salvation Army, Y. M. C. A., Y. W. C. A., and K. of C. (790 specimens) (63409); 2 bronze copies of the medal by A. Lukeman, commemorating the unveiling of a memorial to Lafayette, Brooklyn, 1917, and a bronze copy of the medal by T. Spicer Simson, commemorating the aerial crossing of the English Channel by the King and Queen of the Belgians, 1918 (63441); Victory Medallion of the Art War Relief, designed by Paul Manship (63338); etched portrait of Theodore Roosevelt, by Otto Schneider (63314); bat, spider, fish and 4 reptiles (62902); specimens of foodstuffs (63221); 2 Mexican land turtles (63122); 194 specimens of plants from Missouri (63281); national flags of Belgium, France, Great Britain, Italy, Greece, Japan, and Roumania (63098); 80 specimens of Uganda plants (62689); 202 specimens of plants from British East Africa (63180); postage stamps of Bermuda, British Honduras, Dominica, Jamaica, Trinidad and Tobago, Turks and Caicos Islands, Virgin Islands, French India, Ivory Coast, Middle Congo, Morocco Protectorate, Senegal, Tunis, Italy, Eritrea, and Libia, issued 1915–1918 (29 specimens) (62634); postage stamps of Great Britain and Russia, issued during the European War, 1914–1918 (14 specimens) (63401); 3,995 specimens of Philippine plants (62603); specimens of foodstuffs (63222); an ancient California Indian pestle of exceptional form and finish (62864); collection of ponchos and blankets of the Amasari Indians, Bolivia, South America (6 specimens) (62769); 356 specimens of plants from Argentina (62799); postage stamps of Great Britain and Italy issued during the European War, 1914–1918 (21 specimens) (63459); specimens of ankerite and pyrite in chlorite from near Charlemont, Mass. (62928); specimens of foodstuffs (63226); 338 specimens of plants from South Carolina (63692); plaster casts of restorations of the following skulls: *Pithecanthropus erectus; Homo heidelbergensis* and Chapelle-aux-Saints (63516); United States military insignia (74 specimens) (63133); United States naval officers' insignia, Legion of Honor fourragere, and collar insignia of unassigned officers, U. S. Army (98 specimens) (63308); Army, Army Corps, Division, and Special Unit Insignia, worn by officers and enlisted men of the U. S. Army during the War with Germany, 1917–1918 (113 specimens) (63785); complete individuals of meteoric stone which fell at Cumberland Falls, Whitley County, Ky., April 9, 1919 (63580); 46 fragments, weighing 13,436 grams, of an individual of the Cumberland Falls, Whitley County, Ky., meteoric stone (63704); postage stamps of Czechoslovakia, France, Great Britain, Greece, and Russia, issued during the European War, 1914–1918 (82 specimens) (63402); large chipped blade, brown obsidian, of recent manufacture, made by an Indian living near Mount Shasta, Calif. (63278); crystal of quartz (62758); postage stamps of Hungary surcharged for Jugo-Slavia (29 specimens), and postage stamps of Bosnia surcharged for Jugo-Slavia (16 specimens) (63699); postage stamps of Nicaragua, issued 1907 (24 specimens) (62665); 261 specimens of Venezuelan plants (62600, 63672); 22 models of raw and cooked foods (62823); 2 meteoric stones, weighing 327 and 645 grams, from the Richardton, North Dakota, fall (63301); bannerstone of rose quartz (63546); 40 specimens of Devonian fossils (63125); 15 specimens of reptiles

SMITHSONIAN INSTITUTION—Contd.

and amphibians from Florida (62622); specimen of frog, *Rana aesopus*, from Marion County, Fla. (62679); polished stone bead (impure serpentine rock) from the Aguan R. District, Spanish Honduras (63658); model showing occurence, mining, transportation, utilization, and waste of natural gas (63774); 200 specimens of Lower Cambrian fossils from Lancaster County, Pa. (62837); military decorations of the type awarded by the Allies and the Teutonic powers during the European War, 1914–1918 (15 specimens) (63002); skull and part of skeleton of the fossil reptile, *Diplocaulus copei* (62636); fossil reptilian material consisting of 1 skull of *Monoclonius*, 1 skull and partial skeleton of *Tylosaurus*, 1 articulated series caudals of *Platycarpus*, and 2 hind paddles of *Tylosaurus* (63263); skull and small bones of a beaked whale, and skins and skeletons of 2 porpoises from Alaska (62808); 7 specimens of turtles (62737); specimens of foodstuffs (63218); 3 specimens of scheelite and 2 of scheelite with native gold, from New Zealand (63461).

National Museum, made in Anthropological Laboratory: Lay figure of "The Japanese Wood-block Cutter," and specimens to be included in the exhibit as follows: Unused block for the wood-block cutter, wood-block with original drawing pasted face downward and partly engraved, and an engraver's table (63758).

National Museum, made in the Laboratory of the Division of Textiles: Model of a typical wood pulp and paper mill (63334); model of oil of sweet birch still, showing the still, condenser, and receiver (63335).

National Zoological Park: 6 etchings by A. Bouveure, after Delacroix, namely tiger in the mountains, tiger and a tree, standing lion, lioness and lion in a

SMITHSONIAN INSTITUTION—Contd.

cave, 2 reclining lions, and a tiger drinking (62629); skull and skeleton of a bear, *Ursus americanus perniger* (62658); skeletons of 19 birds (62699); weka rail, *Ocydromus australis*, black swan, *Chenopis atrata*, ferruginous rough-leg, *Archibuteo ferrugineus*, 2 specimens of wood duck, *Aix spensa*, and a touraco, *Turacus corythaix* (62717); skin and skull of anoa, *Anoa depressicornis;* wallaby, *Onychogale frenata* (head in alcohol), skin and skull of a kangaroo, *Macropus rufus*, and skin and skull of a cavy, *Dolichotis patagonica* (62734); South American guinea pig, *Cavia*, alcoholic (63258); 2 young lions, *Felis leo* (alcoholics) (63537); tiger, *Felis tigris longipilis* (alcoholic) (63588); skin, skull, and skeleton of an agouti, *Dasyprocta cristata* (63598); young wood duck, *Aix sponsa* (63641); kea parrot, *Nestor notabilis*, whistling duck, *Dendrocygna arcuata*, severe macaw, *Ara severa*, brant, *Branta bernicla glaucogastra*, upland goose, *Chloephaga leucoptera*, crowned hawk eagle, *Spizaetus coronatus*, and Cape Barren goose, *Cereopsis novaehollandiae* (63653); skull of a bear, *Ursus horribilis* (63659); 2 eggs of California condor, *Gymnogyps californianus*, and cinereous vulture, *Vultur monachus* (63703); whistling duck, *Dendrocygna arcuata*, Garganey teal, *Querquedula querquedula*, trumpeter swan (female), *Olor buccinator*, crested screamer, *Chauna chavaria*, stout-billed euphonia, *Tanagra crassirostris*, mute swan, *Cygnus gibbus*, and crimson-backed scarlet tanager, *Ramphocelus dimidiatus* (63718); specimen of bronze-winged pigeon, *Phaps chalcoptera* (63719). (See also under Crovo & Co.)

Smithsonian Victory Liberty Loan Committee: German helmet captured by American troops and awarded to the chairman of the Smithsonian Victory Liberty Loan Committee, 1919 (63763).

SNYDER, THOMAS F., Bureau of Entomology, U. S. Department of Agriculture, Washington, D. C.: 5 specimens, 3 species, of mollusks collected by the donor from black humus, Paradise Key, Lower Everglades, Fla. (63416); 38 specimens, 2 species, of landshells collected at Miami Beach, Fla. (63305).

SOLEY, Lieut. Commander JOHN C., U. S. Navy, New Orleans, La.: A sample of volcanic sand which fell on the deck of the Belgian steamer *President Bunge*, October 23, 1918, 170 miles, 160° from Hecla (63273).

SOMES, M. P., Kalispell, Mont.: 2 frogs, *Rana pretiosa*, from Montana (62944).

SOUTH DAKOTA, UNIVERSITY OF, UNIVERSITY MUSEUM, Vermillion, S. Dak.: 2 specimens of *Scolopendra morsitans* (63394).

SOUTHERN COTTON OIL CO., THE, New Orleans, La. (through Dr. J. H. Shrader, U. S. Department of Agriculture): 6 samples of cottonseed oil (62771); a series of specimens showing the production of oil from cotton seed (63227).

SOY-LAC FOOD PRODUCTS CO., London, Ontario, Canada: 3 specimens of soy bean products, bread, breakfast cereal, and "cocolate" (62687).

SPENCER KELLOGG & SONS (Inc.) Buffalo, N. Y. (through Dr. J. H. Shrader, U. S. Department of Agriculture): 21 samples of vegetable oils (62773).

SPENSLEY, Mrs. WILLIAM P., Chicago, Ill.: A piano made by hand by Gerhardt Feldhar in 1844 (63676).

SPIER, GEORGE W., Washington, D. C.: Pair of spectacles, McAllester, Philadelphia, 1800, and an American watch, "Tremont Watch Co., Boston, No. 1323" (63547).

SPRINGER, Hon. FRANK, East Las Vegas, N. Mex.: 6 cut garnets from Fort Defiance, Ariz. (63606).

SQUIBB, E. R. & SONS, New York City: Copy of Squibb's Atlas of Official Drugs (63511).

STANDARD TEXTILE PRODUCTS CO., THE, New York City: Samples of oilcloth, leather cloth, and articles showing the application of the same (63748).

STARR, DOUGLAS N., Washington, D. C.: United States gold, silver, and nickel coins, issued 1794–1918 (133 specimens); United States silver dollars, issued 1796, 1797, 1798, 1800, and 1847, one each; 3 United States silver dollars issued, respectively, in 1798, 1803, and 1836; United States dollars issued, respectively, 1795 (2 specimens), 1801, and 1836, and Massachusetts threepence, pine tree shilling, and oak tree shilling, dated 1652 (7 specimens); 2 Massachusetts silver pine tree shillings, 1652 (63065, 63102, 63166, 63384, 63664, loan); 3 photographs showing, respectively, Gen. Ulysses S. Grant during his last illness, his funeral procession in 1885, and his temporary tomb on Riverside Drive; also 2 German silver coins and 6 specimens of paper currency; 5 specimens of Filipino arms and weapons; 3 French coins, namely, quarter franc, silver, 1804, 25 centimes, nickel, 1917, and 1 franc, silver, 1919 (63167, 63244, 63665).

STATE, DEPARTMENT OF. (See under France, Government of; Great Britain, Government of; Italy, Government of; Countess d'Hautpoul; Red Cross, International Committee of, at Geneva, Switzerland.)

STEELE, E. S., Washington, D. C.: 10 specimens of plants from the vicinity of Washington (62720).

STENT, E. A., San Francisco, Calif. (through Mr. F. L. Hess): A specimen of scheelite from White Pine County, Nev. (62836).

STEPHENS, Mrs. KATE, Natural History Museum, Balboa Park, San Diego, Calif.: 33 specimens, 4 spe-

STEPHENS, Mrs. KATE—Continued.
cies, of crustaceans from the west coast of the United States (63231); 50 amphipod crustaceans, *Talitrus*, sp., and 1 isopod crustacean, *Armadillidium vulgare*, collected from a park in San Diego, Calif. (63426).

STEWART, JOSEPH, Washington, D. C.: Pigskin bookbinding by Christopher Welsh, 1604, and rebound under the direction of Rev. Father Leander Luegmayr, 1754 (63566).

STOCKHOLM, SWEDEN, RIKSMUSEETS BOTANISKA AVDELNING (through Dr. Carl Lindman): 4 photographs of the type specimen of *Acrostichum nicotianaefolium* (62694, exchange).

STRAITS SETTLEMENTS, GOVERNMENT OF, Singapore, Straits Settlements (through Secretary of State for the Colonies, London, England): Local Relief and Lord Roberts fund, and Red Cross stamps, issued by the Straits Settlements during the European War, 1914–1918 (7 specimens) (63328).

SULZER, Hon. CHARLES A. (See under Mr. Bruce.)

SULZER, ELMER G., Madison, Ind.: About 200 specimens of Richmond fossils from Madison, Ind. (62865).

SWALES, B. H., U. S. National Museum: 419 specimens of bird skins, chiefly from Louisiana and Mississippi (62613); 6 skins of diving petrel, *Pelecanoides georgicus*, new to the Museum (62788); 190 birds from the United States (63474); 30 bird skins from various localities, representing genera new to the Museum (63709).

SWANTON, Miss MARY A., Washington, D. C.: 4 pieces of early American silverware, consisting of a teapot, coffee pot, sugar bowl, and cream pitcher (63737, loan).

SYDNEY, NEW SOUTH WALES, AUSTRALIA, AUSTRALIAN MUSEUM, THE: 42 specimens, 15 species, of crustaceans collected by the Endeavour (63753).

SYDNEY, NEW SOUTH WALES, AUSTRALIA, BOTANIC GARDENS (through J. H. Maiden, Director): 250 specimens of Australia plants (63476), exchange.

SYKES, Miss MILDRED, Los Angeles, 60 specimens, 28 species, of mollusks from the west coast of America (63286).

TACOMA SMELTING CO. (See under American Smelting & Refining Co.)

TAFOYA, PEDRO A., Las Vegas, N. Mex.: Muster roll of Company E, Third Regiment, New Mexico Mounted Volunteers, for the month of December, 1861 (63548).

TAKAHASHI, R., Forest Experiment Station, Meguro, Tokyo, Japan: Diptera, consisting of 6 specimens of *Syrphus ribesii*, 1 specimen of *S. latus*, 18 specimens of *S. nectarinus*, 1 specimen of *Didea alneti*, male, and 1 specimen of *Chilosia*, new species (63637).

TAYLOR, GEORGE H., Marble, Colo.: 2 specimens of manganese ore (psilomelane) from near Marble, Colo. (62838).

THACKARA, Miss MARY ELIZABETH, Boston, Mass., and Mrs. ELEANOR SHERMAN THACKARA CAULDWELL, Washington, D. C. (through P. T. Sherman, New York City): Saddle, bridle, pair of holsters, blanket roll, and saddle cloth owned by Gen. William T. Sherman, U. S. Army, during the Civil War (62710).

THOMPSON, H. C. (See under Beech-Nut Packing Co., Canajoharie, N. Y., and J. B. Worth Co.)

THORNTON, CHARLES W., Nome, Alaska: 98 specimens of plants from Alaska (62881).

TIDESTROM, IVAR, U. S. Department of Agriculture, Washington, D. C.: 25 specimens of mosses from Colorado (62594)

TINGMAN, A. G., The Encinitas Improvement Association, Encinitas, Calif.: 25 pounds of montmorillonite from San Diego County, Calif. (62649).

TINKLEPAUGH, O. L., El Paso, Tex.: Tooth of a mammoth from New Mexico (63086).

TOLMAN, RUEL P., U. S. National Museum: A German uniform cap found in the Argonne Forest, 1918; an oil painting by S. Jerome Uhl, "Interior of Levardin Church, Florence, Italy;" a pastel painting, portrait of Theodosia Wallace, by P. Caldwell (63436; 63457; 63741, loan); portrait of President Woodrow Wilson, etched by the donor (63508).

TONDUZ, A. (See under San José, Costa Rica, Museo Nacional.)

TOPPING, D. LE ROY, Treasury Bureau, Manila, P. I.: 226 specimens of Philippine ferns (62698).

TORRE-BUENO J. R., DE LA, White Plains, N. Y.: Part of the late G. W. Kirkaldy's collection of Hemiptera (63336, deposit).

TORSION BALANCE CO., THE, New York City: 2 Torsion balances with apothecary and avoirdupois weights (63757).

TOWNSEND, Dr. C. H. T., Bureau of Entomolgy, U. S. Department of Agriculture, Washington, D. C.: 16 specimens of plants from Arizona (63398).

TOWNSEND, W. CAMERON, Comayaguela, Honduras, Central America: A lower molar tooth of an extinct species of horse, *Hipparion*, from western Honduras (62709); through Mr. Francis J. Dyer, portion of symphysis of a lower jaw of a mastodon from the vicinity of Tegucigalpa, Honduras (63028).

TRANSVAAL MUSEUM, Pretoria, Union of South Africa, Africa: Rat, *Mystromys* (skin and skull); skull of *Bathyergus*, and skins and skulls of 2 bats, *Miniopterus* (62719, exchange).

TREASURY DEPARTMENT:

Division of Liberty Loan Publicity: 213 posters (63366).

St. Louis Liberty Loan Committee, St. Louis, Mo.: 18 complete kinds of posters, consisting of 113 specimens (63363).

Liberty Loan General Publicity Committee, San Francisco, Calif.: Bound pages of newspaper Liberty Loan advertising (6 specimens) (63357).

Tenth Federal Reserve District, Liberty Loan Committee, Kansas City, Mo.: 4 posters (63362).

Third Federal Reserve District, Philadelphia, Pa.: 4 posters (63355).

War Savings Committee, Washington, D. C.: 14 posters (63369).

Woman's Liberty Loan Commission of New England, Boston, Mass.: 17 Liberty Loan posters (63356).

TREMPER, Dr. R. H., Ontario, Calif. (through Dr. W. H. Dall): 2 specimens, 2 species, of marine shells and about 20 worm tubes from California (62841).

TRENCHARD, EDWARD, Babylon, N. Y.: Insignia of the following patriotic societies: Naval Order of the United States; Society of the War of 1812; Military Order of the Loyal Legion, and Veterans of the War with Mexico (63385, loan).

TRINGANU, FEDERATED MALAY STATES, GOVERNMENT OF (through the British Agent at Tringanu, and the Secretary of State for the Colonies, London, England): Red Cross stamps of Tringanu, issued during the European War, 1914–1918 (16 specimens) (63483).

TRINIDAD, GOVERNMENT OF, Trinidad, British West Indies (through Secretary of State for the Colonies, London, England): Postage stamps of Trinidad issued during the European War, 1914–1918, namely, half penny (four types), and one penny (seven types) (11 specimens) (63168).

TRUDELL, H. W., Philadelphia, Pa. (through Dr. Edgar T. Wherry): 2 specimens of plants from New Jersey and West Virginia (62715).

TRUE, Dr. F. W. (through W. P. True, Smithsonian Institution): Sandstone charm or ornament from first shell-heap west of Naskeag Point, Brooklin, Me., and a soapstone pipe from Tower Babson Island, Eggemoggin Reach, Me. (63408).

TUNGSTEN PRODUCTS MINING CO., THE, Boulder, Colo. (through Mr. F. L. Hess): A specimen of ferrotungsten showing oxidation colors (63151); a large exhibition specimen of ferrotungsten (63325).

TYLER, F. J., Perry, Ohio: Specimen of plant from Ohio (62690).

UHLENHUTH, Dr. E., The Rockefeller Institute for Medical Research, New York City: 20 salamanders from New York (62724); (through Dr. T. W. Stanton) 12 concretionary pebbles of calcium carbonate ("cave pearls") from Boyett's Cave, near San Marcos, Tex. (63117).

ULKE, TITUS, Washington, D. C.: 2 specimens of plants, *Selaginella*, from Colorado (62874).

UNDERWOOD, Maj. BERT ELIAS, Washington, D .C.: 50 lantern slides illustrative of chemical warfare (62967, loan).

UNITED CIGAR STORES CO., New York City: 3 posters (63359).

UNITED STATES FOOD ADMINISTRATION, Washington, D. C.: 26 specimens of commercial varieties of beans (63217); 14 posters (63371.) Transfer.

UNITED STATES PRINTING & LITHOGRAPH CO., Brooklyn, N. Y.: Specimen of rubber offset printing "They're Back" (63740).

UNITED STATES RAILROAD ADMINISTRATION, Washington, D. C.: 10 posters (63374, transfer).

UNITED STATES SHIPPING BOARD:

Emergency Fleet Corporation: 70 posters (63367); Emergency Fleet badge, shipyard volunteer's badge and certificate of enrollment, of the type issued by the United States Shipping Board, 1918 (63540.) Transfer.

UNITED WAR WORK CAMPAIGN, Washington, D. C.: 35 posters (63372).

URITA, T., Kagosima, Japan: 23 specimens, 21 species, of decapod crustaceans from Japan, including the types of 3 new species (63475).

VAN ESELTINE, G. P. (See under Agriculture, Department of, Bureau of Plant Industry.)

VAN HYNING, T. (See under Florida State Museum.)

VAUGHAN, Dr. T. WAYLAND. (See under F. W. Penny.)

VERSANEL, Rev. A., S. J., Catholic Mission, Benque Viejo, British Honduras, Central America: Snake, *Bothrops atrox* (63514).

VEYRA, Hon. JAIME C. DE, Washington, D. C.: 11 specimens, 5 species, of Philippine land shells (62660); skin of a flying lemur, *Cynocephalus*, from Mindanao Island, Philippine Islands (62697); marine shell, the type of a new species, from Batanes Islands, Philippine Islands (62716); 10 specimens, 9 species, of Philippine mollusks (62829).

VICTORIA MEMORIAL MUSEUM, Ottawa, Canada: 12 amphipod crustaceans, *Gammarus limnaeus*, from Cabin Lake Creek, Canada (62833, exchange); 4 amphipods from Canada and 4 fishes from Malta, Mediterranean Sea (62929) (through Fritz Johansen); a small fish, goby, *Eleotris radiata*, from New Zealand (63099).

VIOSCA, PERCY, Jr., New Orleans, La.: 6 tree frogs from Louisiana (63316).

VIVIERS, Miss DU (through Mrs. Julian-James, Washington, D. C.): A fillet for the hair (63742, loan).

VON LENGERKE, J., New York City: 30 specimens of hawks, of 6 species, from New Jersey (62890).

WALCOTT, Dr. CHARLES D., Secretary, Smithsonian Institution: Bronze medal commemorating the inauguration of President Woodrow Wilson, 1913; 9 bronze and ribbon badges, and 3 bronze and enamel buttons, issued 1844–1917, also a pottery plaquette (62915); uniform, decoration, aviation insignia, and diplomas of Benjamin Stuart Walcott, sergeant, French Aviation Service, and lieutenant, United States Army, also a photograph of him and his published letters (12 specimens) (62953); bronze medal of the Aero Club of America, awarded to Benjamin Stuart Walcott, 1918, in recognition of his distinguished services as sergeant, French Aviation Service, and 2 photographs of him (63000); the commission of Benjamin Stuart Walcott as first lieutenant, Air Service (Aeronautics), U. S. Army, dated June 17, 1918 (63044); royal blue vase with painted medallions and lid, French, and a doll head of French porcelain (63051); a collection of mounted and unmounted photographs (63082); bronze membership tablet presented to Dr. Charles D. Walcott in 1901 by the "Reale Accademia dei Lincei, Rome" (63128, deposit); certificate of Benjamin Stuart Walcott as "Pilote Aviateur," awarded by the Federation Aeronautique Internationale, February 15, 1918 (63130); photograph of a letter written by President Lincoln to Mrs. Lincoln, April 2, 1865 (63137); an extension candle bracket for piano, of European make, of period about 1880 (63142); portion of skull of a buffalo, *Bison*, collected by Charles D. Walcott, jr., in Montana (63407); a decorative ribbon

WALCOTT, Dr. CHARLES D.—Continued. awarded by the French Government to Benjamin Stuart Walcott in recognition of his services as a member of the Lafayette Flying Corps, 1917, and 2 French documents relating to the decoration (63479); 2 specimens of plants, moss and alga, from Maryland (63585). (See also under J. M. Boutwell, Prof. August F. Foerste, Mrs. Inazo Nitobe, James Simpson, and Lieut. Sidney S. Walcott.)

WALCOTT, Mrs. CHARLES D., Washington, D. C.: Plume formerly worn by officials of high rank, China (62627); chased plated Florentine oval stand from the Convent of San Marco, Naples, Italy, sixteenth century, designed by Benevenuto Cellini (62731, loan); a specimen of Aleut basketry of the older period (62934); 13 specimens of plants from Canada (62956); 35 specimens of calcite from Mount Field, British Columbia (62974); 17 specimens of *Lymnaea palustris* from a pond on Bear Creek, north of Pinnacle Peak, Alberta, Canada (63248); 3 specimens of plants from Canada (63346); 3 specimens of plants from the vicinity of Washington, D. C. (63529); costumes and accessories (25 specimens in all) worn by members of the Society of Friends, or Quakers, during the early life of the nineteenth century (63764); Cashmere shawl (63789, deposit).

WALCOTT, Lieut. SIDNEY S., Air Service, U. S. Army (through Dr. Charles D. Walcott): Enlisted man's uniform and officer's uniform worn by Lieut. Sidney S. Walcott, Air Service, U. S. Army, 1918 (63101).

WALKER, ROBERT S., Chattanooga, Tenn.: The skull of a Cherokee Indian dug up on a farm near Chattanooga (63270).

WALLACE, W. N., Farmington, N. Mex.: A remarkable stone pestle found on the Arizona side of the Navaho Reservation (63667).

WALTER, Mrs. MARY T., Washington, D. C.: 6 specimens of plants from Virginia (62960).

WALTON, G. P., Bureau of Chemistry, U. S. Department of Agriculture, Washington, D. C.: Nematode, *Ichthyonema* sp., from the liver of a rock fish purchased in Washington, D. C. (63696).

WALTON, W. R., Bureau of Entomology, U. S. Department of Agriculture, Washington, D. C.: Diptera consisting of type of *Neochrysops globosa*, allotype of *Laphria aktis*, allotype of *L. ithypyga*, and type of *L. index* (63554).

WAR DEPARTMENT:

United States Army Medal of Honor with ribbon and rosette (62666); a belt and contents and an emergency case and contents of the type used by officers, and a belt and contents of the type used by the enlisted men, of the Medical Department of the U. S. Army (109 specimens) (62728); a Distinguished Service Medal and ribbon with 2 ribbon bars, a silver star, a bronze cluster of oak leaves, and a bronze oak leaf (62777); military uniforms, firearms, swords, flags, transportation models, and ordnance models, showing various types of these same objects, used in the U. S. Army 1776–1908 (63242); (through Gen. John J. Pershing, U. S. Army, Commanding General, American Expeditionary Forces, France): Order of battle map and accessories used by General Pershing, U. S. Army, and his staff, at American Headquarters in Chaumont, France, during the War with Germany, 1917–18 (12 specimens) (63681).

Bureau of Aircraft Production: Coat, hood, scarf, mask, goggles, and pair of moccasins of the type used by aviators, U. S. Army, 1918 (62951); 3 French military airplanes (incomplete) used in 1916 on the western battle front during the War with Germany (62999); aviator's flying suit with electric harness of the type used in the U. S. Army, 1918 (62023); a bottle of acetone (63107); caracul lined leather helmet of the type worn by aviators, U. S. Army, 1918 (63108); fuselage, with accessories, of a De Haviland military airplane of the type used in the U. S. Army, 1918 (63109); 6 bottles of chemicals of the type used by the Bureau of Aircraft Production, 1917–18, as follows: 1 ounce phosphorus oxychloride; 1 ounce Phenol; 1 ounce Benzyl benzoate; 1 ounce Benzyl actetate; ½ ounce Urea, 2 ounces Phenol phosphate (63225); 12 fabric-covered frames representing the stages in the doping of an airplane, 1 bottle containing airplane dope, and 10 bottles containing airplane dope ingredients (63241); 7 pint bottles of chemicals of the type used by the Bureau of Aircraft Production 1917–18, namely Ethyl Alcohol; Malt Grain; Vinegar; Lime; Calcium acetate; Crude Acetone, and Pure Acetone (63267); aviator's knitted helmet of the type used in the U. S. Air Service, 1917–18 (63310); 2 Lewis aircraft machine guns and 12 magazines, Model 1918 (63311); 7 Lewis aircraft machine guns, and 2 Marlin aircraft machine guns, with spare parts and accessories (9 specimens) (63312); Very pistol of the type used in the U. S. Air Service, 1918 (63337); Browning aircraft machine gun with accessories, model of 1918 (63399); airplane radio equipment, 1918 (137 specimens) (63411); original De Haviland–4 airplane with original Liberty motor, the first battle plane built in the United States, made by the Dayton Wright Airplane Co. in 1917 (63440).

Air Service: Photographs illustrating the work of the Willys-Overland Co., Toledo, Ohio, for the United States Government, during the War with Germany, 1917–18 (111 specimens) (63460); 2 Browning air-

WAR DEPARTMENT—Continued.

craft machine guns, model 1918 (63473); Lewis machine gun, Vicker's machine gun, and scarf mount, of the old type, and incomplete gear and telescope sight (5 specimens) (63572); aviator's oxygen apparatus for high altitudes, of the type used in the U. S. Air Service, 1917–18 (installed on a panel, 6 specimens) (63613).

Army Medical Museum: 15 snakes collected in northern Virginia (62635).

Army War College—General Staff of the United States Army, Historical Branch: 5 propaganda balloons, 2 packages of propaganda, a propaganda balloon release, 2 propaganda rifle grenades, 2 propaganda fuses, and a bullet showing types of these objects used by American, French, and German forces during the European War, 1918 (13 specimens) (63223); 5 frames containing Canadian military insignia and 1 frame containing United States military insignia (250 specimens) (63249); collection of gas masks and ordnance accessories of the type manufactured by the Pennsylvania Rubber Co. during the European War, 1914–18 (12 specimens) (63285); incendiary and explosive bombs, etc., taken from Baron Friederich Walter Von Rautenfels, German secret agent, who was arrested in Christiana, Norway, June 16, 1917 (9 specimens) (63380). Pictorial Section, Historical Branch, W. P. D. (through Maj. K. Banning, General Staff): 2 sets of Boy Scout insignia (224 specimens) (63545).

Chemical Warfare Service, U. S. Army: 12 panels installed with military gas masks and accessories showing the development by the U. S. Chemical Warfare Service during the War with Germany, 1917–18 (63608).

Military Aeronautics, Bureau of: United States military airplane of

WAR DEPARTMENT—Continued.

the type used at training camps, 1918 (62998); aviator's oxygen mask with tubing, and a Dreyer oxygen apparatus for high altitudes of the types used in the U. S. Army, 1918 (63092); 2 Marlin aircraft machine guns and 2 Lewis aircraft machine guns, with accessories (10 specimens) (63240); miscellaneous documents and photographs relating to the U. S. Air Service, 1918 (7 specimens) (63309).

Ordnance, Bureau of (through Lieut. E. G. Tewes): A Colt's revolver and cartridge clip, an automatic pistol and 2 magazines, a cavalry bandolier, a bolo scabbard, and an officer's dispatch case, of the type used in the U. S. Army (8 specimens) (62804); Browning machine Gun, water-cooled model of 1917, and accessories (78 specimens) (62892); Browning machine rifle, model of 1918, and accessories (31 specimens) (62893); pair of spurs with straps, and a leather pistol holster, of the type used in the U. S. Army, 1918 (62919); Cavalry, Infantry, and miscellaneous military equipment of the type used in the U. S. Army, 1918 (120 specimens) (62990); Lewis machine gun, Airplane Model, 1918, with accessories (62991); a noncommissioned officer's saber, with scabbard, of the type used in the U. S. Army, 1918 (63104); a defensive hand grenade, a gas hand grenade, and a Stokes 3-inch trench mortar shell (unloaded), of the type used in the U. S. Army, 1918 (63105); steel trench helmet of the type used in the U. S. Army, 1918 (63129); rifle grenade of the type used in the U. S. Army, 1918 (63322); range finder, tripod and mount, and 2 carrying cases (63486); prismatic compass and clinometer, telescope, periscope, sitogoniometer, steel tape, aiming post, Jacobs staff, time interval recorder, goggles, flashlight, slide rule and ruler, with accessories and carrying cases (21 specimens) (63542);

WAR DEPARTMENT—Continued.
artillery ammunition gauges and accessories (141 specimens) (63565); aiming circle, Model 1916, and Hitt-Brown rule for fire control (63576); Bouchon Assembly, Mark II, unloaded (63611); tachyscope, shells fuses, adapters and boosters (21 specimens) (63660); 6-ton special tractor (military tank), Model of 1917, of the type used in the U. S. Army during the War with Germany, 1917–18 (63711); German machine gun and accessories, Italian mountain cannon, bayonets, shot guns, pistols, and a Belgian rifle, of the type used during the European War, 1914–18 (63750); 16-inch armor piercing shell; 14-inch shell sectionalized; and a 21-second fuse, sectionalized, of the type used during the War with Germany, 1917–18 (63752); German caisson captured during the War with Germany, 1917–18 (63761); fuse forgings and fuses of the type used in the U. S. Army during the War with Germany, 1917–18 (5 specimens) (63762); 4 sectionalized fuses; an adapter and booster, Mark III; a booster case, Mark VI; adapter and booster assemblies, Mark IV–D; and a rocket board, of the type used in the U. S. Army during the War with Germany, 1917–18 (8 specimens) (63778, loan).

Quartermaster General, Office of: Samples of the equipment of an enlisted man of the U. S. Army (70 specimens) (62778); winter cap, pair of overshoes, hat cords, representing the following branches of the service: Cavalry, Artillery, Engineers, Signal Corps, and field clerks, of the type issued to enlisted men of the U. S. Army, 1918 (8 specimens) (62803); pair of jersey knit gloves of the type issued to enlisted men of the U. S. Army, 1918 (62814); a comb, a hairbrush, a toothbrush, a Gillette safety razor, and a towel of the type issued to enlisted men of the U. S. Army, 1918 (62815); a pair of canton flannel gloves of the type issued to enlisted men of the U. S. Army, 1918 (62819); a collection of bronze collar insignia, chevrons, and specialty marks of the type worn by noncommissioned officers and enlisted men of the U. S. Army, 1918 (101 specimens) (62822); a pair of trousers; a pair of spiral puttees, an overseas cap, and hat cords of the Infantry, Medical Corps, Ordnance Corps, and Air Service, of the type issued to enlisted men of the U. S. Army, 1918 (8 specimens) (62840); 2 emergency rations of the type used in the U. S. Army, 1918 (62917); hat cord of the type worn by interpreters and military police, U. S. Army, 1918 (63106); chevrons and hat cords of the type used in the U. S. Army, 1918 (224 specimens) (63321).

Surgeon General, Office of: Collection of apparatus, hospital appliances, and field equipment used by the Medical, Sanitary, and Dental Corps in the War with Germany, 1917–18 (63790).

WARD'S NATURAL SCIENCE ESTABLISHMENT, Rochester, N. Y.: 9 specimens, 7 species, of fossil cephalopods (62721); a fossil fern stem from the Rock Castle formation, Kentucky (62942); a slab, weighing 1,393 grams, of the Kenton County (Ky.) meteoric iron (63383). Exchange.

WASHINGTON, Prof. H. S. (See under John Gordon.)

WATSON, Capt. EDWARD H., U. S. Navy (through Mrs. Charles C. Marsh, Washington, D. C.): Collection of gold ornaments from Colombia, South America (63205, loan).

WAYNE, ARTHUR T., Mount Pleasant, S. C.: 2 bird skins from South Carolina (63657).

WEATHERBY, C. A., East Hartford, Conn.: 199 specimens of plants from the northeastern part of the United States (63290).

WEBB, WALTER F., Rochester, N. Y.: 33 specimens, 10 species, of Philippine land shells, including the types of 1 new species and 2 new subspecies (62668); 16 specimens of Philippine land shells, including the type of a new subspecies (62702); 9 specimens, including 3 types, of Philippine land shells (63344); 15 specimens, 6 species, of land shells from Panay, P. I. (63648).

WEBER, C. M., Balabac, Balabac Island, P. I.: About 500 specimens of mollusks from the Philippine Islands (62692).

WEBSTER, CLEMENT L., Charles City, Iowa: 57 specimens of Stromatoporas from the Devonian of Iowa (62975, exchange).

WEEKS, W. H., Brooklyn, N. Y.: 4 specimens, 2 species, of mollusks from Bohol, Philippine Islands (62620); 5 specimens, 5 species, of mollusks from Alaska (62981); 1 mollusk from British Guiana and 5 mollusks from Alaska (63053); 6 Philippine land shells, *Leptopoma nitidum weekei*, including the type, from Bohol, P. I. (63348).

WEILLS, ISAAC M., Vero, Fla.: Gopher turtle (62965).

WEIR, J. R., Missoula, Mont.: 10 specimens of plants (62616, exchange).

WEISS, Mrs. W. J., Washington, D. C.: 2 mounted specimens of the ruffed grouse, *Bonasa umbellus*, from Pennsylvania (63292).

WELSH, Ensign W. W., U. S. Navy, Philadelphia, Pa.: Skull of a loggerhead turtle from Cape Henry, Va. (62842).

WESGATE, WALTER, Houston, Tex.: 167 specimens, 29 species, of mollusks from various localities in the United States (63143).

WEYMOUTH, RALPH W., New York City (through Mr. F. L. Hess): 2 specimens of arsenic minerals from Hunan, China (63252). (See also under Sir Paul Chater.)

WHARRAM, S. V., Hastings, Fla.: 6 mollusks representing the species *Ampullaria depressa* from Florida (62958, 63298).

WHERRY, Dr. EDGAR T., U. S. Department of Agriculture, Washington, D. C.: Specimen of plant from Virginia (62595); 3 specimens of ferns from Virginia and West Virginia (62684); 7 specimens of diabase from Belmont Park, Va. (62767); specimen of club moss, *Lycopodium annotinum*, from Pennsylvania (62776); 9 specimens of plants from Maryland, and a specimen of fern from Maryland (62876, 63291, 63685; 63447). (See also under George S. Scott and H. W. Trudell.)

WHITE, Mrs. CALVIN, Teng Chow, China (through Miss Bliss Finley, Washington, D. C.): Chinese costumes, consisting of 2 skirts, a coat, and a richly embroidered Mandarin's robe (63412, loan).

WHITE, DAVID. (Seen under William Paterson.)

WIEGAND, K. M. (See under Cornell University, Ithaca, N. Y.)

WIGHT, W. F., Takoma Park, Md.: 5 enlarged and mounted photographs taken in the potato regions of Peru, Bolivia, and Chile (62845, loan).

WILCOX, Brig. Gen. TIMOTHY E., U. S. Army (retired), Washington, D. C.: 40 specimens of plants collected in France by Lieut. Glover B. Wilcox (63056); specimen of moss collected in France (63493). (See also under Col. R. G. Ebert.)

WILD, WILLIAM, East Aurora, N. Y.: 5 specimens of Lepidoptera including 1 topotype of *Coleophora albiantermaella* (63743).

WILKINSON, Lieut. Commander T. S., U. S. Navy, Navy Department, Bureau of Ordnance, Washington, D. C.; Fragment of the envelope of the first Zeppelin airship, completed in Germany, December 12, 1901 (62916).

WILLETT, G., Los Angeles, Calif.: 6 mollusks, *Epiphragmophora traski traski*, taken in sand hills near El Segundo, Los Angeles County, Calif. (62993); 3 land shells from Colusa County, Calif., including the type of a new subspecies, *Epiphragmophora tudiculata willetti* (63333).

WILMER, Col. L. WORTHINGTON, Lothian House, Ryde, Isle of Wight: About 500 specimens of Cretaceous and Tertiary fossils from England, and 30 specimens of algae (63556).

WILMS, Dr. JOHN H., Cincinnati, Ohio (through Dr. W. A. Dewey, Ann Arbor, Mich.): King's History of Homeopathy in four volumes (63423).

WILSON, WOODROW, The White House, Washington, D. C.: Roman coin issued during the reign of Antoninus Pius, 138–161 A. D., and unearthed in 1918 on the battle line in northern France by Lieut. L. H. A. LaBrecque, Eleventh Battalion, Canadian Railway Troops, British Expeditionary Forces (62671, deposit).

WINCHESTER, Dr. G., Wyoming, Ill.: Austrian portable telephone set captured by Italian forces during the European War, 1914–1918, and a box of Brock light filters and goggles (63698). (See also under General Electric Co., Engineer Division, Schenectady, N. Y., and T. W. Case.)

WIRT, CHARLES, Germantown, Pa.: Cardew voltmeter (63090).

WOOD, NELSON R., U. S. National Museum: 19 young solft-shelled turtles from Florida; 2 lizards from Florida (62696, 62755; 63279).

WOOD, NELSON R.—Continued.

WOODHOUSE, HENRY, New York City: 3 envelopes forwarded from New York to Washington, D. C., by the first aeroplane mail at reduced postage rate of 16 cents, July 15, 1918 (62933).

WOODSON, W. H., Berwyn, Md.: Stone pestle found on the bank of the Illinois River, Ind. T. (62751).

WOOLLEY, CLAUDE L., Baltimore, Md.: Aluminum sundial adapted for North latitude from 0 to 65 degrees (62672); aluminum sundial adapted to the latitude of Jerusalem, Palestine (N. Lat 31° 47′) (63064).

WORTH Co., J. B., Petersburg, Va. (through H. C. Thompson, U. S. Department of Agriculture): 4 samples of raw peanuts (62775).

WREN, CHRISTOPHER, Plymouth, Pa.: Skeleton dug up on an Indian village site on the north bank of the north branch of the Susquehanna River, at Dorranceton Borough, Pa. (62659).

WYCKOFF, NATHANIEL C., Construction Division, War Department, Washington, D. C.: 2 specimens of a beetle *Passalus cornutus* (63497).

YALE UNIVERSITY, Department of Botany, New Haven, Conn. (through Prof. A. W. Evans). Parts of 3 type specimens of plants, *Hepaticae*, from Cuba and Mexico (62895, exchange).

YOUNG, Mrs. C. E., Washington, D. C.: 200 specimens of ferns from the United States and Canada (62873).

YOUNG MEN'S CHRISTIAN ASSOCIATION OF THE UNITED STATES, New York City: 1 poster, The Red Triangle (63354).

ZANOFSKY, CHARLES A., Baltimore, Md.: Albino English sparrow, *Passer domesticus* (63488).

LIST OF PUBLICATIONS OF THE UNITED STATES NATIONAL MUSEUM ISSUED DURING THE FISCAL YEAR 1918–19.

REPORTS.

Report on the Progress and Condition of the United States National Museum for the year ending June 30, 1917.

8vo., pp. 1–184.

Report on the Progress and Condition of the United States National Museum for the year ending June 30, 1918.

8vo., pp. 1–175, pls. 1–4.

PROCEEDINGS.

Proceedings of the United States National Museum. Volume 52.

8vo., pp. i–xiii, 1–693, pls. 1–47, 649 figs.

Proceedings of the United States National Museum. Volume 53.

8vo., pp. i–xi, 1–669, pls. 1–79, 153 figs.

BULLETINS.

No. 50, Part VIII. The Birds of North and Middle America. By Robert Ridgway, Curator, Division of Birds.

8vo., pp. i–xvi, 1–852, pls. I–XXXIV.

No. 100. Contributions to the Biology of the Philippine Archipelago and Adjacent Regions.

Volume 3. Starfishes of the Philippine seas and adjacent waters. By Walter K. Fisher, Director of the Hopkins Marine Station of Stanford University, and Curator of Invertebrate Zoology, California Academy of Sciences.

8vo., pp. i–xi, 1–712, pls. 1–156.

No. 102. The Mineral Industries of the United States.

Volume 1. The energy resources of the United States: a field for reconstruction. By Chester G. Gilbert and Joseph E. Pogue, of the Division of Mineral Technology United States National Museum.

8vo., pp. i–x, 1–165, pls. 1–8, 15 figs.

No. 105. Catalogue of the postage stamps and stamped envelopes of the United States and possessions, issued prior to January 1, 1919. Compiled by Joseph B. Leavy, Philatelist, United States National Museum.

8vo., pp. i–x, 1–204, pls. 1–3.

PAPERS PUBLISHED IN SEPARATE FORM.

SEPARATES FROM THE BULLETINS.

From No. 99. East African Mammals in the United States National Museum. By N. Hollister

Part I. Insectivora, Chiroptera, and Carnivora. pp. 1–194, pls. 1–53, 3 figs.
Part II. Rodentia, Lagomorpha, and Tubulidentata. pp. i–x, 1–184, pls. 1–44, 1 fig.

From No. 100. Contributions to the Biology of the Philippine Archipelago and Adjacent Regions.

Volume 1, Part 4. Report on the Chaetognatha collected by the United States Fisheries steamer *Albatross* during the Philippine expedition, 1907–1910. By Ellis L. Michael. pp. i–iv, 235–277, pls. 34–38.

Volume 1, Part 5. Hydromedusae, Siphonophores, and Ctenophores of the Albatross Philippine Expedition. By Henry B. Bigelow. pp. i–iii, 279–362, pls. 39–43.

Volume 2, Part 1. The Salpidae collected by the United States Fisheries steamer *Albatross* in Philippine waters during the years 1908 and 1909. By Maynard M. Metcalf. pp. 1–4.

Volume 2, Part 2. The Salpadae: a taxonomic study. By Maynard M. Metcalf, with the assistance of Mary M. Bell. pp. 1–193, pls. 1–14, 150 figs.

From No. 102. The Mineral Industries of the United States.

Part 5. Power: its significance and needs. By Chester G. Gilbert and Joseph E. Pogue. pp. 1–53, 2 figs., 2 tables.

Part 6. Petroleum: a resource interpretation. By Chester G. Gilbert and Joseph E. Pogue. pp. i–v, 1–76, pls. 1–3, 12 figs.

Part 7. Natural gas: its production, service, and conservation. By Samuel S. Wyer. pp. 1–67, pls. 1–7, 20 figs.

From No. 103. Contributions to the Geology and Paleontology of the Canal Zone, Panama, and Geologically Related Areas in Central America and the West Indies.

On some fossil and recent Lithothamnieae of the Panama Canal Zone. By Marshall A. Howe. pp. 1–13, pls. 1–11.

The fossil higher plants from the Canal Zone. By Edward W. Berry. pp. 15–44, pls. 12–18.

The smaller fossil foraminifera of the Panama Canal Zone. By Joseph Augustine Cushman. pp. 45–87, pls. 19–33.

The larger fossil foraminifera of the Panama Canal Zone. By Joseph Augustine Cushman. pp. 89–102, pls. 34–45.

Fossil echini of the Panama Canal Zone and Costa Rica. By Robert Tracy Jackson. pp. 103–116, pls. 46–52.

Bryozoa of the Canal Zone and related areas. By Ferdinand Canu and Ray S. Bassler. pp. 117–122, pl. 53.

Decapod crustaceans from the Panama region. By Mary J. Rathbun. pp. 123–184, pls. 54–66.

Cirripedia from the Panama Canal Zone. By Henry A. Pilsbry. pp. 185–188, pl. 67.

The sedimentary formations of the Panama Canal Zone, with special reference to the stratigraphic relations of the fossiliferous beds. By Donald Francis MacDonald. pp. 525–545, pls. 153, 154.

The biologic character and geologic correlation of the sedimentary formations of Panama in their relations to the geologic history of Central America and the West Indies. By Thomas Wayland Vaughan. pp. 547–612.

Form No. 104. The Foraminifera of the Atlantic Ocean. By Joseph Augustine Cushman.

Part I. Astrorhizidae. pp. i–vii, 1–111, pls. 1–39.

FROM VOLUME 20 OF CONTRIBUTIONS FROM THE NATIONAL HERBARIUM.

Part 4. The North American species of Aquilegia. By Edwin Blake Payson. pp. i–ix, 133–157, pls. 8–14.

Part 5. The allies of Selaginella rupestris in the southeastern United States. By G. P. Van Eseltine. pp. i–vii, 159–172, pls. 15–22, 8 figs.

FROM VOLUME 54 OF THE PROCEEDINGS.

No. 2237. New species of North American fossil beetles, cockroaches, and tsetse flies. By T. D. A. Cockerell. pp. 301–311, pls. 54, 55.

No. 2240. Notes on mimetite, thaumasite, and wavellite. By Edgar T. Wherry. pp. 373–381, pl. 56.

No. 2241. A newly mounted skeleton of the armored dinosaur, Stegosaurus stenops, in the United States National Museum. By Charles W. Gilmore. pp. 383–390, pls. 57–63.

No. 2242. The comparative morphology of the order Strepsiptera together with records and descriptions of insects. By W. Dwight Pierce. pp. 391–501, pls. 64–78.

No. 2243. Further notes on the Plainview, Texas, meteorite. By George P. Merrill. pp. 503–505, pls. 79, 80.

No. 2244. Mammals and reptiles collected by Theodoor de Booy in the Virgin Islands. By Gerrit S. Miller, jr. pp. 507–511, pl. 81.

No. 2245. Bones of birds collected by Theodoor de Booy from kitchen midden deposits in the islands of St. Thomas and St. Croix. By Alexander Wetmore. pp. 513–522, pl. 82.

No. 2246. Two new land shells of the Epiphragmophora traskii group. By Paul Bartsch. pp. 523, 524, pl. 83.

No. 2247. Report on the calcareous sponges collected by the United States Fisheries Steamer Albatross in the northwestern Pacific during 1906. By Sanji Hozawa. pp. 525–556, pls. 84, 85.

No. 2248. On the Fayette County, Texas, meteorite finds of 1878 and 1900 and the probability of their representing two distinct falls. By George P. Merrill. pp. 557–561, pls. 86, 87.

No. 2249. Descriptions and notes on some ichneumon - flies from Java. By S. A. Rohwer. pp. 563–570.

No. 2250. New marine shells from Panama. By Paul Bartsch. pp. 571–575, pl. 88.

No. 2251. On the anatomy of Nyctibius with notes on allied birds. By Alexander Wetmore. pp. 577–586.

No. 2252. Four new African parasitic Hymenoptera belonging to the subfamily Microgasterinae. By A. B. Gahan. pp. 587–590.

No. 2253. Description of ten new isopods. By Pearl L. Boone. pp. 591–604, pls. 89–92.

No. 2254. A new West Indian fossil land shell. By Paul Bartsch. pp. 605, 606, pl. 93.

No. 2255. Annotated catalogue of a collection of birds made by Mr. Copley Amory, jr., in northeastern Siberia. By J. H. Riley. pp. 607–626.

No. 2256. Fossil plants from the late Tertiary of Oklahoma. By Edward W. Berry. pp. 627–636, pls. 94, 95.

No. 2257. A new genus and species of multibrachiate ophiuran of the family Gorgonocephalidae from the Caribbean Sea. By Austin H. Clark. pp. 637–640, pl. 96.

FROM VOLUME 55 OF THE PROCEEDINGS.

No. 2258. The adult Taenioid cestodes of dogs and cats, and of related carnivores in North America. By Maurice C. Hall. pp. 1–94.

No. 2259. A heretofore undescribed meteoric stone from Kansas City, Missouri. By George P. Merrill. pp. 95, 96, pls. 1, 2.

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No. 2260. A new restoration of Triceratops, with notes on the osteology of the genus. By Charles W. Gilmore. pp. 97–112, pls. 3–9.

No. 2261. New reared parasitic Hymenoptera with some notes on synonymy. By A. B. Gahan. pp. 113–128.

No. 2262. The birds of the Tambelan Islands, South China Sea. By Harry C. Oberholser. pp. 129–143.

No. 2263. Descriptions of new African earthworms, including a new genus of Moniligastridae. By Frank Smith and Bessie R. Green. pp. 145–166.

No. 2264. Bees in the collection of the United States National Museum.—3. By T. D. A. Cockerell. pp. 167–221.

No. 2265. Notes on the wrens of the genus Nannus Billberg. By Harry C. Oberholser. pp. 223–236.

No. 2266. Additions and corrections to "The Type-species of the Genera of the Cynipoidea or the Gall Wasps and Parasitic Cynipoids." By S. A. Rohwer and Margaret M. Fagan. pp. 237–240.

No. 2267. The branchiobdellid worms in the collections of the United States National Museum, with descriptions of new genera and new species. By Max M. Ellis. pp. 241–265, pls. 10–13.

No. 2268. Notes on birds collected by Dr. W. L. Abbott on Pulo Taya, Berhala Strait, Southeastern Sumatra. By Harry C. Oberholser. pp. 267–274.

No. 2269. Hemiptera collected by the Yale-Dominican Expedition of 1913. By Edmund H. Gibson. pp. 275–277.

No. 2270. Miocene fossil plants from northern Peru. By Edward W. Berry. pp. 279–294, pls. 14–17.

No. 2271. Five new species of ptinid beetles. By W. S. Fisher. pp. 295–299.

No. 2272. New land shells from the Philippine Islands. By Paul Bartsch. pp. 301–307, pls. 18–20.

No. 2273. On certain genera of atherine fishes. By David Starr Jordan. pp. 309–311.

No. 2274. A new species of parasitic copepod, with notes on species already described. By Charles Branch Wilson. pp. 313–316, pl. 21.

No. 2275. Distribution and use of slings in pre-Columbian America, with descriptive catalogue of ancient Peruvian slings in the United States National Museum. By Philip Ainsworth Means. pp. 317–349, pls. 22–27.

No. 2276. A revision of the subspecies of the white-collared kingfisher, Sauropatis chloris (Boddaert). By Harry C. Oberholser. pp. 351–395.

No. 2277. On a rare species of halfbeak, Hemiramphus balao, from Cuba. By David Starr Jordan. pp. 397, 398.

No. 2278. The races of the Nicobar megapode, Megapodius nicobariensis Blyth. By Harry C. Oberholser. pp. 399–402.

No. 2279. Notes on some genera and species of chalcid-flies belonging to the Aphelininae with description of a new species. By A. B. Gahan. pp. 403-407.

No. 2280. Exploration of a pit house village at Luna, New Mexico. By Walter Hough. pp. 409–431, pls. 28–38.

No. 2282. Notes on Dr. W. L. Abbott's second collection of birds from Simalur Island, Western Sumatra. By Harry C. Oberholser. pp. 473–498.

No. 2283. Descriptions of new species of chitons from the Pacific coast of America. By William Healey Dall. pp. 499–516.

No. 2284. Descriptions of new North American ichneumon-flies. By R. A. Cushman. pp. 517–543.

No. 2285. Report on a collection of copepoda made in Honduras by F. J. Dyer. By C. Dwight Marsh. pp. 545–548, pl. 49.

No. 2286. North American parasitic copepods belonging to the new family Sphyriidae. By Charles Branch Wilson. pp. 549–604, pls. 50–59.

No. 2287. Descriptive catalogue of the collection of ecclesiastical art in the United States National Museum. By I. M. Casanowicz. pp. 605–649, pls. 60–97.

Eight-page folder. Brief guide to the Arts and Industries and History Building.

LIST OF PAPERS BY MEMBERS OF THE MUSEUM STAFF AND OTHERS, BASED DIRECTLY OR INDIRECTLY ON MATERIAL IN THE NATIONAL COLLECTIONS, PUBLISHED BY THE MUSEUM AND ELSEWHERE DURING THE FISCAL YEAR 1918–1919.

ALDRICH, J. M. Two new Hydrotaeas (Diptera, Anthomyidae).

Can. Ent., vol. 50, no. 9, Sept. 10, 1918, pp. 311–314.

The type of one of the species described in this paper is in the United States National Museum.

——— New and little-known Canadian Oscinidae.

Can. Ent., vol. 50, no. 10, Oct. 10, 1918, pp. 336–343, five text figs.

Of the species described in this paper the types of two and paratypes of the other two are in the United States National Museum.

——— The Dipterous genus Imitomyia Tns. (Himantostoma Lw.)

Can Ent., vol. 51, no. 3, Mar. 31, 1919, p. 64.

Gives notes on synonymy and distribution of the American *I. sugens* Loew.

——— Two new genera of Anthomyidae (Dipt.).

Proc. Ent. Soc. Washington, vol. 21, no. 5, May 5, 1919, pp. 106–109, one text figure.

Describes *Pergandea apivora*, new genus and new species from Missouri, and *Sphenomyia kincaidi*, new genus and new species from Alaska.

——— Leiomyza in North America (Dipt.; Drosophilidae).

Ent. News, vol. 30, no. 5, May, 1919, pp. 137–141.

Describes two new species, giving a key, paratypes of both species having been deposited in the United States National Museum.

ALLEN, GLOVER M. The American Collared Lemmings (Dicrostonyx).

Bull. Mus. Comp. Zool., vol. 62, no. 13, Feb., 1919, pp. 509–540, 1 pl., 1 fig.

A revision of the group, based partly on material in the United States National Museum.

BANGS, OUTRAM. A new striated grass warbler from the Philippines.

Proc. New England Zool. Club, vol. 7, June 6, 1919, pp. 5, 6.

The Philippine bird is separated from the typical form of Java, and named *Megalurus palustris forbesi*.

——— and G. K. NOBLE. List of birds collected on the Harvard Peruvian expedition of 1916.

Auk, vol. 35, no. 4, Oct., 1918, pp. 442–463.

Notes and comment on 151 species and subspecies, of which 9 are described as new.

——— and THOMAS E. PENARD. Some critical notes on birds.

Bull. Mus. Comp. Zool., vol. 63, no. 2, June, 1919, pp. 21–40.

Corrections of nomenclature and descriptions of new forms, based on a study of the Lafresnaye collection now in the Museum of Comparative Zoology. *Cnemoscopus* is designated as new genus of sparrows.

BARBER, H. S. Notes and descriptions of some orchid weevils.

Proc. Ent. Soc. Washington, vol. 19, nos. 1–4, Sept. 23, 1918, pp. 12–22, pl. 4.

Describes variation in *Cholus forbesii, C. cattleyae, Acythopeus*

BARBER, H. S.—Continued.

atterimus and *A. orchivora;* describes *A. gilvonotatus,* new species, *Eucactophagus weissi,* and *E. biocellatus,* new species.

——— Avocado seed weevils.

Proc. Ent. Soc. Washington, vol. 21, no. 3, Mar. 18, 1919, pp. 53–60, pl. 2.

Restricts *Heilipus lauri* Boheman and *Conotrachelus serpentinus* Boheman and describes *H. pittieri,* and *C. perseae,* new species, adding notes on several other insects of the avocado.

——— (See also under E. A. Schwarz.)

BARBOUR, THOMAS and CHARLES T. RAMSDEN. The herpetology of Cuba.

Memoirs Mus. Comp. Zool., vol. 47, no. 2, May, 1919, pp. 71–213, pls. 1–15.

Based in part upon material in the U. S. National Museum, with numerous cuts previously published by the National Museum.

BARRET, HARVEY P. (See under Harrison G. Dyar.)

BARTSCH, PAUL. Footnote on garden slugs.

Farmers' Bull., U. S. Dept. Agric., No. 959, June, 1918 (received July 3, 1918), p. 3.

Discusses concisely the 32 species of garden slugs reported for the United States, with especial reference to *Agriolimax agrestis* Linnaeus, its economic significance and means of extermination.

——— Biological explorations in Cuba and Haiti.

Smithsonian Misc. Colls., vol. 68, no. 12, July 24, 1918, pp. 40, illustrated.

An account of field work in Cuba and Haiti by Mr. John B. Henderson and Dr. Paul Bartsch, who especially investigated the land mollusks of these regions.

Material collected deposited in the U. S. National Museum.

——— A visit to the Cerion colonies in Florida.

Smithsonian Misc. Colls. vol. 68, no. 12, July 24, 1918, pp. 48, 49.

Preliminary report on this year's progress in the author's Cerion breeding experiments.

BARTSCH, PAUL. New land shells from the Philippines.

Nautilus, vol. 32, no. 1, July, 1918, pp. 15, 16.

Describes three new subspecies of Philippine land shells, donated to the U. S. National Museum by Mr. Walter F. Webb.

——— A key to the subspecies of Leptopoma nitidum Sowerby of the Philippine Islands.

Journ. Washington Acad. Sci., vol. 8, no. 15, Sept. 19, 1918, pp. 532–535.

A synoptic key of the subspecies of *Leptopoma nitidum* and descriptions of 15 new subspecies.

——— The status of Loboa brunoi Von Ihering.

Nautilus, vol. 32, no. 2, Oct., 1918, pp. 53, 54, fig. 7 of pl. 4.

Remarks on this species based on material submitted for examination to U. S. National Museum.

——— A new marine mollusk of the genus Cerithiopsis from Florida.

Proc. Biol. Soc. Washington, vol. 31, Nov. 29, 1918, pp. 135, 136.

Describe *Cerithiopsis* (*Cerithiopsis*) *vanhyningi* from Tampa Bay, Florida.

The type and two additional specimens are in the collections of the U. S. National Museum; seven paratypes are in the collections of the Florida State Museum.

——— Four new mollusks from the Philippine Islands.

Proc. Biol. Soc. Washingington, vol. 31, Nov. 29, 1918, pp. 153, 154.

Describes four new subspecies of Philippine land shells donated to the U. S. National Museum by Mr. Walter F. Webb.

——— Classification of the Philippine operculate land shells of the family Helicinidae, with a synopsis of the species and subspecies of the genus Geophorus.

Journ. Washington Acad. Sci., vol. 8, no. 20, Dec. 4, 1918, pp. 643–657.

A synopsis of the superspecific groups of the family Helicinidae

BARTSCH, PAUL—Continued.

with keys and brief comments on the species and subspecies of the genus *Geophorus* of the Philippines. Two subgenera, 18 species and 10 subspecies are described as new.

——— Two new land shells of the Epiphragmophora traskii group.

Proc. U. S. Nat. Mus., vol. 54, no. 2246, Dec. 23, 1918, pp. 523, 524, pl. 83.

A discussion of two additional species of this group collected by Mr. Herbert N. Lowe in the mountains of southern California, and donated to the collections of the U. S. National Museum.

——— New marine shells from Panama.

Proc. U. S. Nat. Mus., vol. 54, no. 2250, Dec. 23, 1918, pp. 571–575, pl. 88.

Reports and figures five new species of mollusks collected by Mr. James Zetek in Panama and donated to the U. S. National Museum collections.

——— A new West Indian fossil land shell.

Proc. U. S. Nat. Mus., vol. 54, no. 2254, Dec. 26, 1918, pp. 605, 606, pl. 93.

Describes and figures *Pleurodonte debooyi*, new species, from the kitchen midden deposits on Salt River, northern St. Croix, West Indies.

——— New marine mollusks from the Philippine Islands.

Proc. Biol. Soc. Washington, vol. 31, Dec. 30, 1918, pp. 181–187.

Describes eight new species and two new subspecies of Philippine marine mollusks. Based on Museum material.

——— Three new Philippine land shells.

Proc. Biol. Soc. Washington, vol. 31, Dec. 30, 1918, pp. 199–201.

Describes 3 new subspecies of Philippine land shells donated to the U. S. National Museum by Mr. C. M. Weber.

BARTSCH, PAUL. A new Epiphragmophora from the coast range of California.

Nautilus, vol 32, no. 4, Apr., 1919, pp. 126, 127.

Describes *Epiphragmophora tudiculata colusaensis*, donated to the National Museum by Mr. George Willett.

——— Critical remarks on Philippine land shells with descriptions of new forms.

Proc. Biol. Soc. Washington, vol. 32, Apr. 11, 1919, pp. 15–19.

This paper embraces a diagnosis of five new subspecies of Philippine land shells and a discussion of involved nomenclatorial problems concerning some of the names bestowed upon species long ago.

——— Abstract of address: Symposium on what constitutes a subspecies.

Journ. Washington Acad. Sci., vol. 9, no. 8, Apr. 19, 1919, pp. 236, 237.

The author's opinion of the status of a subspecies with reference to mollusks.

——— Abstract of remarks on a purple finch.

Journ. Washington Acad. Sci., vol. 9, no. 8, Apr. 19, 1919, p. 234.

——— New land shells from the Philippine Islands.

Proc. U. S. Nat. Mus., vol. 55, no. 2272, Apr. 28, 1919, pp. 301–307, pls. 18–20.

Presents a critical diagnosis of eight Philippine land shells, seven of which are new to science, secured in Maquebenga, Luzon, through a native collector and donated to the U. S. National Museum by Mr. Walter F. Webb.

BASSLER, RAY S. (See under Ferdinand Canu.)

BELL, MARY M. (See under Maynard M. Metcalf.)

BELOTE, THEODORE T. The war collections of the United States National Museum.

Daughters Amer. Rev. Mag., vol. 53, no. 2, Feb., 1919, pp. 63–78, 12 pls.

BELOTE, THEODORE T.—Continued.

This article outlines the activities of the Museum in connection with the War Collections. The illustrations are all from the original objects belonging to the Museum collection.

BENJAMIN, MARCUS. Richard Rathbun.

Science (n. s.) vol. 48, no. 1236, Sept. 6, 1918, pp. 231–235, portrait.

A brief biography of the late Assistant Secretary in charge of the National Museum.

——— Court costumes worn by American Diplomats.

Daughters Amer. Rev. Mag., vol. 52, no. 11, Nov., 1918, pp. 638–645.

A brief description of the various types of official costumes worn by American representatives in foreign countries.

BERRY, EDWARD W. Fossil plants from the Late Tertiary of Oklahoma.

Proc. U. S. Nat. Mus., vol. 54, no. 2256, Nov. 19, 1918, pp. 627–636, pls. 94, 95.

Six determinable species, of which four are new, and three additional forms that are generically but not specifically recognizable, are here described. All of the forms appear to have been alluvial species of river bottoms and most of them have their genera still represented in the valleys of the principal streams that enter Oklahoma from the Coastal Plain of the Gulf States. The author regards their age as upper Miocene.

——— The fossil higher plants from the Canal Zone.

Bull. U. S. Nat. Mus., no. 103, Jan. 11, 1919, pp. 15–44, pls. 12–18.

The fossil flora at present known from the Canal Zone is extremely limited and entirely too small for either purposes of exact correlation or for deductions concerning the true botanical facies or the environmental conditions. The author, however, is not inclined to consider any of the plants described in the present paper, with the exception of one Eocene species, as younger than Burdigalian nor older than Santonian. Seventeen species, 14 of which are new, are determined, and two or three additional forms are tentatively recognized. The types are in the collections of the U. S. National Museum and Johns Hopkins University.

BERRY, EDWARD W.—Continued.

——— Miocene fossil plants from northern Peru.

Proc. U. S. Nat. Mus., vol. 55, no. 2270, Apr. 28, 1919, pp. 279–294, pls. 14–17.

Based upon a small collection of fossil plants obtained by C. F. Winslow in 1875, near Tumbez, Peru. The described species number 14, of which 6 are only provisional identifications and 5 are new. The author is disposed to consider the age to be Burdigalian. The principal interest in the paper is the decisive evidence furnished of the very different climatic conditions formerly existing in this desert region, and the rather far-reaching correlations which it is possible to make.

BIGELOW, HENRY B. Contributions to the biology of the Philippine Archipelago and adjacent regions: Hydromedusae, Siphonophores, and Ctenophores of the *Albatross* Philippine Expedition.

Bull. U. S. Nat. Mus., no. 100, pt. 5, May 22, 1919, pp. 279–362, pls. 39–43.

Presents an exhaustive systematic report on the Hydromedusae, Siphonophores, and Ctenophores of the Philippines and adjacent regions treating of 52 species, one varietal form of which is new to science, and including a discussion of the zoogeographic distribution of this faunal area.

The types and additional material of this collection are in the U. S. National Museum; a first set of duplicate specimens is in the Museum of Comparative Zoology.

BLAKE, S. F. Revision of Ichthyomethia, a genus of plants used for poisoning fish.

Journ. Washington Acad. Sci., vol. 9, no. 9, May 4, 1919, pp. 241–252.

The types of the new species described are in the National Herbarium.

BLANCHARD, FRANK N. Two new snakes of the genus Lampropeltis.

Occ. Papers Mus. Zool., Univ. Michigan, no. 70, May 5, 1919, pp. 1–11, pl. 1.

Described from material in the U. S. National Museum.

BOONE, PEARL L. Descriptions of ten new Isopods.

Proc. U. S. Nat. Mus., vol. 54, no. 2253, Oct. 16, 1918, pp. 591–604, pls. 89–92.

Presents a critical diagnosis of one new family, one new genus, and 10 new species of Isopods, accumulations from various collections transmitted to the National Museum.

Eight of the types are in the National Museum, one, *Cirolana hermitensis*, is in the collections of the Cambridge Museum, England, and one, *Braga occidentalis*,, is in the Yale Museum.

BOVING, ADAM G. [In Runner, G. A. The tobacco beetle: An important pest in tobacco products.]

U. S. Dept. Agric., Bur. Ent. Bull. 737, Mar. 17, 1919.

Furnished the technical descriptions of the various larvae discussed from material in the National Museum.

BRITTON, N. L. (See under Frederick V. Coville.)

——— and J. N. ROSE. The Cactaceae: Descriptions and illustrations of plants of the cactus family. I.

Carnegie Institution of Washington, Pub. no. 248, vol. 1, June 21, 1919, pp. i–viii, 1–236, pls. 1–36, text figs. 1–302.

BROWN, EDWARD J. Melospiza melodia phaea in southern California.

Auk, vol. 35, no. 3, July, 1918, p. 350.

Records a specimen obtained in Los Angeles county.

BRYANT, HAROLD CHILD. (See under Joseph Grinnell.)

BUSCK, AUGUST. Two microlepidoptera injurious to strawberry.

Proc. Ent. Soc. Washington, vol. 21, no. 3, Mar. 18, 1919, pp. 52, 53.

BUSCK, AUGUST—Continued.

Describes *Tortricodes fragariana* and *Aristotelia fragariae* from British Columbia.

——— On some generic synonymy in the family Gelechiidae.

Proc. Ent. Soc. Washington, vol. 21, no. 4, May 2, 1919, pp. 94–96.

——— A new species of Bucculatrix injurious to Hollyhock (Lep.)

Proc. Ent. Soc. Washington, vol. 21, no. 5, May 5, 1919, pp. 109, 110.

Describes *B. althaeae* from California.

——— A microlepidopteron injurious to Avocado.

Proc. Ent. Soc. Washington, vol. 21, no. 6, June 18, 1919, pp. 125, 126.

Gives notes on the habits of *Stenoma catenifer* Walsingham.

DE CANDOLLE, CASIMIR. Begoniaceae Centrali-Americanae et Ecuadorenses.

Smithsonian Misc. Colls., vol. 69, no. 12, Apr. 9, 1919, pp. 1–10.

Includes description of 17 new species of *Begonia*.

CANU, FERDINAND, and RAY S. BASSLER. Bryozoa of the Canal Zone and related areas.

Bull. U. S. Nat. Mus., no. 103, Jan. 28, 1919, pp. 117–122, pl. 53.

The few bryozoans that have so far been found in the rocks of the Canal Zone and Costa Rica are here described. These consist of two from the Emperator limestone of the Canal Zone and three from the Miocene of Costa Rica, each locality furnishing one new species.

CASANOWICZ, I. M. Descriptive catalogue of the collection of ecclesiastical art in the United States National Museum.

Proc. U. S. Nat. Mus., vol. 55, no. 2287, June 18, 1919, pp. 605–649, pls. 60–97.

Contains brief sketches of the specific doctrines and rites of the three churches represented in the collection, namely, the Roman Catholic, the Greek Catholic or Orthodox, and the Armenian, and

CASANOWICZ, I. M.—Continued.
detailed descriptions of the artistic features and the ritual significance of the single specimens.

CAUDELL, A. N. Regarding Diapheromera veliei Walsh and Manomera blatchleyi Caudell.
Ent. News, vol. 29, no. 7, July, 1918, pp. 258–260.
Gives an account of the distribution and a discussion of the characters of these species.

——— Zorotypus hubbardi, a new species of the Order Zoraptera from the United States.
Can. Ent., vol. 50, no. 11, Nov. 13, 1918, pp. 375–381.
The description of this species from Florida is the first record of this order in our fauna.

——— Two new species of the Blattid genus Arenivaga.
Proc. Ent. Soc. Washington, vol. 20, no. 7, Dec. 4, 1918, pp. 154–157.
Describes *A. genitalis* from Arizona and *A. floridensis* from Florida.

——— Palmodes praestans and its prey.
Pros. Ent. Soc. Washington, vol 21, no. 2, Feb. 26, 1919, p. 40.
Records the capturing of *Capnobotes fuliginosus* Thomas by this wasp.

CHASE, AGNES. Some causes of confusion in plant names.
Journ. For., vol. 17, no. 2, Feb., 1919, pp. 159–162.

CLARK, AUSTIN H. A new genus and species of multibrachiate Ophiuran of the family Gorgonocephalidae from the Caribbean Sea.
Proc. U. S. Nat. Mus., vol. 54, no. 2257, Nov. 1, 1918, pp. 637–640, pl. 96.
Describes and figures *Astrocynodus herrerai* from Yucatan, donated to the U. S. National Museum by the Museo Nacional de Historia Naturale of Mexico.

COCKERELL, T. D. A. New species of North American fossil beetles, cockroaches, and tsetse flies.
Proc. U. S. Nat. Mus., vol. 54, no. 2237, July 5, 1918, pp. 301–311, pls. 54, 55, figs. 1–5.
Founds two new genera and describes seven new species of fossil cockroaches from the Pennsylvanian, and three new species of beetles from the Early Tertiary rocks of Colorado. Discusses the habits of the African tsetse fly, *Glossina,* and records the occurrence in Colorado during Tertiary time of species of the same genus, four having been recognized.

COCKERELL, T. D. A.—Continued.

——— New Halictine bees from Chile.
Can. Ent., vol. 50, no. 10, Oct. 10, 1918, pp. 343–345.
Describes three new species and one new subspecies.

——— Descriptions and records of bees. LXXXI.
Ann. Mag. Nat. Hist., ser. 9, vol. 2, no. 11, Nov., 1918, pp. 418–425.
Describes 10 new species and gives notes on other species.

——— Descriptions and records of bees. LXXXII.
Ann. Mag. Nat. Hist., ser. 9, vol. 2, no. 12, Dec., 1918, pp. 476–482.
Of the species described in this paper, the types of seven are in the U. S. National Museum.

——— Description and records of bees. LXXXIII.
Ann. Mag. Nat. Hist., ser. 9, vol. 3, no. 13, Jan., 1919, pp. 118–125.
The types of nine of the new species described in this paper are in the U. S. National Museum.

——— A new genus of bees from Peru (Hym.).
Ent. News, vol. 30, no. 1, Jan., 1919, pp. 17, 18.
Describes *Chlerogus hirsutipennis* new species.

——— Some Halictine bees in the United States National Museum (Hym.)
Proc. Ent. Soc. Washington, vol. 20, no. 8, Jan. 24, 1919, pp. 177–182.
Describes eight new species and gives notes on others.

COCKERELL, T. D. A. Neocorynura, a genus of Halictine bees (Hym.).

Ent. News, vol 30, no. 2, Feb., 1919, pp. 41, 42.

Describes one new subspecies and tabulates forms known to another.

——— New and little-known American bees.

Can. Ent., vol 51, no. 2, Feb. 28, 1919, pp. 26–28.

Of the species in this paper the types of three are in the U. S. National Museum.

——— Some American Cretaceous fish scales with notes on the classification and distribution of Cretaceous fishes.

Prof. Paper U. S. Geol. Surv., 120–I, Apr. 24, 1919, pp. 165–202, pls. 31–37.

Distinctive skeletal remains of fishes are very scarce throughout the greater part of the American Cretaceous, but scales are plentiful and widespread. Recent studies of the scales of living fishes show that they present excellent diagnostic characters, hence a study of these fossil scales seems justified, especially since it is desirable to note every fact which will throw light upon the Cretaceous history. Mr. Cockerell's description and systematic discussion of species is preceded by a section showing their stratigraphic distribution. The paper is well illustrated and the preface is by Dr. T. W. Stanton.

——— Bees in the collections of the United States National Museum. 3.

Proc. U. S. Nat. Mus., vol. 55, no. 2264, May 7, 1919, pp. 167–221.

Describes 1 new subgenus, 40 new species, 20 new subspecies, 5 new varieties; gives keys to species of *Melipona* and of *Trigona* known to author, and gives notes on many other species.

CORY, CHARLES B. Descriptions of new birds from South America.

Auk, vol. 36, no. 1, Jan., 1919, pp. 88, 89.

Five new forms of ant-thrushes and oven-birds are described from Brazil, Venezuela, and Peru.

CORY, CHARLES B. New forms of South American birds and proposed new subgenera.

Auk, vol. 36, no. 2, Apr., 1919, pp. 273–276.

Two new subgenera and six new forms of oven-birds are described, chiefly from Brazil and Peru. The type of one of them is in the U. S. National Museum collection.

COVILLE, FREDERICK V., and N. L. BRITTON. Grossulariaceæ [Additions and Corrections].

North Amer. Flora, vol. 22, pt. 6, Dec. 30, 1918, pp. 558–560.

CRAWFORD, J. C. New Hymenoptera.

Proc. Ent. Soc. Washington, vol. 19, nos. 1–4, Sept. 23, 1919, pp. 165–172.

Describes nine new species, gives notes on other species and generic synonymy and a key to the Philippine species of the bee genus Halictus.

CUSHMAN, JOSEPH AUGUSTINE. The Foraminifera of the Atlantic Ocean. Part I, Astrorhizidae.

Bull. U. S. Nat. Mus., no. 104, pt. 1, July 19, 1918, pp. 1–111, pls. 1–39.

This paper is the first part of a work the intent of which is to describe and illustrate the Foraminifera of the Atlantic Ocean, especially those species which have occurred in the waters adjacent to the shores of the United States, including the whole of the Gulf of Mexico and the Caribbean Sea. Part one includes only the family Astrorhizidae, which is the most primitive of the group, presenting an exhaustive treatment of the systematic classification, including the description of five new species, two new subspecies, one new genus, also the critical discussion of 88 previously described species and subspecies. The types and additional material are in the collections of the U. S. National Museum, being chiefly the results of dredging and hydrographic soundings of the U. S. Bureau of Fisheries and U. S. Coast and Geodetic Survey investigations augmented by miscellaneous material in the museum collections.

CUSHMAN, JOSEPH AUGUSTINE. The larger fossil Foraminifera of the Panama Canal Zone.

Bull. U. S. Nat. Mus., no. 103, Jan. 17, 1919, pp. 89–102, pls. 34–45.

Eleven species are here described, nine of which are new, one of the latter being referred to a new genus, *Heterosteginoides*.

——— The smaller fossil Foraminifera of the Panama Canal Zone.

Bull. U. S. Nat. Mus., no. 103, Feb. 18, 1919, pp. 45–87, pls. 19–33.

The first of a series of papers dealing with the fossil Foraminifera of the Canal Zone, West Indies, and Coastal Plain Province of the eastern and southeastern United States. Seventy-three species and varieties have been recognized, ranging from Oligocene to Pleistocene in age. Fourteen new species and one new variety are included in the described material.

CUSHMAN, R. A. Two new Chalcids from the seeds of Amelanchier.

Proc. Ent. Soc. Washington, vol. 19, nos. 1–4, Sept. 23, 1918, pp. 79–86.

Describes *Megastigmus amelanchieri* and *Syntomaspis amelanchieris* from West Virginia.

——— A much described Ichneumonid and its systematic position.

Proc. Ent. Soc. Washington, vol. 19, nos. 1–4, Sept. 23, 1918, pp. 162–165.

A discussion of *Diacritus muliebris* (Cresson).

——— The correct names of some of our common Ichneumonid parasites.

Proc. Ent. Soc. Washington, vol. 20, no. 1, Sept. 27, 1918, pp. 9–12.

——— New genera and species of Ichneumon flies (Hym.).

Proc. Ent. Soc. Washington, vol. 21, no. 5, May 5, 1919, pp. 112–120.

Describes three new genera, four new species, and one new variety.

——— Descriptions of new North American Ichneumon flies.

Proc. U. S. Nat. Mus., vol. 55, no. 2284, June 7, 1919, pp. 517–543.

CUSHMAN, R. A.—Continued.

Describes 1 new tribe, 2 new genera, 14 new species, and gives observations on various other species.

——— (See also under S. A. Rohwer.)

——— and S. A. ROHWER. The genus Ephialtes first proposed by Schrank.

Proc. Ent. Soc. Washington, vol. 20, no. 9, Apr. 22, 1919, pp. 186–188.

DALL, WILLIAM HEALEY. Notes on the genus Trachydermon Carpenter.

Nautilus, vol. 32, no. 1, July, 1918, pp. 1–3.

——— Pleistocene fossils of Magdalena Bay, Lower California, collected by Charles Russell Orcutt.

Nautilus, vol. 32, no. 1, July, 1918, pp. 33–36.

Based on material in the U. S. National Museum. A list of species is given. *Macrocallista orcutti*, *Panope taeniata*, and *Murex* (*Phyllonotus*) *stearnsii* are described as new.

——— Changes in and additions to molluscan nomenclature.

Proc. Biol. Soc. Wash., vol. 31, Nov. 29, 1918, pp. 137, 138.

Tromina, *Boetica*, *Elachisina*, and *Phenacoptygma*, new genera; *Algamorda*, *Progabbia*, *Boreomelon*, and *Atrimitra*, new subgenera; *Algaroda*, *Littorivaga*, *Kurtziella*, *Crawfordia* (for *Cancellaria crawfordiana*), new sections, are established and *Iselica* proposed as a substitute for the preoccupied Isapis of Adams, 1853.

——— On some Tertiary fossils from the Pribilof Islands.

Journ. Washington Acad. Sci., vol. 9, no. 1, Jan. 4, 1919, pp. 1–3.

Based on material in the U. S. National Museum. The species are listed and the deposit on St. George Island correlated with the late Pliocene fauna of the second elevated beach at Nome, Alaska.

——— Stylobates, a warning.

Nautilus, vol. 32, no. 3, Jan. 1919, pp. 79, 80, pl. 6.

Based on specimens secreted by deep water Actiniae now in the U. S. National Museum and at first supposed to be molluscan.

DALL, WILLIAM HEALEY. Note on Thyasira bisecta Conrad.

Nautilus, vol. 32, no. 3, Jan., 1919, p. 103.

Descriptions of the anatomy, based on Museum material.

——— British Antarctic (Terra Nova) Expedition, 1910, Zoology, II, No. 8, Brachiopoda; and Australasian Antarctic Expedition, Scientific Reports—Zoology.

Science, (n. s.), vol. 49, no. 1263, Mar. 14, 1919, pp. 265, 266.

Review of reports donated to the Museum Library.

——— Descriptions of new species of Chitons from the Pacific coast of America.

Proc. U. S. Nat. Mus., vol. 55, no. 2283, June 7, 1919, pp. 499–516.

Based on U. S. National Museum collections. The new subgenus *Seminopalia,* based on the new species *Mopalia grisea* from Tierra del Fuego, and 36 new species are described.

DIXON, H. N. The mosses collected by the Smithsonian African Expedition, 1909–10.

Smithsonian Misc. Colls., vol. 69, no. 2, Oct. 8, 1918, pp. 1–28, pls. 1, 2.

——— Uganda mosses collected by R. Dümmer and others.

Smithsonian Misc. Colls., vol. 69, no. 8, Oct. 21, 1918, pp. 1–10, pl. 1.

DYAR, HARRISON G. New American mosquitoes.

Insecutor Inscitiae Menstruus, vol. 6, nos. 7–9, Oct. 30, 1918, pp. 120–129.

Describes 1 new subgenus and 12 new species.

——— New moths from Mexico and Cuba.

Insecutor Inscitiae Menstruus, vol. 6, nos. 7–9, Oct. 30, 1918, pp. 130–140.

Describes 1 new genus and 26 new species.

——— Notes on American Anopheles.

Insecutor Inscitiae Menstruus, vol. 6, nos. 7–9, Oct. 30, 1918, pp. 141–151.

Gives a key to the subgenera of Anopheles and key to the species of some of the subgenera.

DYAR, HARRISON G. A note on Lesticocampa, and a new species.

Insecutor Inscitiae Menstruus, vol 7, nos. 1–3, Mar. 18, 1919, pp. 9–11.

Describes *L. trichopus* from Brazil.

——— Westward extension of the Canadian mosquito fauna.

Insecutor Inscitiae Menstruus, vol 7, nos. 1–3, Mar. 18, 1919, pp. 11–39.

Three new species are described; notes on the various other species of the region and keys to certain groups are given.

——— Some tropical American Phycitinae.

Insecutor Inscitiae Menstruus, vol 7, nos. 1–3, Mar. 18, 1919, pp. 40–63.

Describes 9 new genera, 62 new species, and gives notes on other species.

——— Some new tropical American moths.

Insecutor Inscitiae Menstruus, vol. 7, nos. 4–6, Apr. 1, 1919, pp. 74–85.

Describes 2 new genera and 28 new species.

——— A note on Argentine mosquitoes.

Insecutor Inscitiae Menstruus, vol. 7, nos. 4–6, Apr. 1, 1919, pp. 85–89.

Describes one new species.

——— and HARVEY P. BARRET. Descriptions of hitherto unknown larvae of Culex.

Insecutor Inscitiae Menstruus, vol. 6, nos. 7–9, Oct. 30, 1918, pp. 119, 120.

——— and FREDERICK KNAB. Bromelicolus Anopheles—a correction.

Insecutor Inscitiae Menstruus, vol. 6, nos. 7–9, Oct. 30, 1918, pp. 140, 141.

——— ——— New species of tropical American mosquitoes.

Insecutor Inscitiae Menstruus, vol 7, nos. 1–3, Mar. 18, 1919, pp. 1–9.

Seven new species are described.

ELLIS, MAX M. The Branchiobdellid worms in the collections of the United States National Museum, with descriptions of new genera and new species.

Proc. U. S. Nat. Mus. vol. 55, no. 2267, May 2, 1919, pp. 241–265, pls. 10–13, text figs. 1–18.

A detailed annotated account of the Branchiobdellid worms, describing two new genera, eight new species, one new subspecies, and discussing many previously described forms, with an exhaustive anatomic diagnosis of each. The types and additional material are in the U. S. National Museum; duplicate material occurs in Dr. Ellis' private collection, he having generously donated his types to the museum.

FAUST, ERNEST CARROLL. Studies on American Stephanophialinae.

Trans. Amer. Micr. Soc., vol. 37, no. 3, July, 1918, pp. 183–198, pls. 14, 15.

A detailed annotated discussion of the Stephanophialinae, including the description of two new species. Based on Museum material.

FEWKES, J. WALTER. A unique form of prehistoric pottery.

Journ. Washington Acad. Sci., vol. 8, no. 18, Nov. 4, 1918, pp. 598–601, figs. 1–2.

Describes and figures a double vase of black and white ware, the two portions being connected by an effigy figure made of clay, resembling a bird. The object was found not far from the towers of the Hovenweep Canyon, Colorado.

——— Prehistoric towers and castles of the southwest.

Art and Arch., vol. 7, no. 9, Dec., 1918, pp. 353–366, figs. 1–13.

Devoted to the various prehistoric castle-like buildings in the McElmo Canyon and its tributaries in southwest Colorado and adjacent areas of Utah. It points out that these buildings may be simple towers, of round, D-shaped, or rectangular form; may be accompanied by other buildings annexed to them, or in the highest form of pueblo architecture may even be added to large pueblos in the open or in cliff dwellings. Main attention is given to these buildings in Square Tower, Holly and Bridge Canyons, where the most striking forms appear and which it is intended later to include in a National Monument for Government protection.

FEWKES, J. WALTER.—Continued.

FISHER, WALTER K. Starfishes of the Philippine seas and adjacent waters.

Bull., U. S. Nat. Mus. no. 100, vol. 3, June 27, 1919, pp. 1–712, pls. 1–156.

A detailed account of the starfishes collected by the U. S. Bureau of Fisheries steamer *Albatross,* Philippine Expedition, 1907–1910, augmented by two new forms in the Museum of Comparative Zoology and additional miscellaneous specimens in the U. S. National Museum. One hundred and ninety-two species and subspecies are described or listed of which 134 species and subspecies are believed to be new. An exhaustive discussion of the zoogeographic and bathymetric distribution and the relationships of the respective groups of species precedes the systematic discussion.

All types are in the collections of the U. S. National Museum, except two in the collections of the Museum of Comparative Zoology.

FISHER, W. S. A new species of Agrilus from Florida (Coleoptera; Buprestidae).

Proc. Ent. Soc. Washington, vol. 20, no. 4, Sept. 27, 1918, pp. 67, 68.

Describes *A. dozieri.*

——— Chrysobothris tranquebarica Gmel. versus impressa Fabr. (Coleoptera; Buprestidae).

Proc. Ent. Soc. Washington, vol. 20, no. 8, Jan. 24, 1919, pp. 173–177.

Gives notes and a bibliography and full synonymy of the species.

——— Note on Macrobasis murina LeConte (Coleo.).

Proc. Ent. Soc. Washington, vol. 21, no. 1, Feb. 24, 1919, pp. 1, 2.

FISHER, W. S. A new genus and species of Cerambycidae from Colorado (Coleo.).

Proc. Ent. Soc. Washington, vol. 21, no. 2, Feb. 26, 1919, pp. 38–40.

Describes *Elatotrypes hoferi.*

——— Five new species of Ptinid beetles.

Proc. U. S. Nat. Mus., vol. 55, no. 2271, Apr. 26, 1919, pp. 295–299.

——— Descriptions of a new genus and species of Buprestidae from Arizona (Coleo.).

Proc. Ent. Soc. Washington, vol. 21, no. 4, May 2, 1919, pp. 91–93.

Gives a key to the North American genera of the tribe Acmaeoderini and describes *Paratyndaris coursetiae,* new genus and new species.

FOSTER, W. D. (See under Brayton H. Ransom.)

GAHAN, A. B. Description of a new Hymenopterous parasite (Braconidae).

Proc. Ent. Soc. Washington, vol. 20, no. 1, Sept. 27, 1918, pp. 18, 19.

Describes *Microbracon cephi* from North Dakota.

——— Three new Chalcidoid egg-parasites.

Proc. Ent. Soc. Washington, vol. 20, no. 2, Sept. 27, 1918, pp. 23–26.

——— Propachyneuron Girault (Hymenoptera; Chalcidoidea).

Proc. Ent. Soc. Washington, vol 20, no. 3, Sept. 27, 1918, p. 66.

——— Four new African parasitic Hymenoptera belonging to the subfamily Microgasterinae.

Proc. U. S. Nat. Mus., vol. 54, no. 2252, Nov. 25, 1918, pp. 587–590.

——— A synopsis of the species belonging to the Chalcidoid genus Rileya Ashmead (Hym.).

Proc. Ent. Soc. Washington, vol. 20, no. 7, Dec. 4, 1918, pp. 136–150.

In this paper four new species are described.

GAHAN, A. B. A new genus of Chalcid-wasp belonging to the family Eulophidae.

Proc. Ent. Soc. Washington, vol. 21, no. 1, Feb. 24, 1919, pp. 2–4.

Describes *Apterolophus pulchricornis* from New York.

——— New reared parasitic Hymenoptera with some notes on synonymy.

Proc. U. S. Nat. Mus., vol. 55, no. 2261, Apr. 26, 1919, pp. 113–128, 2 text figs.

Describes 2 new genera and 12 new species.

——— Notes on some genera and species of Chalcid-flies belonging to the Aphelininae with description of a new species.

Proc. U. S. Nat. Mus., vol. 55, no. 2279, May 23, 1919, pp. 403–407, 5 text figs.

——— A new species of the Serphidoid genus Dendrocerus (Hymenoptera).

Proc. Ent. Soc. Washington, vol. 21, no. 6, June 18, 1919, pp. 121–123.

Describes *D. conwentziae,* new species from Massachusetts and variety from Washington.

GIBSON, EDMUND H. Five new species of Jassoidea from Honduras (Hemiptera; Homoptera).

Proc. Biol. Soc. Washington, vol. 32, Apr. 11, 1919, pp. 25–28.

——— Hemiptera collected by the Yale Dominican Expedition of 1913.

Proc. U. S. Nat. Mus., vol. 55, no. 2269, Apr. 26, 1919, pp. 175–177.

Describes *Clovia modesta.*

——— Notes on the North American species of Corizus.

Can. Ent., vol. 51, no. 4, Apr. 28, 1919, pp. 89–92.

Gives a key to the species and notes on the various included species.

——— The genera Corythaica Stal and Dolichocysta Champion. (Tingidae; Heteroptera).

Proc. Biol. Soc. Washington, vol. 32, May 20, 1919, pp. 97–104.

GIBSON, EDMUND H.—Continued.

Gives a key to the species of Dolichocysta, describes *D. magna, D. densata,* and *Corythaica costata* and gives notes on other of the included species.

——— and ABBY HOLDRIDGE. Notes on the North and Central American species of Acanthocephala Lap.

Can. Ent., vol. 59, no. 7, July 10, 1918, pp. 237–241.

Gives a key to and notes on the included species.

GIDLEY, JAMES WILLIAMS. Significance of divergence of the first digit in the primitive mammalian foot.

Journ. Washington Acad. Sci., vol. 9, no. 10, May 19, 1919, pp. 273–280.

Reviews briefly the various views regarding the arboreal ancestry of marsupials, especially those of Matthew to the effect that all mammals passed through an arboreal stage of development. Mr. Gidley disagrees with Matthew's view, and attempts to show first that opposability of the first digit, wherever found, is not primitive but a specialization for a peculiar adaptation, and second, that simple divergence of the first digit does not in itself signify opposability, but is essentially a primitive character inherited from the generalized, terrestrial reptilian foot. He concludes that the generalized type of foot with the first digit divergent, but not opposable, is the primitive stage from which developed directly the various terrestrial types of feet found among living mammals as well as the arboreal and aquatic types, but that the terrestrial types did not pass through the arboreal stage.

——— (See also under Gerrit S. Miller, jr.)

GILBERT, CHESTER G., and JOSEPH E. POGUE. Petroleum: A resource interpretation.

Bull. U. S. Nat. Mus., no. 102, pt. 6, Aug. 7, 1918, pp. 1–76, pls. 1–3, figs. 1–12.

Petroleum is of particular significance because, of all our important resources, it is most limited and involves the highest percentage of waste. Scarcely one-tenth of the value of the resource is recovered under present circumstances, while the unmined supply available under current practice is only about 50 barrels to each person. This paper makes an economic study of the resource and the industry engaged in its development, and traces the causes of waste to certain maladjustments in the economic situation, pointing out how these may be remedied by a constructive economic policy applied to the matter. The desirability of developing shale oil to replace petroleum as it becomes incapable of meeting the demand is gone into and the advisability of using benzol and alcohol as substitutes for gasoline is considered. The natural gas industry is also treated.

GILBERT, CHESTER G., and JOSEPH E. POGUE—Continued.

——— Power: Its significance and needs.

Bull. U. S. Nat. Mus., no. 102, pt. 5, Sept. 21, 1918, pp. 1–53.

In this country tremendous emphasis is placed on the use of power; the result is a growing burden on transportation which must be solved. The present transportation difficulty is in a measure an expression of this problem. The purpose of this paper is to develop the general nature of the situation and suggest the character of remedial action called for.

——— The energy resources of the United States: A field for reconstruction.

Bull. U. S. Nat. Mus., no. 102, vol. 1, May 15, 1919, pp. 1–165, pls. 1–3, figs. 1–15.

This paper brings together the substance of parts 4, 5, and 6 of Bulletin 102, together with an introduction and a conclusion that coordinate the details of the discussion and draw forth the main issues. It is concluded that the whole matter involves the threefold problem of fuel supply, power supply, and transportation, and that the entire field may be cleared by (1) providing a common-carrier system of electric transmission lines which will (*a*) lead to a balanced development of coal-power and water-power, and (*b*) serve as a coordinating influence in stim-

GILBERT, CHESTER G., and JOSEPH E. POGUE—Continued.

ulating by-product recovery from coal in central power stations, and especially in municipal, public utility fuel plants; and (2) applying a constructive economic policy and appropriate legislation to the conditions surrounding petroleum production so as to bring the method of production into conformance with the geological occurrence of the resource. It is believed that these measures would effect economies offsetting, in large part, the cost of the war.

GILMORE, CHARLES W. A newly mounted skeleton of the armored dinosaur Stegosaurus stenops, in the United States National Museum.

Proc. U. S. Nat. Mus., vol. 54, no. 2241, Dec. 26, 1918, pp. 383–390, pls. 57–63.

Describes in some detail the skeleton of *Stegosaurus stenops* recently mounted in the National Museum, and gives a brief summary of the *Stegosaurus* exhibit.

——— A new restoration of Triceratops, with notes on the osteology of the genus.

Proc. U. S. Nat. Mus., vol. 55, no. 2260, Apr. 9, 1919, pp. 97–112, pls 3–9, figs. 1–6.

A brief description of a new model restoration of *Triceratops clatus* based on the mounted skeleton in the National Museum, followed by new information relating especially to the type specimens of *Triceratops obtusus* and *T. calicornis*. In conclusion the homologies of the cranial elements of the Ceratopsian skull are discussed. It is shown that elements which in the normal reptilian skull are placed laterally have in the Ceratopsian cranium shifted to a median dorsal position, supported from beneath by strong vertical buttresses.

GOLDMAN, EDWARD A. The Rice Rats of North America.

North Amer. Fauna, no. 43, Sept. 23, 1918, pp. 3–100, pls. 1–6, figs. 1–11.

A revision of the members of the genus *Oryzomys* occurring north of South America. Fifty-one forms are recognized.

GREEN, BESSIE R. (See under Frank Smith.)

GREENE, C. T. A contribution to the biology of North American Diptera.

Proc. Ent. Soc. Washington, vol. 19, nos. 1–4, Sept. 23, 1918, pp. 146–161, pls. 17–20.

The biologies of six species are given.

——— Three new species of Diptera.

Proc. Ent. Soc. Washington, vol. 20, no. 4, Sept. 27, 1918, pp. 69–71.

Describes *Madiza conicola* from Oregon, *Chrysotoxum coloradensis* from Colorado and *Myxosargus nigricomis* from the District of Columbia.

——— A note on the habit of Pegomyia affinis, Stein and other Anthomyid genera.

Proc. Ent. Soc. Washington, vol. 20, no. 7, Dec. 4, 1918, p. 160.

——— A new genus in Scatophagidae (Diptera).

Proc. Ent. Soc. Washington, vol 21, no. 6, June 18, 1919, pp. 126–129, 2 text figures.

Describes *Ambopogon hyperboreus* new species from Alaska.

GRINNELL, JOSEPH, HAROLD CHILD BRYANT and TRACY IRWIN STORER. The game birds of California, contribution from the University of California Museum of Vertebrate Zoology, by Joseph Grinnell, Harold Child Bryant and Tracy Irwin Storer, University of California Press, 1918.

Semicentennial publications of the University of California [seal] 1868–1918, 8vo, pp. i–x, 1–642, pls. 1–16, figs. 1–94, tables 1–19.

A very full and elaborate account of the 108 species of game birds of California, with chapters on the decrease of game and its causes; natural enemies of game birds; propagation of game birds; legislation relating to the subject; method of taking measurements of birds; glossary of special terms; key to the game birds, etc.

HALL, MAURICE C. The adult taenioid cestodes of dogs and cats, and of related carnivores in North America.

Proc. U. S. Nat. Mus., vol. 55, no. 2258, Apr. 11, 1919, pp. 1–94, figs. 1–80.

The present paper includes descriptions of all the adult tape worms of the superfamily Taenioidea known to occur in dogs, cats, and related carnivores in North America, together with species of the same superfamily not yet recorded as present in North Americt, but found in other parts of the world, and liable to occur in carnivores in this country. Supplementing the descriptions are keys for the determination of specimens, a list of hosts and a bibliography.

Based on material in the U. S. National Museum, augmented by material in the U. S. Bureau of Animal Industry of the Department of Agriculture.

——— and MEYER WIGDOR. Notes on the Acanthocephalid and Arthropod parasites of the dog in North America.

Journ. Amer. Veterin. Med. Assn., vol. 53, n. s. 6, no. 4, July, 1918, pp. 493–500, figs. 1–3.

This paper is primarily intended to cover additional information regarding the rare thorny-headed worm of the dog, but a summary of our knowledge of Arthropod parasites is included in this paper in order to complete a series covering the parasites of dogs in North America.

——— ——— Two new flukes from the dog.

Journ. Amer. Veterin. Med. Assn., vol. 53, n. s. 6, no. 5, Aug., 1918, pp. 616–626, figs. 1–7.

A discussion of *Alaria americana* and *Alaria michiganensis* from the intestines of the dog. Based in part on Museum material.

——— ——— A Physaloptera from the dog, with a note on the nematode parasites of the dog in North America.

Journ. Amer. Veterin. Med. Assn., vol. 53, n. s. 6, no. 6, Sept., 1918, pp. 733–744, figs. 1–6.

HALL, MAURICE C., and MEYER WIGDOR—Continued.

Describes *Physaloptera rara*, new species, and discusses the nematode parasites of the dog in North America.

——— ——— Two new flukes from the dog.

20th Ann. Rept. Mich. Acad. Sci., Nov. 22, 1918, p. 139.

Authors' abstract.

HEINRICH, CARL. A new Coleophora injurious to apple in California.

Proc. Ent. Soc. Washington, vol. 19, nos. 1–4, Sept. 23, 1918, pp. 135, 136.

Describes *C. volckei*.

——— A note on the Tortricid genitalia.

Proc. Ent. Soc. Washington, vol. 19, nos. 1–4, Sept. 23, 1918, pp. 137, 138.

——— On the Lepidopterous genus Opostega and its larval affinities.

Proc. Ent. Soc. Washington, vol. 20, no. 2, Sept. 27, 1918, pp. 27–38, pls. 1–4.

——— A new genus of Lepidoptera allied to Leucoptera Hübner.

Proc. Ent. Soc. Washington, vol. 29, no. 1, Sept. 27, 1918, pp. 21, 22.

Describes Paraleucoptera based on *Cemiostoma albella* Chambers.

——— A new Olethreutid from New York (Olethreutes approximana Hübn.)

Insecutor Inscitiae Menstruus, vol. 7, nos. 4–6, Apr. 1, 1919, pp. 65, 66.

Describes *O. approximana*.

——— [In Holloway, T. E., and Loftin, U. C.: The Sugar-cane moth borer.]

U. S. Dept. Agric., Bur. Ent. Bull. 746, Apr. 18, 1919.

Furnished the technical descriptions of the immature forms of that species.

HITCHCOCK, A. S. The ornamental trees of Hawaii [Review].

Science (n. s.), vol. 48, no. 1235, Aug. 30, 1918, pp. 224, 225.

HITCHCOCK, A. S. A peculiar species of Lasiacis.

Journ. Washington Acad. Sci., vol. 9, no. 2, Jan. 19, 1919, pp. 35–38.

——— A botanical trip to Mexico.

Sci. Monthly, vol. 8, no. 2, Feb., 1919, pp. 129–145; vol. 8, No. 3, Mar., 1919, pp. 216–238. Illustrated.

——— Report of the committee on generic types of the Botanical Society of America.

Science (n. s.), vol. 49, no. 1266, Apr. 4, 1919, pp. 333–336.

HODGE, F. W. Excavations at the Zuni pueblo of Hawikuh in 1917.

Art and Arch., vol. 7, no. 9, Dec., 1918, pp. 367–379, figs. 1–10.

Brief description of the joint expedition of the Museum of the American Indian, Heye Foundation, and the Bureau of American Ethnology at Hawikuh, New Mexico, with historical references and a description of certain archeologic objects recovered.

HOLDRIDGE, ABBY. (See under Edmund H. Gibson.

HOLLISTER, N. International Zoology and the International Code.

Science (n. s.), vol. 48, no. 1227, July 5, 1918, pp. 12, 13.

Three generic names are used for the Chimpanzee by zoologists who do not follow the international code.

——— East African Mammals in the United States National Museum. Part I. Insectivora, Chiroptera, and Carnivora.

Bull. U. S. Nat. Mus., no. 99, Aug. 16, 1918, pp. 1–194, pls. 1–55, figs. 1–3.

A critical review of the East African material in the U. S. National Museum.

——— The generic names Anoa and Bubalus.

Proc. Biol. Soc. Washington, vol. 32, Apr. 11, 1919, p. 45.

——— A new name for the wild sheep of Northeastern China.

Proc. Biol. Soc. Washington, vol. 32, Apr. 11, 1919, p. 46.

HOLLISTER, N. East African mammals in the United States National Museum. Part II. Rodentia, Lagomorpha, and Tubulidentata.

Bull. U. S. Nat. Mus., no. 99, May 16, 1919, pp. 1–184, pls. 1–44, fig. 1.

A critical review of the East African material in the U. S. National Museum.

HOLMES, WILLIAM H. Organization of the Committee on Anthropology of the National Research Council and its activities for the year 1917.

Amer. Journ. Phys. Anthrop., vol. 1, no. 1, Jan.–Mar., 1918, pp. 77–90.

The article gives a brief history of the scope and aims of the Committee on Anthropology of the National Research Council. It gives also in full the recommendations made to the Council by the Committee, in connection with the war.

HOUGH, WALTER. Exploration of a pit house village at Luna, New Mexico.

Proc. U. S. Nat. Mus., vol. 55, no. 2280, June 14, 1919, pp. 409–431, pls. 28–38, figs. 1–44.

Sets forth the results of explorations in the site of a remarkable village in which the houses were circular pits sunk in the ground. The affiliation of the people of the pit houses is doubtfully pueblo and may represent a very ancient culture.

HOWE, MARSHALL A. On some fossil and recent Lithothamnieae of the Panama Canal Zone.

Bull. U. S. Nat. Mus., no. 103, Feb. 19, 1919, pp. 1–13, pls. 1–11.

Describes as new one species occurring both recent and in the Pleistocene in the Canal Zone, and two new and one previously described species from the Oligocene.

HOWELL, ARTHUR H. The rough-legged hawk (Archibuteo lagopus sanctijohannis) at Washington, D. C.

Auk, vol. 35, no. 3, July, 1918, p. 351.

Eight records are given for this locality.

HOWELL, ARTHUR H. Description of a new seaside sparrow from Florida.

Auk, vol. 36, no. 1, Jan., 1919, pp. 86, 87.

An unexpected new species, from Cape Sable is described as *Thryospiza mirabilis*.

——— Descriptions of nine new North American Pikas.

Proc. Biol. Soc. Washington, vol. 32, May 20, 1919, pp. 105–110.

HOZAWA, SANJI. Report on the calcareous sponges collected during 1906 by the United States Fisheries steamer Albatross in the Northwestern Pacific.

Proc. U. S. Nat. Mus., vol. 54, No. 2247, Oct. 16, 1918, pp. 525–556, pls. 84, 85, figs. 1–10.

An exhaustive report on the calcareous sponges of Japanese and adjacent regions, treating of thirteen species, eleven of which are new to science.

HRDLIČKA, ALEŠ. Recent discoveries attributed to early man in America.

Bull. 66. Bur. Am. Eth., 1918, pp. 1–67, pls. 1–14, figs. 1–8.

This bulletin covers an additional chapter of the subject of man's antiquity on the American continent, dealt with in Bulletins 33 and 52 of the Bureau of American Ethnology. The author gives the history and a discussion of the finds at Cuzco, Peru, at La Brea ranch near Los Angeles, Calif., and at Vero, Fla. It is shown that none of these finds can be accepted as demonstrating beyond many serious doubts the existence on this continent of man of any but very moderate antiquity or of any other race than the Indian.

——— Physical anthropology: its scope and aims; its history and present status in America. A.—Physical anthropology, its scope and aims.

Amer. Journ. Phys. Anthrop., vol. 1, no. 1, Jan.–Mar., 1918, pp. 3–23.

The paper deals with the definitions, history, general scope, accomplished results, and future aims of Physical Anthropology.

HRDLIČKA, ALEŠ. Physical anthropology: its scope and aims; its history and present status in America. B.—History.

Amer. Journ. Phys. Anthrop., vol. 1, no. 2, Apr.–June, 1918, pp. 133–182.

An historical account dealing with the development of Physical Anthropology in the Western Hemisphere, and particularly in the United States and Canada.

——— Physical anthropology: its scope and aims; its history and present status in America. C.—Recent history and present status of the science in North America.

Amer. Journ. Phys. Anthrop., vol 1, no. 3, July–Sept., 1918, pp. 267–304.

Deals with the history of Physical Anthropology in the United States and Canada, so far as connected with workers who are still living.

——— Physical anthropology: its scope and aims; its history and present status in America. D. Conclusion.—Recent history and present status of the science in North America.

Amer. Journ. Phys. Anthrop., vol 1, no. 4, Oct.–Dec., 1918, pp. 377–414.

Concludes the history of Physical Anthropology in the United States and Canada so far as connected with living workers, and refers to same subject in Mexico, as well as in Central and South America.

——— The Slavs.

Czechoslovak Rev., vol. 2, no. 10, Nov., 1918, pp. 180–187.

This paper deals with the origin, subdivisions, numbers, mixtures, and the physical, physiological, and mental characteristics of the Slav peoples in general. It includes important demographic statistics.

——— The effects of the war on the race.

Art and Arch., vol. 7, no. 9, Nov.–Dec., 1918, pp. 400–407.

HRDLIČKA, ALEŠ. Anthropometry.

Amer. Journ. Phys. Anthrop., vol. 2, no. 1, Jan.–Mar., 1919, pp. 43–46.

The first contribution to the subject of scientific anthropometry giving its definition and objects and reprinting with some corrections the Monaco and Geneva international anthropometric agreements.

——— The effects of the war on the American people.

Sci. Monthly, vol. 8, no. 6, June, 1919, pp. 542–545.

This article, with the similar one above cited, deals with the untoward effects of the war on the American people on the one hand, and with the many and important compensations on the other.

——— The races of Russia.

Smithsonian Misc. Colls., vol, 69, no. 11, Mar., 1919, pp. 1–21, 1 map. (Reprinted in full in *Scientific American Supplement*, June 7, and succeeding numbers, 1919.)

The object of this publication is to furnish at the present time when the attention of the world is so much occupied with Russia, a simple account as far as possible, of the origin, spread, mixture, and characteristics of the Russian people.

HUNTER, H. CHADWICK. The American Indian in sculptural art.

Art and Arch., vol. 7, no. 8, Oct., 1918, pp. 323–336, 14 illustrations.

Sculptors have in numerous instances found the Indian an attractive subject for the chisel and their numerous examples here presented afford ample proof of the skill of those who have wrought in this field.

——— The American Indian in painting.

Art and Arch., vol 8, no. 2, Apr., 1919, pp. 89–96, 12 illustrations.

A number of the best examples of paintings of American Indians illustrating the people and their customs and at the same time presenting notable historical persons and incidents and customs in a manner so masterly as to give them decided value as works of art.

HUNTER, H. CHADWICK—Continued.

JACKSON, HARTLEY H. T. Two new shrews from Oregon.

Proc. Biol. Soc. Washington, vol. 31, Nov. 29, 1918, pp. 127–129.

——— The Wisconsin Napaeozapus.

Proc. Biol. Soc. Washington, vol. 32, Feb. 14, 1919, pp. 9, 10.

Description of a new subspecies of Jumping-mouse.

——— An unrecognized shrew from Warren Island, Alaska.

Proc. Biol. Soc. Washington, vol. 32, Apr. 11, 1919, pp. 23, 24.

JACKSON, ROBERT TRACY. Fossil echini of the Panama Canal Zone and Costa Rica.

Bull. U. S. Nat. Mus., no. 103, Feb. 19, 1919, pp. 103–116, pls. 46–52, figs. 1–3.

Essentially a reprint of a paper published in the Proceedings of the U. S. National Museum in 1917.

JORDAN, DAVID STARR. On certain genera of Atherine fishes.

Proc. U. S. Nat. Mus., vol. 55, no. 2273, Apr. 26, 1919, pp. 309–311, figs. 1, 2.

This paper contains preliminary notes on certain interesting forms of Atherine fishes, with figures of two American species.

——— On a rare species of Halfbeak Hemiramphus balao, from Cuba.

Proc. U. S. Nat. Mus., vol. 55, no. 2277, May 2, 1919, pp. 397, 398, fig. 1.

In this paper the author describes a 10½-inch specimen of the imperfectly known *Hemiramphus balao*, of Le Sueur. This fish was collected by Dr. John Mez, in Cuba, and is illustrated by text figure.

KNAB, FREDERICK. (See under Harrison G. Dyar.)

KNOWLTON, F. H. Relations between the Mesozoic floras of North and South America.

Bull. Geol. Soc. Amer., vol. 29, Dec. 30, 1918, pp. 607–614.

Reviews briefly the Mesozoic floras of North and South America and shows that, owing to the meagerness of our knowledge concerning the South American floras, there is comparatively little demonstrable relationship between the two continents. The paper also discusses the probable routes by which the several floras were distributed, and concludes that the Triassic and Jurassic floras of South America apparently reached there by way of an Antarctic land mass (Gondwana Land), whereas the Cretaceous floras presumably came from North America by way of a land bridge joining the continents.

——— Description of a supposed new fossil species of maize from Peru.

Journ. Washington Acad. Sci., vol 9, no. 5, Mar. 4, 1919, pp. 134–136, 1 fig.

Describes under the name *Zea antiqua* a remarkably well-preserved ear of maize or Indian corn from Peru. Its precise geologic occurrence is not known, hence its exact age can not be determined, but from the fact of its complete fossilization it is presumed to be some thousands of years old. It is hardly to be distinguished from a type of maize now living in the region about Lake Titicaca.

LEAVY, JOSEPH B. The United States Government collection of postage stamps.

The Philat. Gaz.: vol. 8, no. 7, July, 1918, pp. 235–237; vol. 8, no. 8, Aug., 1918, pp. 271–273; vol. 8, no. 9, Sept., 1918, pp. 302–305.

This is a complete and detailed list of the stamps in the Museum exhibition collection and is based entirely upon Museum material.

——— New issue notes and chronicle.

The Philat. Gaz.: vol. 8, no. 7, July, 1918, pp. 224–231; vol. 8, no. 8, Aug., 1918, pp. 258–262; vol. 8, no. 9, Sept., 1918, pp. 292–297; vol. 8, no. 10, Oct., 1918, pp. 325–333; vol. 8, no. 11, Nov., 1918, pp. 354–356; and vol. 8, no. 12, Dec., 1918, pp. 391–397.

Amer. Philat.: vol. 32, no. 2, Nov., 1918, pp. 34–37; vol. 32, no. 3, Dec., 1918, pp. 69–73; vol. 32, no. 4, Jan., 1919, pp. 100–108; vol. 32, no. 5, Feb., 1919, pp. 147–153; vol. 32, no. 6, Mar., 1919, pp. 193–198; vol. 32, no. 7, Apr., 1919, pp. 241–253; vol. 32, no. 8, May, 1919, pp. 289–302, and vol. 32, no. 9, June, 1919, pp. 325–339.

This is a series of notes on new issues of foreign stamps received from the International Bureau of the Universal Postal Union, Berne, Switzerland, through the Post Office Department, and is based entirely upon Museum material.

——— What the first issue of United States postage stamps teaches.

Amer. Philat.: vol. 32, no. 2, Nov., 1918, pp. 21–25.

——— History and biography of the 1851–60 issue.

Amer. Philat.: vol. 32, no. 3, Dec., 1918, pp. 53–60; vol. 32, no. 4, Jan., 1919, pp. 90–93, vol. 32, no. 5, Feb., 1919, pp. 133–135.

——— History and biography of the 1861–67 issue.

Amer. Philat.: vol. 32, no. 6, Mar., 1919, pp. 177–181; vol. 32, no. 7, Apr., 1919, pp. 221–230; vol. 32, no. 8, May, 1919, pp. 277–283; and vol. 32, no. 9, June, 1919, pp. 317–321.

These articles deal principally with biographies of the portrait subjects of the stamps and the artists executing the originals, and the postal history of the stamps themselves and their reasons for being brought into existence.

——— Catalogue of the postage stamps and stamped envelopes of the United States and possessions, issued prior to January 1, 1919.

Bull. U. S. Nat. Mus., no. 105, May 7, 1919, pp. i–ix, 1–204, pls. 1–3.

LINCOLN, NATALIE SUMNER. The War Medals of the Allies.

Daughters Amer. Rev. Mag., vol. 52, no. 10, Oct., 1918, pp. 571–587, illustrated.

A description of the military and naval medals and decorations awarded by the Allies and the United States for special services during the European War, 1914–1918.

LUBIN, ISADOR. (See under Joseph E. Pogue.

MACDONALD, DONALD FRANCIS. The sedimentary formations of the Panama Canal Zone, with special reference to the stratigraphic relations of the fossiliferous beds.

Bull. U. S. Nat. Mus., no. 103, May 16, 1919, pp. 525–545, pls. 153, 154, figs. 26, 27.

A summary statement regarding the stratigraphic geology of the Canal Zone. A generalized geologic map of the Canal Zone, and a map of the Panama Canal showing stations at which fossils were collected are included.

MARSH, C. DWIGHT. Report on a collection of Copepoda made in Honduras by F. J. Dyer.

Proc. U. S. Nat. Mus., vol. 55, no. 2285, June 5, 1919, pp. 545–548, pl. 49.

An annotated account of a collection of free-swimming Copepoda secured at La Ceiba, Honduras, by Mr. F. J. Dyer, with description of one new species.

MARSHALL, WILLIAM B. Lampsilis ventricosa cohongoronta in the Potomac valley.

Nautilus, vol. 32, no. 2, Oct., 1918, p. 51.

Records finding this species in a colony of various ages at Midriver Island, about a mile and a half above Great Falls, thus establishing the species as a member of the fauna of that vicinity.

MAXON, WILLIAM R. Polystichum andersoni and related species.

Amer. Fern Journ., vol. 8, no. 2, Apr.–June, 1918, pp. 33–37.

——— Further notes on Pellaea.

Amer. Fern Journ., vol. 8, no. 3, July–Sept., 1918, pp. 89–94.

MAXON, WILLIAM R. Notes on American Ferns—XII.

Amer. Fern Journ., vol. 8, no. 4, Oct.–Dec., 1918, pp. 114–121, pl. 6.

——— A new Polystichum from California.

Journ. Washington Acad. Sci., vol. 8, no. 19, Nov. 19, 1918, pp. 620–622.

——— The lip-ferns of the southwestern United States related to Cheilanthes myriophylla.

Proc. Biol. Soc. Washington, vol. 31, Nov. 29, 1918, pp. 139–151.

——— A new Selaginella from Oklahoma and Texas.

Proc. Biol. Soc. Washington, vol. 31, Dec. 30, 1918, pp. 171, 172.

——— Notes on American Ferns—XIII.

Amer. Fern. Journ., vol. 9, no. 1, Jan.–Mar., 1919, pp. 1–5.

——— A new Cheilanthes from Mexico.

Proc. Biol. Soc. Washington, vol. 32, May 20, 1919, pp. 111, 112.

——— A new Alsophila from Guatemala and Vera Cruz.

Proc. Biol. Soc. Washington, vol. 32, June 27, 1919, pp. 125, 126.

MEANS, PHILIP AINSWORTH. Distribution and use of slings in pre-Columbian America, with descriptive catalogue of ancient Peruvian slings in the United States National Museum.

Proc. U. S. Nat. Mus., vol. 55, no. 2275, May 7, 1919, pp. 317–349, pls. 22–27, figs. 1–3.

Gives distribution of the sling as an offensive weapon in ancient America, with special reference to those from Peru. Numerous quotations from early Spanish writers show the wide use of the sling in South America. A large number of the specimens in the national collections are described under their respective catalogue numbers; a bibliography is also given.

MERRIAM, C. HART. Two new manzanitas from the Sierra Nevada of California.

Proc. Biol. Soc. Washington, vol. 31, July 10, 1918, pp. 101–103, pls. 2–5.

MERRILL, GEORGE P. Further notes on the Plainview, Tex., meteorite.

Proc. U. S. Nat. Mus., vol. 54, no. 2243, Oct. 7, 1918, pp. 503–505, pls. 79, 80.

Takes up again the subject of the apparent brecciated structure referred to in the first paper relative to this stone, and shows with apparent conclusiveness that the stone is composed of fragments of two stones differing from each other in a marked degree in their relative richness in chondrites.

——— On the Fayette County, Tex., meteorite finds of 1878 and 1900 and the probability of their representing two distinct falls.

Proc. U. S. Nat. Mus., vol. 54, no. 2248, Nov. 25, 1918, pp. 557–561, pls. 86, 87, 1 fig.

Gives the results of careful microscopic study of these stones and shows with seeming conclusiveness that they are not, as was first supposed, identical, but represent two distinct falls.

——— Lazulite in an unusual form.

Amer. Mineralogist, vol. 3, no. 11, Nov., 1918, p. 192.

A brief note only, calling attention to the occurrence of this mineral replacing the original rock fragments in what was apparently a volcanic breccia.

——— The percentage number of meteorite falls and finds considered with reference to their varying basicity.

Proc. Nat. Acad. Sci., vol. 5, Feb., 1919, pp. 37–39.

This paper calls attention to the very interesting change in the character of meteorites noted in the observed falls. But 5 per cent of the known meteoric irons, 16 per cent of the mesosiderites, and 25 per cent of the howardites and ureilites have been seen to fall, against 95 to 100 per cent of acidic types grouped under the chondrule-free types.

MERRILL, GEORGE P. A heretofore undescribed meteoric stone from Kansas City, Missouri.

Proc. U. S. Nat. Mus., vol. 55, no. 2259, Apr. 12, 1919, pp. 95, 96, pls. 1, 2.

Briefly describes a meteoric stone in the collection of the Daniel B. Dyer Museum of Kansas City, Mo., attention to which has been called by Mr. Edward Butts, the Curator. This stone was found in 1903 but its meteoric nature, while suspected, was not fully recognized.

METCALF, MAYNARD M. assisted by MARY M. BELL. The Salpidae collected by the United States Fisheries steamer *Albatross* in Philippine waters during the years 1908 and 1909.

Bull. U. S. Nat. Mus., no. 100, vol. 2, pt. 1, May 7, 1919, pp. 1–4.

This paper lists the 98 lots of Salpidae secured by the *Albatross* in Philippine waters, embracing 11 species and 1 new variety.

——— The Salpidae: a taxonomic study.

Bull. U. S. Nat. Mus., no. 100, vol. 2, pt. 2, Apr. 29, 1919, pp. 1–193, pls. 1–14, text, figs. 1–150.

This monograph presents a systematic report on the Salpidae giving an exhaustive taxonomic diagnosis of each species with a detailed discussion of both the solitary and aggregate forms thereof, concluding with a summarized discussion of the relationships among the Salpidae as exemplified by these studies. A list of unidentifiable species of doubtful validity is appended with annotations. A key to the Salpidae is also given.

MICHAEL, ELLIS L. Report on the Chaetognatha collected by the United States Fisheries steamer *Albatross* during the Philippine Expedition, 1907–1910.

Bull. U. S. Nat. Mus., no. 100, vol. 1, pt. 4, May 19, 1919, pp. 235–277, pls. 34–38.

An exhaustive diagnosis of the Chaetognatha of the Philippines and adjacent regions, with keys for the entire group of Chaetog-

MICHAEL, ELLIS L.—Continued.

natha, a systematic discussion of the 16 species found in the Philippines, one of which is new to science, and a critical comparison of the Philippine Chaetognatha with those from the San Diego region, with annotations regarding their fundamental influence on the fisheries and other fauna of the Pacific.

MIDDLETON, WILLIAM. Notes on the larvae of some Cephidae.

Proc. Ent. Soc. Washington, vol. 19, nos. 1–4, Sept. 23, 1918, pp. 174–179, pl. 21.

Gives descriptions and a key to certain Nearctic larvae of the family Cephidae.

MILLER, GERRIT S., JR. The Piltdown Jaw.

Am. Journ. Phys. Anthrop., vol. 1, no. 1, July 9, 1918, pp. 25–52, pls. 1–4.

The characters of this jaw which have been asserted to be diagnostically human are all features which are common to men and apes.

——— Mammals and reptiles collected by Theodoor de Booy in the Virgin Islands.

Proc. U. S. Nat. Mus., vol. 54, no. 2244, Oct. 15, 1918, pp. 507–511, pl. 81.

Describes an extinct iguana from bones found in Indian deposits on St. Thomas, Virgin Islands, West Indies.

——— and JAMES W. GIDLEY. Synopsis of the supergeneric groups of Rodents.

Journ. Wash. Acad. Sci., vol. 8, no. 13, July 19, 1918, pp. 431–448.

MORRISON, HAROLD. A report on a collection of Coccidae from Argentina, with descriptions of apparently new species (Hom.).

Proc. Ent. Soc. Washington, vol. 21, no. 4, Sept. 27, 1919, pp. 63–91, pls. 4–7.

Describes seven new species and gives notes on various other species.

NOBLE, G. K. (See under Outram Bangs.)

OBERHOLSER, HARRY C. Larus nelsoni, in juvenal plumage, from the Hawaiian Islands.

Auk, vol. 35, no. 3, July, 1918, pp. 349, 350.

Nelson's gull is recorded from Hilo, Hawaii, and its juvenal plumage, not previously known, is described.

——— Numenius americanus americanus not a breeding bird of Michigan.

Auk, vol. 35, no. 3, July, 1918, pp. 350, 351.

An egg in the National Museum collection, previously reported to belong to this species, proves to be doubtful, and its Michigan origin is shown to be uncertain.

——— Junco aikeni in New Mexico.

Auk, vol. 35, no. 3, July, 1918, p. 357.

The white-winged junco is recorded from New Mexico on the basis of a specimen in the National Museum.

——— Description of a new subspecies of Cyanolaemus clemenciae.

Condor, vol. 20, no. 5, Sept. 27, 1918, pp. 181, 182.

A new subspecies of hummingbird, from Arizona, is here described.

——— Notes on North American birds. VI.

Auk, vol. 35, no. 4, Oct., 1918, pp. 463–467.

Notes on the status of six species of North American birds.

——— The subspecies of Larus hyperboreus Gunnerus.

Auk, vol. 35, no. 4, Oct., 1918, pp. 467–474.

The glaucous and Point Barrow gulls are here treated, with descriptions, synonymy and distribution of each.

——— The range and status of Aphelocoma californica hypoleuca Ridgway.

Auk, vol. 35, no. 4, Oct., 1918, pp. 480, 481.

Xantus's jay is maintained to be a subspecies of the California jay.

OBERHOLSER, HARRY C. The northernmost record of Icterus parisorum.

Auk, vol. 35, no. 4, Oct., 1918, pp. 481, 482.

Two specimens of Scott's oriole are recorded from near Stillwater, Nevada.

——— Russet-backed thrush (Hylocichla ustulata ustulata) in New Mexico.

Auk, vol. 35, no. 4, Oct., 1918, p. 483.

Records this form from Luna County, N. Mex.

——— Diagnosis of a new genus of Anatidae from South America.

Journ. Washington Acad. Sci., vol. 8, no. 17, Oct. 19, 1918, pp. 571, 572.

Anser jubatus, a goose from South America, is here placed in a new genus, *Neochen*.

——— Description of a new Lanius from Lower California.

Condor, vol. 20, no. 6, Dec. 12, 1918, pp. 209, 210.

Lanius ludovicianus nelsoni, a new shrike, is here described from material in the National Museum.

——— Description of a new Iole from the Anamba Islands.

Proc. Biol. Soc. Washington, vol. 31, Dec. 30, 1918, pp. 197, 198.

——— The status of the genus Orchilus Cabanis.

Proc. Biol. Soc. Washington, vol. 31, Dec. 30, 1918, pp. 203, 204.

The synonymy of this genus of tyrant birds is discussed, and the name *Orchilus* (preoccupied) is replaced by *Notorchilus;* three species are assigned to it.

——— Spizixidae, a new family of pycnonotine passeriformes.

Journ. Washington Acad. Sci., vol. 9, no. 1, Jan. 4, 1919, pp. 14–16.

A family is created for bulbuls of the genera *Spizoxos* and *Cophixus*, the last a new genus.

——— Description of a new subspecies of Piranga hepatica Swainson.

Auk, vol. 36, no. 1, Jan., 1919, pp. 74–80.

A new form of the hepatic tanager is described from the southwestern United States, extending to central Mexico; a list of localities and table of measurements are added.

OBERHOLSER, HARRY C.—Continued.

——— Notes on North American birds. VII.

Auk, vol. 36, no. 1, Jan. 1919, pp. 81–85.

Observations on the status of 6 species, representing 5 families.

——— Diagnosis of a new genus of Bucerotidae.

Journ. Washington Acad. Sci., vol. 9, no. 6, Mar. 19, 1919, pp. 167, 168.

Platycorax is proposed as the generic title for a hornbill from the Philippines.

——— Larus canus brachyrhynchus in Wyoming.

Auk, vol. 36, no. 2, Apr., 1919, pp. 276, 277.

An example in the U. S. National Museum from Lake Fork, in the Wind River Mountains, is recorded as the easternmost occurrence of the bird in the United States.

——— Description of a new Conurus from the Andaman Islands.

Proc. Biol. Soc. Washington, vol. 32, Apr. 11, 1919, pp. 29–32.

Conurus fasciatus abbotti, a paroquet, is here indicated as new.

——— The birds of the Tambelan Islands, South China Sea.

Proc. U. S. Nat. Mus., vol. 55, no. 2262, Apr. 26, 1919, pp. 129–143.

Twenty-two species are recorded from this group, of which one, a stone-plover, is described as new.

——— Notes on the wrens of the genus Nannus Billberg.

Proc. U. S. Nat. Mus., vol. 55, no. 2265, Apr. 28, 1919, pp. 223–236.

Thirty-six species and subspecies are listed, and the American forms, nine in number, are synoptically treated; three subspecies from the Aleutian Islands are new.

——— Notes on birds collected by Dr. W. L. Abbott on Pulo Taya, Berhala Strait, southeastern Sumatra.

Proc. U. S. Nat. Mus., vol. 55, no. 2268, Apr. 28, 1919, pp. 267–274.

An account of the birds, 10 species, found on this island, with descriptions of 2 new forms.

OBERHOLSER, HARRY C. A revision of the subspecies of the white-collared kingfisher, Sauropatis chloris (Boddaert).

Proc. U. S. Nat. Mus., vol. 55, no. 2276, May 2, 1919, pp. 351–395.

Twenty-four subspecies are recognized, of which 5 are described as new.

——— The races of the Nicobar megapode, Megapodius nicobariensis Blyth.

Proc. U. S. Nat. Mus., vol. 55, no. 2278, May 7, 1919, pp. 399–402.

Two forms are recognized, one of them new.

——— Notes on Dr. W. L. Abbott's second collection of birds from Simalur Island, western Sumatra.

Proc. U. S. Nat. Mus., vol. 55, no. 2282, June 5, 1919, pp. 473–498, 1 map.

Annotated list of 38 species, of which 1, a rail of the genus *Hypotaenidia*, is described as new.

——— Description of an interesting new junco from Lower California.

Condor, vol. 21, no. 3, June 6, 1919, pp. 119, 120.

Junco oreganus pontilis is described from the Hanson Laguna Mountains, in northern Lower California.

——— The status of the subgenus Sieberocitta Coues.

Proc. Biol. Soc. Washington, vol. 32, June 27, 1919, pp. 135–137.

This subgenus is recognized for the Arizona jay and its allies, but is shown to intergrade with the genus *Aphelocoma* through a Mexican species, *A. guerrerensis*.

PAYSON, EDWIN BLAKE. The North American species of Aquilegia.

Contr. U. S. Nat. Herb., vol. 20, pt. 4, Oct. 14, 1918, pp. 133–157, pls. 8–14.

PENARD, THOMAS E. (See under Outram Bangs.)

PENNELL, FRANCIS W. Eysenhardtia.

North. Amer. Flora,, vol. 24, pt. 1, Apr. 25, 1919, pp. 34–40.

PIERCE, W. DWIGHT. The comparative morphology of the order Strepsiptera together with records and descriptions of insects.

Proc. U. S. Nat. Mus., vol. 54, no. 2242, Sept. 12, 1918, pp. 391–501, pls. 64–78.

In addition to giving the morphology, the author cites much biological data accumulated since his monograph of the group, the material being arranged as in the monograph for ready reference, gives a complete host list and describes 1 new family, 9 new genera, 2 new subgenera, and 25 new species and proposes 1 new name for a preoccupied generic name.

PILSBRY, HENRY A. Cirripedia from the Panama Canal Zone.

Bull. U. S. Nat. Mus., no. 103, Jan. 28, 1919, pp. 185–188, pl. 67.

Five species of fossil barnacles are described, including one new species and one new subspecies.

PIPER, CHARLES V. Some western species of Lathyrus.

Proc. Biol. Soc. Washington, vol. 31, Dec. 30, 1918, pp. 189–196.

Types of several of the species and subspecies described are in the U. S. National Herbarium.

——— New Pacific Coast plants.

Proc. Biol. Soc. Washington, vol. 32, Apr. 11, 1919, pp. 41–44.

Types of several of the new species described are in the U. S. National Herbarium.

POGUE, JOSEPH E. An interpretation of the engine fuel situation.

Journ. Soc. Automotive Engineers, Apr., 1919, pp. 247–255.

A detailed analysis of the motor-fuel problem, with the following conclusion: (*a*) The domestic production of crude petroleum is nearing its maximum; (*b*) The natural gasoline content of this supply is lessening; (*c*) Mexico offers no relief competent to solve the issue; (*d*) Substitute fuels need not enter into present consideration; (*e*) The supply of engine fuel can be maintained only through an extraordinary dependence upon cracking or through changes in engine type;

POGUE, JOSEPH E.—Continued.

(*f*) Cracking can not meet the issue at a favorable price; (*g*) The burden, therefore, falls upon the automotive engine, which must consequently so adapt itself as to gain higher thermal efficiency, and to use less specialized (less volatile) fuel.

——— A review of the motor-fuel situation.

Automotive Industries, June 12, 1919, pp. 1319–1324.

This paper reviews the limitations and possibilities of the various fuel sources, discusses the interrelation of engine and fuel developments, and comments on the essentials of a research organization needed.

——— The Engine-fuel problem.

Soc. of Automotive Engineers, June 23, 1919, 4 pp.

This paper gives an analysis of the motor-fuel problem and urges the formation of a motor-fuel research organization with the threefold function of economic analysis, laboratory research, and industrial coordination.

——— (See also under Chester G. Gilbert.)

——— assisted by ISADOR LUBIN. Prices of petroleum and its products during the war.

U. S. Fuel Administration and War Industries Board, 55 pp., 24 figs., 3 tables.

This bulletin was prepared for the Fuel Administration in coordination with a series of price histories compiled by the Price Section of the Bureau of Planning of the War Industries Board, which deal with the fluctuations in the prices of fifty classes of commodities during the past six years. It includes an evaluation of the price factors peculiar to the exploitation of petroleum; a commercial history of the petroleum industry; and a detailed record and interpretation of the run of prices for petroleum and its products from 1913–1918.

RAMSDEN, CHARLES T. (See under Thomas Barbour.)

RANSOM, BRAYTON H. and W. D. FOSTER. Recent discoveries concerning the life history of Ascaris lumbricoides.

Journ. Parasitol., vol. 5, no. 3, Mar., 1919, pp. 93–99.

A detailed annotated discussion of the life history of *Ascaris lumbricoides*.

RATHBUN, MARY J. Report on the spider crabs obtained by the F. I. S. "Endeavour" on the coasts of Queensland, New South Wales, Victoria, South Australia, and Tasmania.

Commonwealth of Australia, Dept. of Trade and Customs, Fisheries, Biological Results of the Fishing Experiments carried on by the F. I. S. "Endeavour" 1909–1914, vol 5, pt. 1, Nov. 6, 1918, pp. 1–29, pls. 1–15, text figs. 1–3.

The spider crabs number 27 species, 9 of which are new, one of these represents a new genus *Ephippias*.

The second set of specimens has been presented to the U. S. National Museum; the types and additional material are in the Australian Museum, Sydney.

——— Decapod crustaceans from the Panama region.

Bull. U. S. Nat. Mus., no. 103, Jan. 8, 1919, pp. 123–184, pls. 54–66.

Embraces 61 species for the Panama region, including Costa Rica, all but 3 of which are founded on material examined by the writer; it ranges from the Oligocene to the Pleistocene. Thirty-nine species are described as new, 3 are types of new genera, *Calappella*, *Mursilia*, and *Gatunia*, the last being the basis of a new family, *Gatuniidae*.

In the list of stations and the table of distribution the data relating to Cirripedia from Dr. H. A. Pilsbry's report, also in Bulletin 103, are included for convenience of reference.

——— Three new South American river crabs.

Proc. Biol. Soc. Washington, vol. 32, Feb. 14, 1919, pp. 5, 6.

These crabs were obtained for the U. S. National Museum through the activities of the University of Michigan.

RATHBUN, RICHARD. Report on the progress and condition of the United States National Museum for the year ending June 30, 1917.

8vo., pp. 1–184, Sept. 20, 1918.

RAVENEL, W. deC. Report on the progress and condition of the United States National Museum for the year ending June 30, 1918.

8vo., pp. 1–175, pls. 1–4, Apr. 18, 1919.

RIDGWAY, ROBERT. The birds of North and Middle America: a descriptive catalogue of the higher groups, genera, species, and subspecies of birds known to occur in North America, from the arctic lands to the Isthmus of Panama, the West Indies and other islands of the Caribbean Sea, and the Galapagos Archipelago. Part VIII. Family Jacanidae. Family Oedicnemidae. Family Haematopodidae. Family Arenariidae. Family Aphrizidae. Family Charadriidae. Family Scolopacidae. Family Phalaropodidae. Family Recurvirostridae. Family Rynchopidae. Family Sternidae. Family Laridae. Family Stercorariidae. Family Alcidae.

Bull. U. S. Nat. Mus., no. 50, pt. 8, June 26, 1919, pp. i–xvi, 1–852, pls. 1–34.

The present volume deals with the order Charadriiformes, embracing (within the geographical limits of the work) the plovers and related shore birds, the gulls, terns, and skimmers, and the auks. Two subspecies of plover, one of sooty tern, and a new genus of sandpipers are described as new.

RILEY, J. H. A winter record of Bewick's wren from northern Virginia.

Auk, vol. 35, no. 4, Oct., 1918, p. 483.

Notes the occurrence of this species at Falls Church in February.

——— Annotated catalogue of a collection of birds made by Mr. Copley Amory, jr., in northeastern Siberia.

Proc. U. S. Nat. Mus., vol. 54, no. 2255, Oct. 28, 1918, pp. 607–626.

RILEY, J. H.—Continued.

Notes on a collection of 228 specimens, representing 76 species, from the Kolyma River region, Siberia.

——— Two new genera and 8 new birds from Celebes.

Proc. Biol. Soc. Washington, vol. 31, Dec. 30, 1918, pp. 155–159.

Eight species, in as many families, are described as new. *Celebesia* and *Coracornis* are new genera of caterpillar-shrikes and thickheads, respectively.

——— Six new birds from Celebes and Java.

Proc. Biol. Soc. Washington, vol. 32, May 20, 1919, pp. 93–96.

Five new forms from Celebes and one from Java are here described. *Megalurus celebensis* is a new species of marsh warbler, of a genus not previously recorded from Celebes.

ROBINSON, B. L. Diagnoses and notes relating to tropical American Eupatorieae.

Proc. Amer. Acad. Arts and Sci., vol. 54, no. 4, Oct. 8, 1918, pp. 235–263.

Types of some of the new species described are in the U. S. National Herbarium.

——— A descriptive revision of the Colombian Eupatoriums.

Proc. Amer. Acad. Arts and Sci., vol. 54, no. 4, Oct. 8, 1918, pp. 264–330.

——— Keyed recensions of the Eupatoriums of Venezuela and Ecuador.

Proc. Amer. Acad. Arts and Sci., vol. 54, no. 4, Oct. 8, 1918, pp. 331–367.

ROHWER, S. A. The American species of the genus Cephus Latreille.

Proc. Ent. Soc. Washington, vol. 19, nos. 1–4, Sept. 23, 1918, pp. 139–141.

Gives a key to the American species with notes on their distribution.

——— A note on Chalcis abiesae Girault (Hym.; Chalcididae.)

Proc. Ent. Soc. Washington, vol. 20, no. 1, Sept. 27, 1918, p. 18.

Expresses belief that this is a good species.

ROHWER, S. A. New sawflies of the subfamily Diprioninae (Hym.)

Proc. Ent. Soc. Washington, vol. 20, no. 4, Sept. 27, 1918, pp. 79–90.

Gives generic synopsis describing two new genera and one new subgenus; also describes eight new species.

——— Descriptions and notes on some Ichneumon flies from Java.

Proc. U. S. Nat. Mus., vol. 54, no. 2249, Nov. 25, 1918, pp. 563–570.

Describes ten new species.

——— Notes on and descriptions of some sawflies from the Australian region.

Ann Mag. Nat. Hist., ser. 9, vol. 2, Nov., 1918, pp. 433–440.

Describes one new genus and four new species. Under the arrangement with the British Museum (N. H.) paratypes are to be returned to the National Museum.

——— The North American species of the sawfly genus Laurentia (Hym.)

Proc. Ent. Soc. Washington, vol. 20, no. 7, Dec. 4, 1918, pp. 157–159.

Gives a synopsis of the Nearctic species.

——— Notes on and descriptions of sawflies belonging to the Tenthredinid tribe Hemichroini.

Proc. Ent. Soc. Washington. vol. 20, no. 8, Jan. 24, 1919, pp. 161–173.

Gives catalogue of the Nearctic species, a generic and specific synopsis and describes two new species.

——— Descriptions of three parasites of Agrilus angelicus (Hym.)

Proc. Ent. Soc. Washington, vol. 21, no. 1, Feb. 24, 1919, pp. 4–8, 1 fig.

Describes three new species.

——— Description of a new Cynipoid from Trinidad (Hym.)

Proc. Ent. Soc. Washington, vol. 21, no. 6, June 18, 1919, p. 156.

Describes *Diglyphosoma anastrephae*.

——— (See also under R. A. Cushman.)

ROHWER, S. A., and R. A. CUSHMAN. Idiogastra, a new suborder of Hymenoptera with notes on the immature stages of Oryssus.

Proc. Ent. Soc. Washington, vol. 19, nos. 1–4, Sept. 23, 1918, pp. 89–98, pls. 11, 12.

Describes a new suborder for the Oryssoid Hymenoptera and gives descriptions of the larva and pupa of *Oryssus occidentalis* Cresson.

——— and MARGARET M. FAGAN. Additions and corrections to "The type species of the genera of the Cynipoidea or the gall wasps and parasitic Cynipoids."

Proc. U. S. Nat. Mus., vol. 55, no. 2266, Apr. 26, 1919, pp. 237–240.

Additions and corrections to a previous paper by the same authors.

ROSE, J. N. Echeveria nodulosa.

Addisonia, vol. 3, no. 2, June 29, 1918, p. 23, pl. 92.

——— Sinningia speciosa.

Addisonia, vol. 3, no. 2, June 29, 1918, pp. 29, 30, pl. 95.

——— Crassulaceae [Additions and Corrections].

North Amer. Flora, vol. 22, pt. 6, Dec. 30, 1918, pp. 535–548.

——— (See also under N. L. Britton.)

ROWLEE, W. W. Synopsis of the genus Ochroma, with descriptions of new species.

Journ. Washington Acad. Sci., vol 9, no. 6, Mar. 19, 1919, pp. 157–167.

RYDBERG, PER AXEL. Fabaceae: Psoraleae (part).

North Amer. Flora, vol. 24, pt. 1, Apr. 25, 1919, pp. 1–64.

SAFFORD, W. E. Chenopodium nuttalliae, a food plant of the Aztecs.

Journ. Washington Acad. Sci., vol. 8, no. 15, Sept. 19, 1918, pp. 521–527, figs. 1–3.

SCHALLER, WALDEMAR T. Gems and precious stones in 1916.

Min. Res. U. S., 1916, pt. 2, June 27, 1918, pp. 887–899.

Includes a detailed description of an exhibit of tourmaline and other gem minerals in the pegmatites of southern California, installed in the Museum under the direction of the author, who has made an intensive study of the region under the joint auspices of the U. S. National Museum and U. S. Geological Survey, in the course of which the materials comprising the exhibit were collected.

SCHAUS, WILLIAM. A new Agrias from Guatemala (Lep.; Nymphalidae).

Ent. News, vol. 29, no. 10, Dec., 1918, pp. 387, 388.

——— A new Amastus from Argentina (Lep.; Arctiidae).

Ent. News, vol. 30, no. 6174, June, 1919.

Describes *A. formosana* new species.

SCHMIDT, KARL PATTERSON. Contributions to the herpetology of the Belgian Congo.

Bull. Amer. Mus. Nat. Hist., vol. 39, art. 2, Apr., 1919, pp. 385–624, pls. 7–32, figs. 1–26.

In the preparation of this paper the author had access to material in the U. S. National Museum for comparison.

SCHNEIDER, CAMILLO. Notes on American willows. III. A conspectus of American species and varieties of sections Reticulatae, Herbaceae, Ovalifoliae, and Glaucae.

Bot. Gaz., vol. 67, no. 1, Jan., 1919, pp. 27–64.

——— Notes on American willows. IV. Species and varieties of section Longifolliae.

Bot. Gaz., vol. 67, no. 4, Apr., 1919, pp. 309–346.

SCHUCHERT, CHARLES. A Lower Cambrian edrioasterid, Stromatocystites walcotti.

Smithsonian Misc. Colls., vol. 70, no. 1, 1919. pp. 1–8, pl. 1, 1 fig.

Describes and figures a new species of edrioasterid from the Lower Cambrian of Newfoundland, at first thought to belong to a new genus. Comparison with specimens of the genotype of *Stromatocystites,* however, clearly showed its correct placement in that genus. The description of the species is preceded by a redefinition of the genus.

SCHUCHERT, CHARLES—Continued.

SCHWARZ, E. A. and H. S. BARBER. Two new Hydrophilid beetles.

Proc. Ent. Soc. Washington, vol. 19, nos. 1–4, Sept. 23, 1919, pp. 129–135, 2 figs.

Describes *Epimetopus thermarum* from warm streams of Arizona, giving a table of species of the genus, and *Spercheus stangli* from the Philippine Islands, with a list of the species of the genus.

SHANNON, R. C. (See under T. E. Snyder.)

SHUFELDT, R. W. The skeleton of the "kea parrot" of New Zealand (Nestor notabilis).

Emu, vol. 18, pt. 1, July 1, 1918, pp. 25–43, pls. 4–10.

A descriptive account of the skeleton of this species, based upon material recently acquired by the National Museum.

——— Mounted bird exhibits of the United States National Museum at Washington.

Avicultural Mag., ser. 3, vol. 9, no. 11, Sept., 1918, pp. 273, 274, 1 pl.

Notes on a cuckoo and 2 species of pigeons, the latter illustrated from examples in the U. S. National Museum.

——— Notes on the osteology of the young of the hoatzin (Opisthocomus cristatus) and other points on its morphology.

Journ. Morphology, vol. 31, no. 3, Dec., 1918, pp. 599–615, pls. 1–4.

An account of the skeleton of the young hoatzin, accompanied by a bibliography of 25 titles.

——— The shell builders—a brief introduction to the study of conchology.

Part 1, *Sci. Amer. Suppl.,* vol. 87, no. 2263, May 17, 1919, pp. 308–310, 6 illustrations.

SHUFELDT, R. W.—Continued.

Part 2, *Sci. Amer. Suppl.*, vol. 87, no. 2265, May 31, 1919, pp. 348, 349, 6 illustrations.

Part 3, *Sci. Amer. Suppl.*, vol. 87, no. 2267, June 14, 1919, pp. 380–381, 6 illustrations.

An interesting discussion of the history, morphology, economic, and esthetic value of mollusks, augmented by stories of the better known forms.

SMITH, FRANK, and BESSIE R. GREEN. Descriptions of new African earthworms, including a new genus of Moniligastridae.

Proc. U. S. Nat. Mus., vol. 55, no. 2263, May 19, 1919, pp. 145–166, text figs. 1–18.

Describes one new genus and three new species of earthworms collected on the eastern coast of British East Africa, with an exhaustive discussion of the anatomical relations of the new form.

SNYDER, JOHN OTTERBEIN. Three new whitefishes from Bear Lake, Idaho and Utah.

Bull. Bur. Fish., vol. 36, no. 864, May 7, 1919, pp. 3–9, 3 figs.

It is the purpose of this paper to direct attention to some little known but very important food fishes in Bear Lake, Idaho and Utah. These fishes are also of interest to ichthyologists, as they belong to previously unknown forms.

SNYDER, T. E. Some significant structural modifications in Nearctic Termites.

Proc. Ent. Soc. Washington, vol. 21, no. 5, May 5, 1919, pp. 97–104, pl. 8.

——— and R. C. SHANNON. Notes on the insect fauna of Bank Swallows' nests in Virginia.

Proc. Ent. Soc. Washington, vol. 21, no. 5, May 5, 1919, pp. 110–112.

SPRINGER, FRANK. On Mysticocrinus, a new genus of Silurian Crinoidea.

Amer. Journ. Sci., vol. 46, Nov., 1918, pp. 666–668, pl. 2.

The new genus *Mysticocriuns*, with *M. wilsoni* as the genotype, is founded on material from the Silurian near St. Paul, Indiana. Ample illustrations accompany the description. The type is in the author's collection in the U. S. National Museum.

SPRINGER, FRANK—Continued.

——— A new species of fossil Pentacrinus from the East Indies.

Nederlandsche Timor-Expeditie, vol. 2, 1918, pp. 1–8, pl. 1.

Describes and figures the new species *Pentacrinus rotiensis*. The type is in the collection of Dr. G. A. F. Molengraaff, but specimens in the author's collection are figured for comparison.

STANDLEY, PAUL C. Omiltemia, a new genus of Rubiaceae from Mexico.

Journ. Washington Acad. Sci., vol. 8, no. 13, July 19, 1918, pp. 426, 427.

——— Six new species of trees and shrubs from Mexico.

Proc. Biol. Soc. Washington, vol. 31, Nov. 29, 1918, pp. 131–134.

——— The North American species of Genipa.

Journ. Washington Acad. Sci., vol. 8, no. 20, Dec. 4, 1918, pp. 639–643.

——— Rubiales.

North Amer. Flora, vol. 32, pt. 1, Dec. 28, 1918, p. 1.

——— Rubiaceae (part).

North Amer. Flora, vol. 32, pt. 1, Dec. 28, 1918, pp. 3–86.

——— A neglected Solidago name.

Rhodora, vol. 21, no. 243, Mar., 1919, pp. 69, 70.

——— A new Nyctelea name.

Proc. Biol. Soc. Washington, vol. 32, June 27, 1919, p. 143.

STEJNEGER, LEONHARD. The name of the horned-toad from the Salt Lake Basin.

Copeia, No. 65, Jan. 22, 1919, pp. 3, 4.

Contends for its distinctness under the name of *Phrynosoma douglassii ornatum*.

STEJNEGER, LEONHARD. The "Glass-snake" of Formosa.

Proc. Biol. Soc. Washington, vol. 32, June 27, 1919, p. 142.

A comparison of Formosan specimens received from the Institute of Science, Government of Formosa, with a Chinese specimen of *Ophisaurus harti* in the U. S. National Museum shows them to be identical.

STORER, TRACY IRWIN. (See under Joseph Grinnell.)

SWALES, B. H. Stilt sandpiper (Micropalama himantopus) in Wyoming.

Auk, vol. 36, no. 1, Jan., 1919, p. 102.

Records the occurrence of this species in Wyoming, based on specimens long in the U. S. National Museum collection.

SWARTH, H. S. Three new subspecies of Passerella iliaca.

Proc. Biol. Soc. Washington, vol. 31, Dec. 30, 1918, pp. 161–163.

Three new forms of fox sparrows are here described, all from California.

TAYLOR, WALTER P. An additional record of Ammodramus savannarum bimaculatus in eastern Washintgon.

Auk., vol. 36, no. 2, Apr., 1919, pp. 287, 288.

The western grasshopper sparrow is recorded from Adams Co., based on a specimen in the U. S. National Museum.

TODD, W. E. CLYDE. Descriptions of apparently new Colombian birds.

Proc. Biol. Soc. Washington, vol. 32, June 27, 1919, pp. 113–117.

Nineteen species and subspecies, chiefly from the Colombian States of Boyaca and Santander, are diagnosed as new.

TOWNSEND, C. H. T. New Muscoid genera, species and synonymy.

Insecutor Inscitiae Menstruus, vol. 6, nos. 7–9, Oct. 30, 1918, pp. 151–156; nos. 10–12, Jan. 11, 1919, pp. 157–182.

In this paper 58 new genera and 37 new species are described.

ULRICH, E. O. The formations of the Chester series in western Kentucky and their correlates elsewhere.

Kentucky Geol. Sur., Frankfort, 1917 [1918], pp. i–iv, 1–272, pls. A–H2, 1–11.

Based upon field investigations made by the author at various times during the past 30 years. The introductory chapters, giving a summary of the work, include correlations by fossils and other criteria. Part 2 deals with the stratigraphy, and sections from practically all localities studied are given. Part 3 is devoted to the paleontology of the Chester group. The characteristic fossils of the various formations are described and figured, including a number of new forms, the specimens being for the most part in the collection of the National Museum or that of Mr. Frank Springer.

VAN CLEAVE, H. J. Acanthocephala of the subfamily Rhadinorhynchinae from American fish.

Journ. Parasitol., vol. 5, no. 1, Sept., 1918, pp. 17–24, pl. 3.

A comprehensive, annotated discussion of *Acanthocephala* of the subfamily Rhadinorhynchinae from American fish.

VAN ESELTINE, G. P. The allies of Selaginella rupestris in the southeastern United States.

Contr. U. S. Nat. Herb., vol. 20, pt. 5, Oct. 1, 1918, pp. 159–172, pls. 15–22, figs. 63–70.

VAUGHAN, THOMAS WAYLAND. Some shoal-water corals from Murray Island (Australia), Cocos-Keeling Islands and Fanning Island.

Papers from the Dept. of Marine Biology, of the Carnegie Inst. of Washington, vol. 9, pub. no. 213, Aug. 30, 1918, pp. 51–233, pls. 20–93, 2 figs.

This paper is one of a series begun in 1892 on the Tertiary corals of the United States and the Caribbean area, which have several objects, including (1) description of the successive coral faunas for the aid they might render in geological correlation; (2) the tracing of the relations between the successive

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faunas in the hope that information might be obtained on their evolution; (3) consideration of the ecology of the faunas for light which might be thrown on the conditions, especially those of depth and temperature, under which the sediments in which they are embedded were deposited. In order to understand properly the fossil faunas of the areas mentioned it was necessary to study those now living in the western Atlantic, the Gulf of Mexico, and the Caribbean Sea, and to further extend systematic knowledge of living coral faunas and study critically the relations of the faunas to environmental factors. The present paper presents a critical discussion of the geographic distribution of the species of corals from Murray, Cocos-Keeling, and Fanning Islands, with a detailed annotated systematic discussion of the species found, including the description of 12 new species, 1 new subspecies, and 1 new genus. Based partly on Museum material.

——— Some shoal-water bottom samples from Murray Island, Australia, and comparisons of them with samples from Florida and the Bahamas.

Papers from the Dept. of Marine Biology, of the Carnegie Inst. of Washington, vol. 9, pub. no. 213, Aug. 30, 1918, pp. 239–288, pls. 94–95.

The present paper is a preliminary contribution to the study of the marine bottom deposits in three coral reef areas, namely, Murray Island, Australia, the Bahamas, southern Florida.

——— The temperature of the Florida coral reef tract.

Papers from the Dept. of Marine Biology, of the Carnegie Inst. of Washington, vol. 9, pub. no. 213, Aug. 30, 1918, pp. 319–339, with text figs.

The temperature data herewith presented were assembled primarily for their bearing on the effect temperature exerts on the bathymetric and geographic distribution of coral reefs.

VAUGHAN, THOMAS WAYLAND. The biologic character and geologic correlation of the sedimentary formations of Panama in their relation to the geologic history of Central America and the West Indies.

Bull. U. S. Nat. Mus., no. 103, May 19, 1919, pp. 547–612, 2 insets.

Presents biologic summaries for each of the formations for which paleontologic data are available, with brief discussions of the geologic age; geologic correlation of the formations and the distribution of their age equivalents in Central America, the West Indies, and the southeastern United States; and an outline of the paleogeography of middle America.

WALCOTT, CHARLES D. Cambrian geology and paleontology, IV, No. 4. Appendages of trilobites.

Smithsonian Misc. Colls., vol. 67, no. 4, Dec., 1918, pp. 115–216, pls. 14–42, figs. 1–3.

The author summarizes his investigations of the appendages of trilobites during the past 45 years, a research undertaken in pursuance of a promise made to Prof. Louis Agassiz in 1873. His summary of 1881 is reviewed and corrected, together with later papers discussing his various discoveries in this subject. A number of species of trilobites with appendages are described and figured. Some conclusions drawn are that the trilobite's appendages show it to have been a marine crustacean far more highly developed than would have seemed possible in a period so infinitely remote.

WETMORE, ALEXANDER. Birds observed near Minco, central Oklahoma.

Wilson Bull., vol. 30, no. 1, Mar., 1918, pp. 2–10; No. 2, June, 1918, pp. 56–61.

Notes on 62 species and subspecies.

——— The birds of Desecheo Island, Porto Rico.

Auk, vol. 35, no. 3, July, 1918, pp. 333–340.

An account of this island and its bird life; 11 species are recorded.

WETMORE, ALEXANDER. On the anatomy of Nyctibius with notes on allied birds.

Proc. U. S. Nat. Mus., vol. 54, no. 2251, Oct. 15, 1918, pp. 577–586, figs. 1–7.

Describes the anatomy of the trunk of a species of potoo, and discusses the relationships of several related families.

——— Bones of birds collected by Theodoor de Booy from kitchen midden deposits in the islands of St. Thomas and St. Croix.

Proc. U. S. Nat. Mus., vol. 54, no. 2245, Nov. 21, 1918, pp. 513–522, pl. 82.

Notes on a series of bones, referred to 13 species, one of which represents a new genus and species of rail.

——— Notes on the structure of the palate in the Icteridæ.

Auk, vol. 36, no. 2, April, 1919, pp. 190–197, figs. 1, 2.

An examination of the palate in a majority of the genera of this family reveals the presence of a keellike or knoblike structure in certain groups. These features are here described.

WHERRY, EDGAR T. Notes on mimetite, thaumasite, and wavellite.

Proc. U. S. Nat. Mus., vol. 54, no. 2240, Dec. 23, 1918, pp. 373–381, pl. 56.

A specimen labeled "Penfieldite, Tintic District, Utah" is shown by optical, chemical, and crystallographic study to be mimetite. Crystallographic measurements of thaumasite crystals from Paterson, N. J., are given, and the chemical composition of this mineral is discussed. Measurable crystals of wavellite have been found at Hellertown, Pa. Their forms are described and an analysis given.

WIGDOR, MEYER. A new fluke from the dog.

Journ. Amer. Vet. Med. Assn., vol. 54 (n. s.), 7, no. 3, Dec., 1918, pp. 254–257, figs. 1–4.

Describes *Hallum caninum*, new species, based on Museum material.

WIGDOR, MEYER. (See also under Maurice C. Hall.)

WILSON, CHARLES BRANCH. A new species of parasitic Copepod, with notes on species already described.

Proc. U. S. Nat. Mus., vol. 55, no. 2274, May 2, 1919, pp. 313–316, pl. 21.

Describes *Gloiopotes costatus* new species and discusses three previously described forms.

——— North American parasitic Copepods, belonging to the family Sphyriidae.

Proc. U. S. Nat. Mus., vol. 55, no. 2286, June 18, 1919, pp. 549–604, pls. 50–59.

This is the fifteenth paper in the series dealing with the parasitic copepods in the National Museum and comprises a new family, the Sphyriidae, 2 new genera, 5 new species, also a discussion of 9 previously described forms.

WOOD, FRED J. Historic turnpike roads and tollgates.

Daughters Amer. Rev. Mag., vol. 53, no. 4, Apr., 1919, pp. 205–219, 13 illustrations.

One paper, the concluding article of a series appearing in this magazine from January to April, 1919, based in part on transportation models in the U. S. National Museum.

WYER, SAMUEL S. Natural Gas: Its production, service, and conservation.

Bull. U. S. Nat. Mus., no. 102, pt. 7, Dec. 28, 1918, pp. 1–67, pls. 1–7, figs. 1–20, 2 maps.

Natural gas is the least appreciated, consequently the most abused, of the mineral resources in popular use. Mr. Wyer aims to analyze the causes of waste with a view to pointing the way to adequate remedial measures.