
SECTION I.

REPORT

UPON THE

CONDITION AND PROGRESS OF THE U. S. NATIONAL MUSEUM
DURING THE YEAR ENDING JUNE 30, 1890.

BY

G. BROWN GOODE,

ASSISTANT SECRETARY SMITHSONIAN INSTITUTION, IN CHARGE OF
U. S. NATIONAL MUSEUM.

ERRATA.

- Page 75, line 22, for "Sebright" read "Seabright."
Page 75, line 32, for "Madaagascar" read "Madagascar."
Page 82, line 14, for "daguerrotypes" read "daguerreotypes."
Page 156, line 3, for "Golzius" read "Goltzius."
Page 229, line 21, for "John Hopkins" read "Johns Hopkins."
Page 689, line 3 from below, for "Nation" read "National."
Page 720, line 11 from below, for "specimens" read "species."
Page 759, lines 32 and 33, for "mocasius" read "moccasins."

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A.—GENERAL CONSIDERATIONS.

In January, 1847, the first Board of Regents of the Smithsonian Institution, after many weeks of consultation and deliberation over the plans for its organization, unanimously voted the following resolution:

*Resolved, That it is the intention of the act of Congress, 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 store-house 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.**

This was a high ideal for the future National Museum, but it is one which it has been year after year more closely approaching, and it is hoped that the present report will show that the work accomplished during the fiscal year of 1889-'90 has brought us still nearer to its realization.

After the death of Professor Baird, in 1887, the Museum passed from under the direction of the mind by which its policy had been planned for many years. If his biography could be properly written, it would include a full history of the Museum as well as of the Fish Commission, and in minor degree of the Smithsonian Institution itself, for as Secretary and Assistant Secretary he was associated with nearly every phase of its activity during thirty-seven of its forty-one years of

* Report of Committee on Organization, p. 20.

corporate existence. His relation to it was very similar to that held by Sir Henry Cole to the great national establishment at South Kensington in England, so well described in the volumes entitled "Fifty Years of Public Work," and recently published by his son, Mr. Alan Cole.

Upon the firm foundation which he laid, his successors are endeavoring to build a superstructure, harmonious in plan, but, it may be, different in proportions and even in material. Their policy is not to work as he did, under circumstances different from those which now exist, but to work as he would have done under these changed circumstances.

EARLY HISTORY OF THE MUSEUM.

The idea of a national museum in the city of Washington was first suggested by the Hon. Joel Roberts Poinsett, of South Carolina, Secretary of War under President Van Buren, who in 1840 organized, for the purpose of establishing such a museum, a society called "The National Institution," afterwards "The National Institute," which was exceedingly prosperous and active for four years. By this Society the nucleus for a national museum was gathered in the Patent Office building in Washington, and public opinion was educated to consider the establishment of such an institution worthy of the attention of the Government of the United States. In 1846, having failed in securing the public recognition at which it aimed, and the Smithsonian Institution being by its charter entitled to take possession of the extensive Government collections already assembled in its charge, the society became torpid, and eventually, in 1861, passed out of existence.

From 1844 to 1858, when the so-called "National Cabinet of Curiosities" passed into the charge of the Smithsonian Institution, the term "National Museum" was in disuse. From that time onward, however, it was used, unofficially, to designate the collections in the Smithsonian building.

After the "National Cabinet" was delivered to the Regents, appropriations were made by Congress for its maintenance. During the twenty-three years which followed, the collections were greatly increased and were made the subjects of numerous important memoirs upon the natural history and ethnology of America. The public halls, with their arrangements for the exhibition of a portion of the collection, also received a due share of attention, and a certain amount of instruction and pleasure was afforded to visitors. The appropriations, however, were meagre, the space limited, and the staff was so inadequate that little could be done except to keep the collections in good preservation.

The exhibition of 1876 in Philadelphia was an event of great educational importance to the people of the United States; and not the least of its benefits were the lessons it taught as to the possibilities for good in public museums. The objects which at the close of the Centennial

were given to the United States for its National Museum, were of much intrinsic value, but were still more important in that they led to the erection of a large building for the expansion of the Museum itself.

From 1876 to 1881 was a period of quiet preparation for future effort. From 1881 to 1890 its growth has been rapid, though the organism is still in its infancy. These have been years of experiment, but it is hoped that it is now evident to the people and to Congress that the Museum has now begun a promising progress toward maturity.

PROGRESS IN THE WORK OF THE MUSEUM.

Among the more important features of the work, up to the present time, certain definite steps of progress have been taken, among the most important of which may be mentioned:

(1) An organization of the Museum staff has been effected—efficient for present purposes and capable of expansion and extension as occasion may require.

(2) Through the agency of this staff, the materials in the Museum, the accumulations of nearly half a century, have been examined, classified, and brought under control.

(3) The collections have been fully quadrupled in extent.

(4) A considerable beginning has been made toward the development of a thoroughly labeled exhibition series, available for the instruction of the public.

(5) A thorough study of the organizations and systems of classification in other museums throughout the world has been made, the results of which are beginning to appear in the work of the Museum staff. A report upon the great museums of the world is in preparation.

(6) Many new methods of installation have been developed by experiments in the Museum, and in the expositions in which the Museum has participated. These are finding favor, and are being adopted in many similar establishments at home and abroad, and will certainly add to the economy and success of our own administration.

(7) Science has been forwarded by the publication of many hundreds of papers describing the materials in the Museum, while the work of specialists in the production of these papers has greatly improved the significance and value of the collections.

NECESSITY FOR A NATIONAL MUSEUM.

That the United States must have a National Museum is so evident that the proposition needs no argument for its support.

Every considerable nation has a museum or group of museums in its capital city—centers of scientific and educational activity—the treasure-houses of the nation, filled with memorials of national triumphs in the fields of science, art, and industrial progress.

They are legitimate objects of national pride, for upon the character of its museum and libraries, intelligent persons visiting a country very

properly base their judgment as to the nature and degree of the civilization of the people.

It should be borne in mind that here in Washington under the roofs of the Smithsonian and new Museum buildings are grouped together collections which in London, Paris, or any other of the European capitals are provided for in a group of museums, for accommodating which a much larger number of equally commodious buildings is found needful.

POSSIBILITIES OF THE FUTURE.

It is possible, as I have pointed out in previous reports, to show that Washington may readily be made the seat of one of the greatest museums in the world. It will perhaps be neither practicable nor desirable to gather together in Washington collections of ancient mediæval art, such as those which adorn the capitals of Europe; but a representative series of such objects will undoubtedly grow up, which shall tend to educate the public taste, and to promote, so far as possible, the study of the elements of art and the history of civilization, as well as to forward the growth of the arts of design. This having been accomplished, the attention of the Museum should be directed mainly toward the exhibition of the geology and natural history of America, and its natural resources, to the preservation of memorials of its aboriginal inhabitants, and the exposition of the arts and industries of America.

It is evident that the National Museum of the United States will of necessity have features peculiar to itself, developed in response to the peculiar needs of the people of this continent. It should be remembered that the national collections of every principal European nation are divided into several groups, each under separate administration, though often within the general control of some central authority. In France, for instance, most of the museums are under the Ministry of Public Instruction, and in England, to a less extent, under the Department of Science and Art.

In the great European capitals the public collections are scattered through various parts of the cities, in museums with distinctive names and independent in their organizations. Much of the work which should properly be done by such museums is omitted, because no one of them has seen fit to undertake it; while, on the other hand, much labor is duplicated, which is perhaps equally unfortunate, collections of similar scope and purpose being maintained in different parts of the same city. One of the chief objections to such division of effort is that much of the value of large collections in any department is lost by failure to concentrate them where they may be studied and compared side by side. In Washington the national collections are all, without exception, concentrated in one group of buildings. The Army Medical Museum now occupies a building side by side with those under the

control of the Smithsonian Institution, and this proximity, in connection with the long-established policy of coöperation between the two organizations, will cause them to be, for all practical purposes, united in interest.

POSSIBILITIES OF INCREASE AND IMPROVEMENT.

Although the appropriations from the public treasury for the maintenance of a national museum are small, compared with those in several European countries, the value of objects given by private individuals is proportionately larger. The actual value of such contributions for ten years past, has not, it is estimated, fallen short of \$20,000 a year, and in some years has been greater.

Among the more important gifts may be mentioned the George Catlin Indian gallery, of inestimable value to the American historian and ethnologist; the Riley collection of North American insects, the finest in existence, containing 150,000 specimens, and easily worth \$50,000; the collection bequeathed in 1887 by the late Isaac Lea, of Philadelphia, containing besides minerals and other objects, about 20,000 conchological specimens, and appraised by the State at \$10,000; and the collection of the American Institute of Mining Engineers, for the transfer of which from Philadelphia to Washington, a special appropriation was made by Congress.

Some exceedingly valuable collections in this country and in Europe have been bequeathed to the Smithsonian Institution which have not yet come into its possession. Within the past ten years it is estimated that individuals to the number of at least a thousand have made gifts to the museum to the value of \$100 or more.

Not a day passes during which some stranger, pleased with the work of the Museum, does not voluntarily send in some contribution more or less important.

The National Museum now contains nearly 3,000,000 specimens, distributed among the various departments, as is shown in the table on page 22.

The late Professor Baird was once asked whether the value of the collections in the National Museum was equal to the amount which had been expended in its maintenance. He replied, unhesitatingly, that although it would be by no means a fair criterion of their value, he did not doubt that by a judicious and careful system of sale the entire sum could be recovered.

One of the most striking features in the affairs of the Museum is the manner in which its collections are increasing.

In 1887 the number of specimens was more than ten times as great as five years before.

In the last fiscal year more than twenty eight thousand new lots or groups of specimens were entered upon the Museum catalogue.

This increase, as has been shown, is in large degree spontaneous, only a small amount of money being available for the purchase of new material.

As might be supposed, a considerable proportion of the objects given duplicate material already on hand, and although these contributions can with the utmost advantage be used for distribution to other museums and schools, they do not increase as much as is desired the value of the collections for study by specialists, and for general educational purposes. The need of a larger fund for the purchase of specimens is yearly more manifest. Exceedingly important material is constantly offered to us at prices very much below what it would cost to obtain it by collecting, and in many instances, when refused, it is eagerly taken by the museums and institutions of Europe.

The most enlightened nations of Europe do not hesitate to spend money liberally to promote the interests of their national museums.

For the purchase of specimens for the South Kensington Museum from 1853 to 1887 \$1,586,634 was expended; or a yearly average of nearly \$47,000.

Toward her other museums England is equally liberal. Exact statistics are not at hand, but it is quite within bounds to assert that her average expenditure for the purchase of new objects for museums in London is not less than \$500,000 a year.

The museums of England are rich with the accumulations of centuries. The National Museum of the United States is young and has enormous deficiencies in every department. It needs, more than any museum in Europe, the opportunity to increase its resources through purchase. The total amount expended for the purchase of specimens for the National Museum since its foundation has not exceeded \$20,000, and never in one year more than \$8,500.

More has been expended for the improvement of two museums in the city of New York in the past four years than has ever been expended by the general government upon the Museum in Washington.

Within the past year three mortifying instances have occurred of the inability of the National Museum to buy specimens needed to complete its collections.

A very valuable collection of minerals, absolutely essential to the national collections and for some years on deposit in the National Museum, was withdrawn by its owner and placed in a school museum in a neighboring city, because \$4,000 could not be had for its purchase—a sum far below its value.

A collection of implements and weapons illustrating the history of the natives of Alaska, gathered by an officer in the U. S. Navy, and almost indispensable for the completion of the national ethnological collection, was sold to a museum in a neighboring city for \$12,000, while the National Museum had no money to expend for such objects.

One of the most important collections of birds in America, the loss of

which was a national misfortune, was taken from the city of Washington and sold to the British Museum for \$10,000, no American institution having money available for its purchase.

Instances of this kind occur nearly every month in every year.

The National Museum has had the option for several years of the purchase at cost of \$80,000 of a collection of minerals, which once acquired would enable its mineralogical department to rank among the first in the world. Congress has never been asked to make an appropriation for its purchase, simply because of unwillingness to ask for that which might not be granted. Minerals, having a money value, can readily be sold, and are not very often given to the Museum, and the poverty of its mineralogical collection is by no means creditable to the nation.

The Museum receives many valuable gifts from Government officials abroad, especially from those in the consular and diplomatic service, and in the Navy.

If the actual cost of gathering specimens could be paid, the time and experience of these men would gladly be given gratuitously. In this way, by the expenditure of a few thousands each year, extensive and important additions might be made to the national collections.

THE NECESSITY FOR A NEW MUSEUM BUILDING.

The National Museum is now approaching an important crisis in its history. Its future will depend upon the action of Congress in granting it an additional building, for without more room its growth can not but be in large degree arrested.

The necessity for additional room is constantly increasing, and several of the collections, to wit, transportation and engineering, fishes, reptiles, birds' eggs, mollusks, insects, marine invertebrates, vertebrate and invertebrate fossils, fossil and recent plants, are in some instances wholly unprovided for, and in others only in a very inadequate degree.

In the main hall of the Smithsonian building is still exhibited the collection of birds. A few cases containing birds' eggs and shells have recently been arranged along the center of this hall.

Eleven of the departments in the National Museum have no space assigned to them in the Museum building, solely on account of its crowded condition. The collection of prehistoric anthropological objects remains installed on the second floor of the Smithsonian building. The collections of the remaining ten departments can not be exhibited or even properly arranged and classified without more room. These collections are at present stored in the attics and basements of the Smithsonian and Armory buildings, and are inaccessible for study and for the other purposes for which they were obtained. The specimens comprising these collections are not simply objects of natural history, possessing an abstract interest to the student, but represent the application of natural objects to the industries, and, as such, are of great

importance. There are several collections of ores, minerals, building-stones, and of objects representing various arts and industries, which are of very great value, since they furnish to the American manufacturer and designer information of inestimable importance.

The increase in the national collections during the last eight years may perhaps be best described by the statement that in 1882 the total number of specimens recorded in the Museum was about 183,000; while in 1890 the records indicated the possession of nearly 3,000,000 specimens. It is proper to say in this connection that the actual increase was not so great as shown by the records, since during this period a large amount of material previously received had been brought under control and placed on the books of the Museum. It should also be borne in mind that the present Museum building was planned with reference to the reception of the material in its custody at the time of its construction.

In the Armory building there are at the present time several hundreds of boxes containing valuable material which has never been unpacked, since there is no space available for the display of the specimens. Many of the boxes contain collections which were brought to the Museum through the medium of special acts of Congress.

Independently of the collections obtained at expositions, a very large amount of material has been received from foreign Governments, among which may be mentioned those of Mexico, Central America, several of the South American states, and Japan, which have made extensive contributions to the zoölogical, geological, ethnological, and technological collections.

APPRECIATION BY FOREIGN NATIONS.

The new methods of work and of museum arrangement, which have grown up here, have attracted much attention abroad. Mexico, in 1887, sent the entire collections of the National Natural History Museums, then just being founded, to Washington, in charge of two of her principal naturalists, who passed six months at the National Museum identifying their material and studying the methods of administration. Costa Rica, forming a national museum, sent its director here for a six months' course of study.

Japan has sent the entire national collection of birds to the Museum to be studied and reported upon by one of the naturalists of the Museum staff.

Germany has been supplied with a complete set of plans and illustrations of methods of administration at the request of the Director of the National Zoölogical Museum.

In 1883, at the Fisheries Exhibition in London, the methods of the National Museum were strictly adhered to in the arrangement of the display made by the United States.

In 1888, in his address as president of the Anthropological Society of the British Association for the Advancement of Science, General

Pitt-Rivers said that the American display at the Fishery Exhibition was the only thing done in the true spirit of modern science in the whole series of professedly scientific exhibitions held in London within the past six years.*

Such expressions of opinion, coupled with the constant praise with which European journals speak of the scientific work of our Government departments, can not but be gratifying, and it should be a matter of national pride to merit it.

THE RELATIONS OF THE MUSEUM TO THE SMITHSONIAN INSTITUTION.

The Smithsonian Institution, though it bears the name of a private citizen and a foreigner, has been for nearly half a century one of the principal rallying points of the scientific workers of America. It has also been intimately connected with very many of the most important scientific undertakings of the Government.

Many wise and enlightened scholars have given to its service the best years of their lives, and some of the most eminent scientific men, to whom our country has given birth, have passed their entire lifetime in work for its success. Its publications, six hundred and seventy in number, which when combined make up over one hundred dignified volumes, are to be found in every important library in the world, and some of them, it is safe to say, on the working-table of every scientific investigator in the world who can read English.

Through these books, through the reputation of the men who have worked for it and through it, and through the good accomplished by its system of international exchange, by means of which within the past thirty-eight years more than 1,300,000 packages of books and other scientific and literary materials have been distributed to every region of the earth, it has acquired a reputation at least as far-reaching as that of any other institution of learning in the world.

* The words of General Pitt-Rivers in 1888 are simply a repetition of what he said in 1883, made stronger by the observations of five more years of exhibitions in Europe.

In 1883 he wrote to the London Times:

SIR: In confirmation of the praise you justly bestow on the arrangement of the United States department in the Fisheries Exhibition I beg to draw attention to the fact that in the whole exhibition it is the only one which is arranged historically. In the Chinese, Japanese, Scandinavian, and Dutch courts there are objects which the scientific student of the arts of life may pick out and arrange in the proper order in his own mind; but in that of the United States, following the method adopted in the National Museum in Washington, there has been attempted something more—to bring the department into harmony with modern ideas. This gives to the exhibition an interest which is apart from commerce, and an interest which is beyond the mere requirements of fish culture, and it may be regarded as one out of many indications of the way in which the enlightened Government of the United States mark their appreciation of the demands of science.

I have the honor to be, sir, yours obediently,

A. PITT-RIVERS.

It is therefore representative of what is deemed in other lands the chief glory of this nation, for whatever may be thought in other countries of American art, of American literature, American institutions generally, the science of America is accepted without question as equal to the best.

In the scientific journals of Great Britain and other European countries, the reader finds most appreciative reviews of the scientific publications of the Smithsonian, the Museum, the Bureau of Ethnology, the Geological Survey, the Department of Agriculture, and the Fish Commission, and they are constantly holding up the Government of the United States, as an example to their own, of what governments should do for the support of their scientific institutions.

It is surely a legitimate source of pride to Americans that their work in science should be so thoroughly appreciated by eastern nations, and it is important that the reputation should be maintained. Nothing can be more in consonance with the spirit of our Government, nor more in accord with the injunction of Washington in his "Farewell Address," lately admirably quoted by Sir Lyon Playfair in his address as president of the British Association for the Advancement of Science :

Promote, then, as an object of primary importance, institutions for the general diffusion of knowledge.

In proportion as the structure of a government gives force to public opinion it should be enlightened.

No one has been able to show why Smithson selected the United States as the seat of his foundation. He had no acquaintances in America, nor does he appear to have had any books relating to America except two. Rhees quotes from one of these ["Travels through North America," by Isaac Weld, secretary of the Royal Society] a paragraph concerning Washington, then a small town of 5,000 inhabitants, in which it is predicted that "the Federal city, as soon as navigation is perfected, will increase most rapidly, and that at a future day, if the affairs of the United States go on as rapidly as they have done, it will become the grand emporium of the West, and rival in magnitude and splendor the cities of the whole world."

Inspired by a belief in the future greatness of the new nation, realizing that while the needs of England were well met by existing organizations such as would not be likely to spring up for many years in a new, poor, and growing country, he founded in the new England an institution of learning, the civilizing power of which has been of incalculable value. Who can attempt to say what the condition of the United States would have been to-day without this bequest ?

In the words of John Quincy Adams :

Of all the foundations of establishments for pious or charitable uses which ever signalized the spirit of the age or the comprehensive beneficence of the founder, none can be named more deserving the approbation of mankind.

The most important service by far which the Smithsonian Institution has rendered to the nation has been that from year to year, since 1846—intangible but none the less appreciable—by its constant coöperation with the Government, public institutions and individuals in every enterprise, scientific or educational, which needed its advice, support or aid from its resources.

There have been, however, material results of its activities, the extent of which can not fail to impress anyone who will look at them; the most important of these are the *Library* and the *Museum*, which have grown up under its fostering care.

The library has been accumulated without aid from the treasury of the United States; it has, in fact, been the result of an extensive system of exchanges, the publications of the Institution having been used to obtain similar publications from institutions of learning in all parts of the world.

In return for its own publications the Institution has received the books which form its library.

This library, consisting of more than a quarter of a million volumes and parts of volumes, has for over twenty years been deposited at the Capitol as a portion of the Congressional Library, and is constantly being increased. In the last fiscal year more than twenty thousand titles were thus added to the national collection of books.

Chiefly through its exchange system the Smithsonian Institution had, in 1865, accumulated about forty thousand volumes, largely publications of learned societies, containing the record of the actual progress of the world in all that pertains to the mental and physical development of the human family, and affording the means of tracing the history of at least every branch of positive science since the days of revival of letters until the present time.

These books, in many instances presents from old European libraries, and not to be obtained by purchase, formed even then one of the best collections of the kind in the world.

The danger incurred from the fire of that year, and the fact that the greater portion of these volumes, being unbound and crowded into insufficient space, could not be readily consulted, while the expense to be incurred for binding, increase of shelf-room, and other purposes connected with their use threatened to grow beyond the means of the Institution, appear to have been the moving causes which determined the Regents to accept an arrangement by which Congress was to place the Smithsonian library with its own in the Capitol, subject to the right of the Regents to withdraw the books on paying the charges of binding, etc. Owing to the same causes (which have affected the Library of Congress itself) these principal conditions, except as regards their custody in a fire-proof building, have never been fulfilled.

The books are still deposited chiefly in the Capitol, but though they have now increased from 40,000 to fully 250,000 volumes and parts of

volumes, and form one of the most valuable collections of the kind in existence, they not only remain unbound, but are in a far more crowded and inaccessible condition than they were before the transfer. It is hardly necessary to add that these facts are deplored by no one more than by the present efficient Librarian of Congress.

The purchasing power of the publications of the Institution, when offered in exchange, is far greater than that of money, and its benefit is exerted chiefly in behalf of the National Library, and also to a considerable extent in behalf of the National Museum.

The amount expended during the past forty years from the private fund of the institution in the publication of books for gratuitous distribution has been \$365,000, a sum more than half as great as the original Smithsonian bequest.

These publications have had their influence for good in many ways, but in addition to this, a library much more than equal in value to the outlay has through their buying power come into the possession of the nation.

In addition to all this, a large amount of material has been acquired for the Museum by direct expenditure from the private fund of the Smithsonian Institution. The value of the collections thus acquired is estimated to be more than equal to the whole amount of the Smithsonian bequest.

The early history of the Museum was much like that of the library. It was not until 1858 that it became the authorized depository of the scientific collections of the Government, and it was not until after 1876 that it was officially recognized as the National Museum of the United States.

But for the provident forethought of the Smithsonian Institution, the United States would probably still be without even a reputable nucleus for a National Museum.

The relations of the Museum to the system of popular lectures, for many years established in Washington, and the assistance which it affords each year to students of science, is referred to elsewhere in this report.

The Institution publishes many circulars, giving information on scientific subjects, which are distributed gratuitously to those who write to make inquiries, and this system is being continually extended. In addition to this, a large correspondence is carried on with people in search of information on scientific topics. Probably three thousand letters a year go out to people who write seeking to know the name of some object, or other scientific fact. Inquiries of this kind are always answered promptly and fully, and frequently, to intelligent inquirers, books are sent, which will enable them to find out such names for themselves in future. This work has not only an educational value but often a great economic importance as well; as, for instance, when some common mineral has been mistaken for one of value; some useless plant

has been wrongly identified and supposed to be of service in medicine, or some harmless animal feared as noxious.

The publications of the Institution and its dependencies reach every State and almost every county in the United States. A careful study of the subject made two or three years ago by the president of one of the scientific societies in Washington seems to indicate that there are several States which are reached by no scientific publications whatever except those distributed gratuitously by the Government.

Speaking of the Smithsonian Institution proper, and not of the Museum or any other trust that it administers, it may be stated that nothing could be so desirable for the Institution as that Congress should examine for itself whether, on the whole, in the execution of the trust of Smithson, more has been given to the Government than has been received; for if, in attempting to increase and diffuse knowledge among mankind, the machinery of the Institution's action has been such that it has incidentally paid over to the Government the equivalent of much more than the whole original fund, these facts should surely be known to those who have to ask themselves in what spirit as well as for what purpose the Institution expends money placed in its charge.

Professor Langley has pointed out that "although by the judicious administration of the Smithson fund nearly a million and a half dollars—the fruits of its investment—have been applied during the past forty years to the advancement of science and education in America (in addition to the principal, \$703,000, larger now than ever before) it should be remembered that the income of the Institution is only \$42,000 a year, a sum much smaller in its power to effect results than ever in previous years."

Can the United States fail to recognize its obligation to supplement liberally this private contribution for public good, especially if it be borne in mind that, as Professor Langley has recently shown, the Institution has left in perpetual charge of the nation, in the Museum alone, property acquired out of its private fund (and to which it has apparently the same title) which is probably now more than equal in value to the whole amount of the Smithsonian bequest?

THE EDUCATIONAL WORK OF THE MUSEUM.

The work of the Museum, if it only performed the functions of an institution for scientific investigation, would be of sufficient value to justify its maintenance and extension.

As a matter of fact, it not only performs these functions but also does a very great deal to render the resources of science available to the public at large.

Professor Huxley's definition of a museum was that it is "a consultative library of objects."

The National Museum is a consultative library for the scientific man, and it is something more. It aims to be an agency for the instruction

of the people of the whole country, and to keep especially in mind the needs of those whose time is not devoted to the study of science.

The spirit in which the work of the Museum is being carried on was voiced in the address of one of its officers before the American Historical Association at its recent meeting in this city, in which it was said:

(1) *That public institutions of this kind are not intended for the few, but for the enlightenment and education of the masses.*

(2) *That the public has a right to full participation in the results of the work of the scientific establishments which they are helping to maintain.*

(3) *That one of the chief duties of the officers of these institutions is to provide means by which such results may be presented in an attractive as well as an intelligible form.*

No scientific institution is more thoroughly committed to the work of the diffusion of knowledge than is the Smithsonian Institution, and no department of its activity is more capable of usefulness in this direction than is the National Museum.

The benefits of the Museum are extended not only to the specialists in its laboratories and to the hundreds of thousands of visitors from all parts of the United States who pass its doors each year, but to local institutions and their visitors throughout the country.

In accordance with long-sanctioned usage, the duplicate specimens in the Museum are made up into sets and distributed to schools and museums, accurately named, and of great service, both for museum and class-room use.

The reports of the Smithsonian Institution will show how many hundred thousands of objects have been thus distributed during the past twenty-two years. Every museum in the United States has profited in this way, and by its system of exchange the Museum has, while enriching itself, contributed largely to the stores of every important scientific museum in the world.

Not only are specimens thus sent out, but aid is rendered in other ways. Within the last few years a large number of local museums in the United States have been supplied with working plans of cases in use in the Museum, and similar sets of plans have been supplied within the past few years to national museums in other countries.

Not only do the people of the country at large profit by the work of the Smithsonian, as made available to local institutions, but they profit directly, and personally to a very considerable extent.

The curator of each department in the Museum is expected to be an authority in his own line of work, and the knowledge of the whole staff of experts is thus placed without cost at the service of every citizen.

B.—ORGANIZATION AND SCOPE OF THE MUSEUM.

The National Museum is under the direction of the Smithsonian Institution, which is governed by an establishment consisting of the President of the United States and his Cabinet, the Commissioner of Patents, and the Board of Regents, which latter is composed of the Vice President of the United States, Chief Justice of the United States, three members of the Senate, three members of the House of Representatives, and six other citizens not members of Congress, two of whom are residents of the city of Washington.

The Secretary of the Smithsonian Institution is by law the "keeper of the collections." The staff at the present time is composed of the Assistant Secretary of the Smithsonian Institution in charge of the National Museum and thirty-two curators and acting curators, twenty-two of whom receive no salary from the Museum appropriation. There are also eleven administrative departments.

PRINCIPAL SOURCES OF THE COLLECTIONS.

The collections of the Museum are made up, in large part, of the following materials:

(1) The natural history and anthropological collections, accumulated since 1850 by the efforts of the officers and correspondents of the Smithsonian Institution.

(2) The collections of the Wilkes exploring expedition, the Perry expedition to Japan, and other naval expeditions.

(3) The collections of the scientific officers of the Pacific Railroad survey, the Mexican boundary survey, and of the surveys carried on by the Engineer Corps of the Army.

(4) The collections of the United States geological surveys under the direction of United States geologists Hayden, King, and Powell.

(5) The collections of the U. S. Fish Commission.

(6) The gifts by foreign governments to the Museum or to the President or other public officers of the United States, who are forbidden by law to retain such gifts in their private possessions.

(7) The collections made by the United States to illustrate the animal and mineral resources, the fisheries, and the ethnology of the native races of the country on the occasion of the International Exhibition at Philadelphia in 1876, the fishery collections displayed by the United States at the International Fisheries Exhibition at Berlin in 1880 and at London in 1883, and the collections obtained from various local expositions, as for instance the New Orleans Cotton Centennial Exposition in 1884 and 1885 and the Cincinnati Exposition in 1887.

(8) The collections given by the governments of the several foreign nations, thirty in number, which participated in the exhibition at Philadelphia in 1876.

(9) The industrial collections given by numerous manufacturing and commercial houses of Europe and America, at the time of the Philadelphia Exhibition and subsequently.

(10) The material received, in exchange for duplicate specimens, from the museums in Europe and America, at the time of the Philadelphia Exhibition and subsequently.

(11) Collections received as gifts, deposits, or in exchange, from individuals, numbering usually from a thousand to fifteen hundred each year.

C.—SPECIAL TOPICS OF THE YEAR.

THE PROPOSED STATUE IN MEMORY OF PROFESSOR BAIRD.

On February 10, 1888, a bill passed the Senate making an appropriation for the erection of a bronze statue in memory of Professor Baird. This bill was referred, in the House of Representatives, to the Committee on the Library, but was not reported. On February 11, 1889, an amendment was proposed by Hon. Justin S. Morrill to the sundry civil bill for 1889-'90, in the following words :

That the Regents of the Smithsonian Institution be, and are hereby, authorized to contract for a statue in bronze of Spencer F. Baird, late Secretary of the Smithsonian Institution, to be erected upon the grounds in front of the National Museum; and for this purpose, and for the entire expense of the foundation and pedestal of the monument, the sum of fifteen thousand dollars, or so much of said sum as may be needed, is hereby appropriated, out of any moneys in the Treasury not otherwise appropriated.

On January 13, 1890, Hon. Justin S. Morrill introduced a bill (S. 1940) having the same object in view. This was read twice and referred to the Committee on Public Buildings and Grounds. On the following day the bill was reported by Mr. Morrill without amendment.

ADDITIONAL FIRE-PROOF BUILDING.

On February 19, 1890, Hon. Justin S. Morrill reported from the Committee on Public Buildings and Grounds a bill (S. 2740) to provide for the erection of an additional fire-proof building for the use of the National Museum. This was read the first and second times by unanimous consent.

THE AMERICAN HISTORICAL ASSOCIATION.

The American Historical Association was founded in 1884, for the promotion of historical studies; for the collection and preservation of historical manuscripts, and for kindred purposes in American history. By act of Congress, approved January 4, 1889, the Regents of the Smithsonian Institution were authorized to permit the Association to deposit its collections in the Smithsonian Institution or in the National Museum. Under this act the Association reports to the Smithsonian

Institution concerning its proceedings and the condition of historical study in America. The first report of the Association, for 1889, was transmitted to Congress June 16, 1890, and will be published as Senate Miscellaneous Document No. 170.

OPENING OF THE NATIONAL MUSEUM AND SMITHSONIAN BUILDINGS
DURING EXTRA HOURS.

On December 20, 1889, Hon. W. H. Crain, M. C., introduced a bill (H. R. 3341), requiring the National Museum and Smithsonian buildings to be kept open to the public from 10 a. m. to 5 p. m. during the months of November to March inclusive; and from 11 a. m. to 6 p. m. during the remaining months of the year. This was read twice, referred to the Committee on Public Buildings and Grounds, and ordered to be printed. No further action has yet been taken by Congress. A new bill (H. R. 7671), having in view practically the same object, and also providing for an electric plant for lighting the Museum, was introduced later in the session by Hon. W. H. Crain, and referred to the Committee on the Library.

COLLECTION TO ILLUSTRATE THE COMPARATIVE HISTORY OF
RELIGION.

A collection of objects used in connection with the public and private ceremonies of the Jews is being formed under the supervision of Dr. Cyrus Adler. One case of objects relating to this subject is already on exhibition. Many of them were obtained for the Museum by Dr. H. Friedenwald. Among the specimens exhibited are, a manuscript copy of the Pentateuch; a silk taleth; phylacteries of various sizes; a silver spice-box; a manuscript copy of a tablet on which is kept a reckoning of time between Passover and Pentecost: a shofar, or ram's horn; a manuscript roll of Esther; a lamp of brass, and many objects pertaining to domestic worship.

THE CAPRON COLLECTION.

In the report for 1888 (p. 19) reference is made to the introduction of a bill into the Senate by Hon. Daniel W. Voorhees, providing for the purchase of the collection of lacquers, bronzes, carved ivories, coins, and other works of art obtained in Japan by the late Gen. Horace Capron. The bill was favorably acted upon in the Senate, but did not come to a vote in the House of Representatives. A new bill (No. 321) was introduced into the Senate on December 4, 1889, by Hon. Daniel W. Voorhees, for the same purpose. It was referred to the Committee on the Library, whence it was reported favorably, and passed the Senate March 29, 1890. The amount appropriated was \$14,675. This bill was favorably reported by the House committee also on May 19, but has failed to pass the House during the first session of the Fifty-first Congress.

GROWTH OF THE COLLECTIONS.

The accession records on June 30, 1890, showed 23,340 entries, representing an estimated total of nearly 3,000,000 specimens. Of this number, 13,451 accessions have been received since 1881. The average number of entries of accessions received annually between 1881 and 1890 has been 1,495.

VISITORS TO THE MUSEUM.

The total number of visitors to the National Museum up to June 30, 1890, since the opening of the Museum building in 1881, is 2,111,949.

SATURDAY LECTURES.

The first lecture of the first series of these lectures was given on March 11, 1882. In all, 103 lectures have been delivered in nine courses, the date of the last being April 3, 1890.

MUSEUM APPROPRIATIONS FOR 1890-1891.

For preservation of collection	\$140,000
For furniture and fixtures.....	25,000
For heating and lighting.....	12,000
For printing and binding.....	10,000
For postage stamps, etc.....	500
Total	187,500

THE HISTORY OF ENGINEERING.

At the Annual Convention of the American Society of Civil Engineers, held at Seabright, New Jersey, June 20-26, the following preamble and resolution were unanimously adopted:

Whereas the authorities of the Smithsonian Institution have established in the National Museum at Washington a department devoted to the preservation of the history of American engineering science—

Resolved, That the American Society of Civil Engineers hereby expresses its gratification at the establishment by the Smithsonian Institution, with the authority of the General Government, of a department in the National Museum for the preservation of objects of interest bearing upon the history of American engineering, and recommends that American engineers cooperate with the Smithsonian Institution in furthering the objects for which the Department of Engineering has been established.

Resolved, That copies of this resolution be sent to the Secretary of the Smithsonian Institution and to the Curator of the Engineering Department of the National Museum.

D.—THE CONDITION OF THE COLLECTIONS.

CENSUS OF THE COLLECTIONS.

The additions to the collections during the year are indicated in the following table:

	No. of specimens.		No. of specimens.
Arts and industries:		Birds' eggs	1,068
Materia medica.....	*200	Reptiles and batrachians	645
Foods.....	200	Fishes	15,225
Textiles.....	66	Vertebrate fossils.....	512
Fisheries.....	2	Mollusks.....	3,500
Animal products.....	1	Insects.....	15,000
Domestic animals (for mounting).....	66	Marine invertebrates	4,700
Historical collections, coins, medals, paper-money, etc....	†5,900	Comparative anatomy:	
Musical instruments.....	20	Mammals (skulls and skeletons).....	308
Transportation and engineering.....	1,250	Birds	236
Modern pottery, porcelain, and bronzes	121	Reptiles and batrachians..	29
Paints and dyes	88		573
Physical apparatus.....	12	Paleozoic fossils.....	1,229
Chemical products	211	Mesozoic fossils.....	69
Graphic arts.....	600	Cenozoic fossils (included with mullusks), fossil plants	329
Ethnology	2,506	Recent plants	1,195
American aboriginal pottery.....	1,047	Minerals	9,411
Oriental antiquities	2,635	Lithology and physical geology. }	
Prehistoric anthropology	7,205	Metallurgy and economic geology.....	†3,600
Mammals (skins and alcoholic).....	561		
Birds	2,245	Total	81,992

* Although about 200 specimens have been received during the year, the total number of specimens now in the collection is less than that estimated in 1888-'89, owing to the rejection of worthless material.

† Including the Catlin Gallery.

‡ Estimated on basis of receipts in previous years, the curator being unable to ascertain the growth of the collections under his care during the fiscal year 1889-'90. These two departments are now combined under the Department of Geology.

The following table shows the total number of specimens estimated in the various departments of the Museum at the end of June, 1890, and in previous years since 1882:

Name of department.	1882.	1883.	1884.	1885-'86. (a)	1886-'87.	1887-'88.	1888-'89.	1889-'90 (b)
Arts and industries:								
Materia medica.....		4,000	4,442	4,850	5,516	5,762	5,942	(c) 5,915
Foods.....		1,244	1,580	822	877	877	911	1,111
Textiles.....			2,000	3,063	3,144	3,144	3,222	3,288
Fisheries.....			5,000	9,870	10,078	10,078	10,078	10,080
Animal products.....			1,000	2,792	2,822	2,822	2,948	2,949
Graphic arts.....								(d) 600
Transportation and engineering.....								1,250
Naval architecture.....			600				600	(e) 600
Historical relics.....				1,002				
Coins, medals, paper-money, etc.....				1,005	13,634	14,640	14,990	20,890
Musical instruments.....				400	417	427	427	447
Paints and dyes.....				2,278	2,238	3,011	3,011	3,132
The Catlin Gallery.....				77	100	100	109	197
Physical apparatus.....				500	500	500	500	(f)
Oils and gums.....				250	251	251	251	263
Chemical products.....				197 659	198 661	198 661	213 688	1,112
Domestic animals.....								66
Ethnology.....			200,000	500,000	503,764	505,464	506,324	508,830
American aboriginal pottery.....			12,000	25,000	26,022	27,122	28,222	29,269
Oriental antiquities.....							850	3,485
Prehistoric anthropology.....	35,512	40,491	45,252	65,314	101,659	108,631	116,472	123,677
Mammals (skins and alcoholics).....	4,660	4,920	5,694	7,451	7,811	8,058	8,275	8,836
Birds.....	44,354	47,246	50,350	55,945	54,987	56,484	57,974	60,219
Birds' eggs and nests.....			40,072	44,163	48,173	50,055	50,173	51,241
Reptiles and batrachians.....			23,495	25,344	27,542	27,664	28,405	29,050
Fishes.....	50,000	65,000	68,000	75,000	100,000	101,350	107,350	122,575
Vertebrate fossils.....								(g) 512
Mollusks.....	33,375		400,000	460,000	425,000	455,000	468,000	471,500
Insects.....	1,000		151,000	500,000	585,000	595,000	603,000	618,000
Marine invertebrates.....	11,781	14,825	200,000	350,000	450,000	515,000	515,300	520,000
Comparative anatomy:								
Osteology.....	3,535	3,640	4,214	10,210	11,022	11,558	11,753	12,326
Anatomy.....	70	103	3,000					
Paleozoic fossils.....		20,000	73,000	80,482	84,491	84,649	91,126	92,355

a No census of collection taken.

b The actual increase in the collections during the year 1889-'90 is much greater than appears from a comparison of the totals for 1889 and for 1890. This is explained by the apparent absence of any increase in the Department of Lithology and Metallurgy, the total for 1890 in both of these departments combined showing a decrease of 46,314 specimens, owing to the rejection of worthless material.

c Although about 200 specimens have been received during the year, the total number of specimens in the collection is now less than that estimated for 1889, owing to the rejection of worthless material.

d The collection now contains between 3,000 and 4,000 specimens.

e No estimate of increase made in 1890.

f Included in the historical collection.

g Only a small portion of the collection represented by this number was received during the year 1889-'90.

Name of department.	1882.	1883.	1884.	1884-'86. (a)	1886-'87.	1887-'88.	1888-'89.	1889-'90. (b)
Mesozoic fossils.....			100,000	69,742	70,775	70,925	71,236	71,305
Cenozoic fossils.....	(Included with mollusks.)							
Fossil plants.....		4,624	7,291	(e)7,492	8,462	10,000	10,178	10,507
Recent plants.....				30,000	32,000	38,000	38,459	(d)39,654
Minerals.....		14,550	16,610	18,401	18,601	21,896	27,690	37,101
Lithology and physical geology.....	9,075	12,500	18,000	20,647	21,500	22,500	27,000	} (e)32,762
Metallurgy and economic geology.....		30,000	40,000	48,000	49,000	51,412	52,076	
Living animals.....						220	(f)491	
Total.....	193,362	263,143	1,472,600	2,420,944	2,666,335	2,803,459	2,864,244	2,895,104

a No census of collection taken.

b The actual increase in the collections during the year 1889-'90 is much greater than appears from a comparison of the totals for 1889 and for 1890. This is explained by the apparent absence of any increase in the Department of Lithology and Metallurgy, the total for 1890 in both of these departments combined showing a decrease of 46,314 specimens, owing to the rejection of worthless material.

c Only a small portion of the collection represented by this number was received during the year 1889-'90.

d This relates only to specimens received through the Museum, and does not include material added to the National Herbarium, through the Department of Agriculture.

e Collections combined in October, 1889, under the Department of Geology. The apparent decrease of more than 50 per cent. of the estimated total for 1889 is accounted for (1) by the rejection of several thousands of specimens from the collection, and (2) by the fact that no estimate of the ones in the reserve and duplicate series is included. Of the total number for 1890 about 16,000 specimens consist chiefly of petrographical material, stored away for study and comparison in the drawers of table cases.

f Transferred to National Zoological Park.

CATALOGUE ENTRIES DURING THE YEAR ENDING JUNE 30, 1890.

The catalogue entries made in the books of the several departments during the year amounted to 28,293 in number. The following table shows the number of entries made in each department. It must be remembered that a catalogue entry seldom refers to only one specimen. Thus if fifty specimens of birds are contributed by one person, from one locality, they are entered under a single catalogue number. In the case of the Department of Marine Invertebrates, one entry often includes several hundred specimens.

Number and name of department.	No. of entries during 1889-90.	Number and name of department.	No. of entries during 1889-90.
I. Arts and industries:		VI. Reptiles and batrachians.....	705
Materia medica.....	179	VII. Fishes.....	1,016
Textiles.....	38	VIII. Vertebrate fossils.....	124
Foods.....	68	IX. Mollusks (including Cenozoic fossils).....	6,569
Animal products.....	1	X. Insects.....	89
Paints and dyes.....	11	XI. Marine invertebrates.....	1,502
Fisheries.....	2	XII. Comparative anatomy:	
Transportation and engineering.....	750	Mammals.....	346
Chemical products.....	42	Birds.....	235
Modern pottery, porcelain, and bronzes.....	5	Reptiles and batrachians.....	29
Musical instruments.....	20	XIII. Invertebrate fossils:	
Coins, medals, paper-money, etc.....	620	Paleozoic.....	5,412
Graphic arts.....	577	Mesozoic.....	* 500
Domestic animals (formounting).....	61	XIV. Fossil plants.....	200
II. Ethnology.....	1,469	XV. Recent plants.....	24
III. Oriental antiquities.....	1,471	XVI. Minerals.....	588
IV. Mammals.....	573	XVII. Lithology and physical geology.....	2,268
V. Birds.....	1,739	XVIII. Metallurgy and economic geology.....	504
(b) Birds' eggs.....	239	Total.....	28,293

* Not actually recorded, although the material to be catalogued will fill up five hundred numbers.

DEVELOPMENT AND ARRANGEMENT OF THE EXHIBITION SERIES.

Owing to the already crowded condition of the exhibition halls, there has been no opportunity of increasing very materially the exhibition series in the several departments.

A large number of specimens of foods and textiles have been mounted in bottles and boxes, ready to be placed on exhibition when space and cases are available. The collection of Paleozoic invertebrate fossils has been labeled. The fossils from the Cincinnati formation of Ohio have been rearranged by Prof. Joseph F. James. The crustaceans from the Water-lime formation of New York, and from the Chazy horizon of New York and Vermont, have been relabeled, and, with much additional ma-

terial, placed on exhibition. A beautiful series of trilobites has been placed temporarily in the exhibition cases, awaiting permanent transfer from the U. S. Geological Survey to the Museum. The Mesozoic fossils have been classified and arranged for exhibition. Three groups of mammals have been installed during the year, and a considerable number of single specimens added to the exhibition series. Although the number of specimens added to the collection of birds is considerably less than in the previous year, the appearance of the exhibition series has been greatly improved by the substitution of new cases for the old ones, and by the rearrangement and relabeling of the collection. A large collection of illustrations of North American insects, prepared for the Paris Exposition, has been placed on exhibition. Lay figures representing a Papuan, a Dyak and a Samoan, in native dress, have been placed in the ethnological hall.

Technical and historical series of specimens have been placed on exhibition in the section of graphic arts. The details of this arrangement have been set forth in a circular intended for the guidance of visitors, and printed in the report of the curator. A commencement has been made of an exhibit of forestry objects. A large number of labels have been added to the exhibition series of fishes, and the groups have been brought more closely together. The material in the collection of tertiary fossils has been segregated according to its biologic relations, and its incorporation with the general collections. The collection of minerals has been rearranged, and a new installation of the gem series is under way. The collection of North American lizards has been installed in new quarters. Much time has been devoted by Dr. James M. Flint to the arrangement of specimens of materia medica already on hand. The Aino material collected by Mr. Romyne Hitchcock has been fully labeled and installed. The economic collection of insects, which was somewhat damaged during the return shipment from the Paris Exposition, has been overhauled and put in place again. The Hemiptera Heteroptera have been rearranged according to Uhler's check-list. The ores and general economic material in the exhibition hall have been arranged into two principal series; the one, comprising a systematic exhibit of all the principal ores of the metals arranged; the other, arranged geographically by States. Mr. Lucas has devoted a portion of his time to the identification and arrangement of skeletons of birds and tortoises. The classification of the star-fishes, collected by the U. S. Fish Commission steamer *Albatross* in the North Pacific Ocean, has been continued.

E.—THE MUSEUM STAFF.

THE SCIENTIFIC STAFF.

During the year, the departments of "Lithology and Physical Geology" and "Metallurgy and Economic Geology" have been united under the designation of the Department of Geology. Since the organization of the departments in the National Museum in 1881, these departments have until now been kept entirely distinct, and each department has been under the control of a curator. It has been thought for some time, however, that it would be advantageous to the administration of the Museum to combine the work of these closely allied departments, and this was finally carried into effect on October 1, 1889, upon the resignation of Mr. F. P. Dewey. Mr. George P. Merrill is now in charge of the Department of Geology.

Mr. Romyn Hitchcock, who on July 31, 1886, was furloughed to enable him to visit Japan as an instructor in the University of Tokio, returned January 20, 1889, and has again resumed his duties as curator of the collection of Foods and Textiles.

The Smithsonian collection of scientific instruments, which some years ago was transferred to the custody of the National Museum, has received some additions during the year, and has been placed under the charge of Mr. W. C. Winlock, curator of the Bureau of International Exchanges of the Smithsonian Institution.

In June, 1890, Dr. Frank Baker, Assistant Superintendent of the U. S. Life Saving Service, resigned his position to accept an appointment as curator of Comparative Anatomy in the National Museum. This department has for many years been administered upon by Mr. F. W. True as acting curator. Dr. Baker will not, however, at present assume the duties of this position, having received from the Secretary of the Smithsonian Institution a temporary appointment as acting manager of the National Zoölogical Park.

Mr. William T. Hornaday, for several years chief taxidermist, was on May 9, 1888, appointed curator of the Department of Living Animals. On May 6, 1889, he was placed in charge of the National Zoölogical Park; and on June 15, 1889, resigned this position. The collection of living animals hitherto under the care of the Museum has now been transferred to the custody of Dr. Frank Baker, as acting manager of the Zoölogical Park.

At the request of Prof. C. V. Riley, Mr. John B. Smith, formerly assistant curator of Insects in the National Museum, was engaged from January 3 to February 3, 1890, to work upon the collection of *Noctuidæ*.

Mr. William Harvey Brown, of the National Museum, accompanied the Government "Eclipse Expedition" to Africa for the purpose of collecting natural history specimens for the Museum. The expedition

sailed in October, 1889, on the U. S. S. *Pensacola*. A reference to Mr. Brown's explorations will be found in the chapter devoted to that subject.

On account of the increasing administrative duties which have been placed upon Mr. Richard Rathbun, of the U. S. Fish Commission, it has been found impossible to keep up the current work in the Department of Marine Invertebrates. It therefore seemed desirable to appoint an assistant, paid by the Museum, who could devote his entire time, under the supervision of Mr. Rathbun, to the work of the department. Mr. James E. Benedict, formerly naturalist of the Fish Commission, who had severed his connection with the Commission in 1886, accepted an appointment on January 13, 1890, as assistant curator of the Department of Marine Invertebrates.

At the request of Dr. C. A. White, the director of the U. S. Geological Survey appointed Mr. T. W. Stanton to assist Dr. White in the work of the Department of Mesozoic Invertebrate Fossils in the Museum.

There are now thirty-one organized departments and sections in the Museum under the care of curators, including honorary and acting curators, and assistant curators.

LIST OF CURATORS, ASSISTANT CURATORS, AND AIDS.

- ARTS AND INDUSTRIES: Dr. G. Brown Goode, Honorary Curator.
 MATERIA MEDICA: Dr. James M. Flint, U. S. Navy, Honorary Curator.
 TEXTILES: Mr. Romyr Hitchcock, Acting Curator.
 ANIMAL PRODUCTS: Mr. R. Edward Earll, Acting Curator.
 NAVAL ARCHITECTURE: Capt. J. W. Collins, U. S. Fish Commission, Honorary Curator.
 FOODS: Prof. W. O. Atwater, Department of Agriculture, Honorary Curator.
 HISTORICAL COLLECTIONS, COINS AND MEDALS: Mr. A. Howard Clark, Curator.
 TRANSPORTATION AND ENGINEERING: Mr. J. E. Watkins, Curator.
 ORIENTAL ANTIQUITIES: Prof. Paul Haupt, Johns Hopkins University, Honorary Curator; Dr. Cyrus Adler, Johns Hopkins University, Assistant Curator.
 GRAPHIC ARTS: Mr. S. R. Koehler, Boston Museum of Fine Arts, Acting Curator.
 FORESTRY: Dr. B. E. Fernow, Department of Agriculture, Honorary Curator.
 PHYSICAL APPARATUS: Prof. W. C. Winlock, Honorary Curator.
 ETHNOLOGY: Prof. Otis T. Mason, Curator; Mr. Walter Hough, Assistant.
 AMERICAN PREHISTORIC POTTERY: Mr. William H. Holmes, Bureau of Ethnology, Honorary Curator.
 PREHISTORIC ANTHROPOLOGY: Dr. Thomas Wilson, Curator; Mr. E. P. Upham, Assistant.
 MAMMALS: Mr. Frederick W. True, Curator.
 BIRDS: Mr. Robert Ridgway, Curator.
 BIRDS' EGGS: Capt. C. E. Bendire, U. S. Army, Honorary Curator.
 REPTILES AND BATRACHIANS: Dr. Leonard Stejneger, Curator.
 FISHES: Dr. Tarleton H. Bean, U. S. Fish Commission, Honorary Curator; Mr. Barton A. Bean, Assistant.
 VERTEBRATE FOSSILS: Prof. O. C. Marsh, Yale College, Honorary Curator.
 MOLLUSCS: Mr. William H. Dall, U. S. Geological Survey, Honorary Curator; Dr. R. E. C. Stearns, Adjunct Curator.
 INSECTS: Prof. C. V. Riley, Department of Agriculture, Honorary Curator; Mr. Martin L. Linell, Aid.

MARINE INVERTEBRATES: Mr. Richard Rathbun, U. S. Fish Commission, Honorary Curator; Mr. James E. Benedict, Assistant Curator.

COMPARATIVE ANATOMY: Dr. Frank Baker, Curator; Mr. Frederick A. Lucas, Assistant Curator.

INVERTEBRATE FOSSILS:

PALEOZOIC: Mr. C. D. Walcott, U. S. Geological Survey, Honorary Curator.

MESOZOIC: Dr. C. A. White, U. S. Geological Survey, Honorary Curator.

CENOZOIC: Prof. William H. Dall, U. S. Geological Survey, Honorary Curator.

FOSSIL PLANTS: Prof. Lester F. Ward, U. S. Geological Survey, Honorary Curator; Mr. F. H. Knowlton, Honorary Assistant Curator.

BOTANY: Dr. George Vasey, Department of Agriculture, Honorary Curator.

MINERALS: Prof. F. W. Clarke, U. S. Geological Survey, Honorary Curator; Mr. William S. Yeates, Assistant Curator.

GEOLOGY: Mr. George P. Merrill, Curator.

THE ADMINISTRATIVE STAFF.

No changes of importance have been made during the year. Mr. R. E. Earll has been engaged, since March, 1889, on special duty in the office of the Assistant Secretary.

The Department of Furniture, Supplies, and Accounts continues under the charge of Mr. W. V. Cox, chief clerk of the National Museum. A statement of the work accomplished will be found on page 62.

The Department of Correspondence and Reports is under the charge of Mr. R. I. Geare. A statement of the work accomplished during the year will be found on page 63.

The Department of Registration and Storage is under the charge of Mr. S. C. Brown, and a report of his work will be found on page 43.

Mr. A. Howard Clark has continued his work as editor of Proceedings and Bulletins of the National Museum. The preparation and printing of labels for Museum specimens has, as in past years, also been under his supervision.

The Museum library, which is made up, for the most part, of that portion of the library of the Smithsonian Institution which is required for reference by the curators of the scientific departments in the Museum, is under the care of Mr. John Murdoch, librarian of the Smithsonian Institution. A statement relating to the operations of the library during the year will be found on page 48.

Mr. Henry Horan, superintendent of buildings, with Mr. Charles A. Steuart as assistant superintendent, has continued in charge of the work of the mechanics and laborers of the Museum. On page 71 will be found a statement of the work accomplished by the force of mechanics and laborers.

F.—REVIEW OF WORK IN THE SCIENTIFIC DEPARTMENTS.

DIVISION OF ANTHROPOLOGY.

Department of Ethnology.—The first three months of the year covered by this report were spent by Prof. Otis T. Mason, curator, in studying the anthropological collections in Europe, especially those at the Paris Exposition, during the session of the Tenth International Congress of Anthropology and Prehistoric Archaeology, an account of which is submitted in his annual report.

The curator is giving much attention to three special lines of research and collection in connection with the work of his department; first, among the Indian tribes of our own country; second, among the South American tribes; third, among the African tribes of the west coast, especially those whose descendants made up the former slave population of the United States, for the purpose of comparison with the effects which civilization has had upon the race in this country.

Following up the work of former years, much time has been devoted to the study of the bow, the arrow, the quiver and armor.

Mr. Walter Hough is making a thorough study of the production of fire by primitive peoples, and has published in the Museum report for 1888 an exhaustive paper on fire-making apparatus, as represented in the collections of the U. S. National Museum.

Among the most important accessions is the collection of Japanese and Aino material gathered by Mr. Romyn Hitchcock. This material has been labeled and installed in the Museum. The collection of African material has been enriched by the addition of objects from the Inhambane Zulus, collected by the missionary, Rev. E. H. Richards, and presented by Oberlin College. Mr. W. H. Brown, naturalist of the United States Eclipse Expedition, secured material from Angola, and Mr. J. H. Camp contributed objects from the Congo.

Several valuable collections of Samoan material have been received through Admiral Kimberly, U. S. Navy, and from Ensign W. E. Safford. Mrs. H. A. P. Carter has given photographs and specimens from the Sandwich Islands. Dr. H. N. Allen, court physician to the King of Corea, has deposited in the Museum his rich collection from that kingdom. Dr. Washington Matthews's collection of Navajo silver-work has been acquired; also specimens of old Indian work of great value from Rev. E. C. Chirouse through the Department of the Interior; specimens from Idaho and Washington from Dr. George M. Kober, U. S. Army, and collections from the Hupa Valley, California, made by N. J. Purcell and Jeremiah Curtin.

Department of American Prehistoric Pottery.—The installation of the exhibition series of pottery is now almost completed, and very little remains to be done excepting in connection with the labeling of specimens. Mr. William H. Holmes has continued to act as honorary curator of

this department. The principal additions to the collections have been secured through the coöperation of the Bureau of Ethnology, with which Mr. Holmes is officially associated. One of the most interesting is a group of vases from a mound on the Savannah River, obtained by Mr. H. L. Reynolds. In connection with the monograph which Dr. Cyrus Thomas, of the Bureau of Ethnology, has undertaken upon the Mound-builders, the curator has conducted researches upon the collections from the mounds of the Mississippi Valley and adjacent regions. The number of specimens added to the collection during the year is estimated at 1,047, and 232 entries have been made in the catalogue.

Section of Oriental Antiquities.—The collection is under the curatorship of Prof. Paul Haupt, of the Johns Hopkins University, with Dr. Cyrus Adler acting as assistant curator.

Many valuable accessions have been received during the year. Among these is a cast of the famous temple inscription discovered by Clermont-Ganneau in 1871, which was obtained through the courtesy of the United States minister to Turkey. Mr. Theodore Graf, of Vienna, and Dr. Zehnfund, of Leipsic, have also made important contributions. A collection of copies of the Assyrian seals has been commenced, and much assistance has been rendered by Dr. William Hayes Ward, of New York, Prof. D. G. Lyon, of Harvard University, and Prof. H. Hyvernat, of the Catholic University in Washington. A collection of oriental manuscripts, formed by Mr. William B. Hodgson, and until recently in the care of the Telfair Academy of Arts and Sciences of Savannah (Georgia), has been placed in the custody of the Smithsonian Institution.

The curator attended the Eighth International Congress of Orientalists, which met at Stockholm in September, as the representative of the Smithsonian Institution.

There has been added a case of objects illustrating the public and private religious ceremonies of the Jews, collected and arranged by Dr. Adler. These objects were obtained partly through purchase, but chiefly through gift and deposit. Some of the more interesting were collected by Dr. H. Friedenwald.

Dr. Adler thus explains the character of the collection :

The collection may be divided into two sections comprising the objects employed respectively in public and private ceremonial.

The Pentateuch or Law (Hebrew *Torah*) is considered by Jews the most important part of the Bible, and a section of it is read every week in the synagogue. For this purpose a manuscript-copy is employed, printed copies not being used. When not in use the roll is covered with a cloak and placed upright in an ark or chest; to prevent the reader from losing his place, a pointer in the shape of a hand (called in Hebrew *Yad* or "hand") is employed. The collection contains a manuscript pentateuch unrolled with the pointer, and above it the cloak and winding-scarf which envelop it when placed in the ark.

At the morning service in the synagogue the male members of the congregation wear a special garment, a sort of scarf, known as the

Taleth. This garment is a survival of the outer robe of the ancient Hebrews. They wear on the corners a fringe or tassel in which is a thread of blue. A garment of the form now used is referred to in the New Testament (Matthew IX, 20; XIV, 36; Luke VIII, 44). They are made of silk, woollen, and even of cotton goods. The grave clothes of a male Israelite consist of a shroud and the *taleth*. The specimen in the collection is made of silk.

These objects are used at the Saturday morning service, and the *taleth* at the daily morning service where this survives. It is also worn at the afternoon service on Sabbath and fasts, and at the evening service of Sabbaths and festivals by the officiating minister only.

In addition to the *taleth*, the male members of the congregation wear at the morning service of week days, phylacteries, and where daily synagogue service is not held, they are employed in private devotion. Certain passages of the Pentateuch (Exodus XIII, 9, 10, 16; 1 Deuteronomy VI, 4, 9, 13, 22) enjoin that the law should be a sign upon the hand and for frontlets between the eyes. These passages, inscribed upon several pieces of parchment and inclosed in a leather case prepared for the purpose, are bound on the forehead between the eyes. The same passages written on one slip of parchment and inclosed in a similar case are bound on the left arm above the elbow. They are called by the Jews *tefillin* (from *tefilla*, "prayer"), a word found in the Talmud, but not in the Bible. They are referred to in the New Testament (Matthew XXIII, 5). The collection contains several sets of phylacteries of various sizes.

Special services call for the use of particular objects of ceremony.

At the conclusion of the Sabbath there are added some special prayers, and the service known as *Habdalah*, or separation. The objects used in this service are a cup of wine, a spice-box, and a candle. First, blessing is said over the wine, next over the spices, and last over the light. The candle is then extinguished by having wine poured upon it. The collections contain a specimen of a silver spice-box, supposed to have been manufactured in Laupheim (Württemberg), Germany, about 1740. There is a tradition that at the beginning of the Sabbath a special angel accompanies the worshiper from the synagogue; this angel remains with him until the conclusion of the Sabbath. The departure of the angel leaves the man faint, and the spices are intended to restore him.

The second great Jewish feast is the feast of weeks, also called "feast of harvest" and day of first fruits. The harvest referred to is the grain harvest. Deuteronomy XVI, 9, commands: "Seven weeks shalt thou number unto thee," beginning the day after Passover, when the first Omer was presented. The fiftieth day (Pentecost) was observed as a sacred feast. Since mediæval times the Jews also celebrate it as the anniversary of the delivery of the law on Mount Sinai. Following Leviticus XXIII, 2, the Samaritans observed Pentecost on Sunday. The Hebrew word meaning a handful of grain, a sheaf, is *Omer*, and the period between Passover and Pentecost is known as the Omer season. The days of this season are reckoned and the number announced each day. For the purpose of keeping the reckoning, a tablet is hung up in the synagogue. The collection contains a manuscript copy of such a tablet which was employed by a Spanish-Jewish congregation. The tablet is in Hebrew. It contains the words "Blessed art thou Lord, our God, King of the Universe, who has sanctified us with His commandments and commanded us to count the Omer." Then follows the count (in Hebrew) and below it the words "May the Lord restore the

worship of the temple speedily in our days" (Psalm LXVII). On the left are the letters H. S. and D., which indicate respectively Omer (written Homer by the Spanish Jews) week (Sabbat) and day.

In the Jewish ceremonial on solemn occasions, and especially on New Year's day (September), a blast is sounded from a trumpet called *Shofar*. It is made of a ram's horn whose shape is modified by heat. According to authorities on musical instruments, it is the oldest form of wind-instrument known to be retained in use. It is mentioned in the Bible as being used to announce the new moon and solemn feasts and to proclaim the year of release. Occasionally it was employed as a musical instrument, but its most frequent use was for military purposes. It was the signal for going out to battle, for the announcement of a victory, and for the recall of the troops. The specimen in the collection is an example of the seventeenth century, from Italy.

The feast of Purim was established to commemorate the deliverance of the Jews, recorded in the book of Esther. On this occasion the book is read in the synagogue, a manuscript copy being employed. The collection contains a manuscript roll of the Hebrew original, with hand-painted views. The book is usually called *Megilla* (roll), or more accurately *Megillat Esther* (roll of Esther). The Song of Solomon, Ruth, Ecclesiastes, and Lamentations are written in a similar form, and they together with Esther are called "the five rolls."

The feast of dedication, or *Hanuka*, is held in remembrance of the rededication of the Temple of Jerusalem after its defilement by Antiochus Epiphanes (169 B. C.). Josephus records that it was a festival of lights. The feast is celebrated 8 days, one light being lit on the first night of the feast, and an additional light on each succeeding night. The collection contains a lamp of brass, hand made, with eight compartments for oil. The lamp is of Dutch make, and its form exhibits an interesting survival of the ancient Roman lamp.

The specimens described are employed at public worship, though some of them may be used at private devotion. Any place in which ten male Israelites congregate is considered a place of public worship.

The following objects pertain exclusively to private worship:

The Mosaic legislation enjoined that the law should be written on the posts of the door and on the gates. This injunction is performed by inclosing a slip of parchment in a reed, or metallic or wooden cylinder, on which has been written Deuteronomy VI, 4-9, 13-21, and attaching it to the doorpost of the house, and sometimes of each room in the house. At present the Jews of the East often nail to the door-casing the entire decalogue inclosed in a tin case called *Mezuzza*. This custom has been widely adopted by other peoples of the East, particularly by Mussulmans, who select for this purpose passages from the Koran.

Whether at public or private devotion, the Jews invariably turn the face toward Jerusalem. For the large majority of Jews this direction is east. Synagogues are always built with the ark containing the manuscript copies of the Pentateuch at the eastern end of the building, and worshippers face this direction. As a reminder of the direction a card or scroll is hung up in the dwelling called *Mizrach* (the east). The specimen in the collection contains the Ten Commandments and various quotations from scripture in Hebrew. Ancient nations that worshipped the sun, turned when in prayer to the east, the place of the rising sun. This fact is alluded to by Ezekiel (VIII, 16). In the temple itself the worshippers faced towards the west, the entrance being from the east.

Before the principal meals of the Sabbath day the Jews have a special

service, including prayers over the bread and wine, which is known as *Kiddush* or "sanctification." The head of the family has in front of him a plate containing two loaves of bread, covered by a cloth, of which there is a specimen in the collection. This cloth, called *Kiddush* cloth, contains the prayers to be recited, and representations of the Temple, etc., evidently after old wood cuts. The practice of saying a blessing before eating is referred to, I Samuel ix, 13. It no doubt had its origin in the fact that a public meal of any sort was usually preceded by a sacrifice. "Asking the blessing" was common in New Testament times. The later Jews enjoined also that thanks should be returned after the repast.

At the meal of the Passover eve (probably the same as the "Lord's Supper") special plates were used on which to place cakes of unleavened bread. The collection contains two such, one made of brass containing fantastic figures and a Hebrew inscription, from Constantinople; the other of pewter, manufactured at Tetenhausen (near Gusburg) in Germany.

It was customary among the Jews to reserve a special lamp for use on the eve of the Sabbath only. Oil was burned in these from either six or eight prongs. Seven prongs were never used, because this lamp was not to be of the same shape as the seven-pronged candlestick of the sanctuary. The collection contains two specimens of the form used by the Jews of Germany, one having been manufactured in the eighteenth century at Fellheim, Germany.

The collection also contains a map of Palestine and surrounding countries, with the names of places marked in Hebrew characters, a chromo-lithographic restoration of the Tabernacle, a series of photographs of the ruins of ancient synagogues, of the Arch of Titus, and of the exteriors and interiors of the celebrated synagogues of Europe.

Section of Foods and Textiles.—Upon the return of Mr. Romyn Hitchcock, from Japan, he reassumed the custody of the collections of Food and Textiles. A greater portion of the year has been consumed in the examination and classification of the material which had accumulated during his absence. He has prepared an index to the collection, showing the series to which each specimen has been assigned, and also a list of the specimens in the exhibition series. The labeling of the collection of foods of the North American Indians has been completed. The labeling of the collection of textiles has also for the most part been furnished. Mr. Hitchcock, in addition to his regular work, has prepared two papers embodying the results of his observations in Japan during 1887 and 1888. These are entitled "The Ancient Pit-dwellers of Yezo," and "The Ainos of Yezo." Both of these papers are published in this report.

The number of specimens of textiles in the exhibition, reserve, and duplicate series is 2,211; 38 catalogue entries have been made. The number of specimens in the food collection on exhibition, and also in the reserve and duplicate series is 1,111; 68 entries have been made in the catalogue. In this total the specimens collected by Mr. Hitchcock, from the Ainos of Japan, are not included.

In the chemical collection, also under Mr. Hitchcock's care, there are now 457 specimens on exhibition, and 852 specimens in the reserve and

duplicate series. There have been made 42 entries in the catalogue devoted to chemicals, including oils, gums, and resins.

Department of Prehistoric Anthropology.—The curator, Mr. Thomas Wilson, visited the Paris Exposition, as the representative of the Smithsonian Institution, for the special purpose of attending the International Congresses of Hygiene, Criminal Anthropology, Anthropology, and Prehistoric Archaeology, and the French Association for the Advancement of Science. An account of his visit is given in his annual report in section II.

The most important accession during the year is the collection of archæological specimens, principally from the District of Columbia, presented by Mrs. J. C. Bruff, of Washington, District of Columbia. Contributions were also received from Mr. Thomas Wilson, the curator, Mr. H. de Morgan, New York City; Mr. J. P. Monroe, Ringgold, Tennessee; Messrs. Bangs & Company, New York City; Mr. S. V. Proudfit, Falls Church, Virginia; The Peabody Museum, Cambridge, Massachusetts (through Prof. F. W. Putnam); Dr. Hilborn T. Cresson, Philadelphia, Pennsylvania; and Mr. L. H. Jammes, Realmont, France.

The collections have been divided into an exhibition and a study series. A classification of the stone arrow, or spear-heads, and of the knives has been commenced.

In the catalogue 1,483 entries have been made during the year. The entire collection contains 122,679 specimens.

Section of Transportation and Engineering.—Other duties of the curator, Mr. J. E. Watkins, as engineer of property, have prevented him from devoting much time to the development of this collection. Considerable progress has, however, been made both in the arrangement and labeling of the specimens. The system of classification has been set forth in a previous report of the curator.

The accessions during the year though less numerous than in the previous year are equal in importance.

To the series illustrating the history of the stationary steam engine, a portion of the cylinder of the first steam engine erected on the western continent has been added.

Interesting specimens relating to the early history of the telegraph have been received.

Two drawings made by Fulton, one of the *Chancellor Livingston*, and the other of the machinery of the *Catherine of Clermont*, have been added to the steamboat series.

The original boiler of the locomotive *Stourbridge Lion*, has been added to the series illustrating the history of the development of the locomotive. It is the intention of Mr. Watkins to mount the boiler on the original driving-wheels, and to replace many of the original parts which are still in existence, and thus as far as possible complete the restoration of this locomotive.

The nucleus of a collection illustrative of the history of the development of the bicycle, has been secured. A model of the English "Dandy

Horse" has been made in the Museum workshops, and two old-fashioned velocipedes with wooden wheels have been acquired. A number of drawings of parts of bicycles have also been secured.

The study series has been increased by a number of photographs and prints.

The preparation of a card catalogue of the collection has been commenced. The collection now contains approximately 1,250 specimens. Seven hundred and fifty entries have been made during the year in the catalogue.

Section of Materia Medica.—The collection of materia medica specimens is still under the charge of Dr. James M. Flint, U. S. Navy, by whom the collection was first organized in 1881. He reports that much time has been devoted to the identification and arrangement of specimens already on hand, and to the classification and installation of new material. The most important contribution to the collection are a collection of East India drugs, from the Royal Botanical Gardens, at Kew, England, and the collection of medicinal substances contributed by Messrs. W. H. Schieffelin & Co., of New York. The preparation of descriptive labels has been pushed rapidly forward, and the labeling of the collection is now almost completed, as well as the completion of a card catalogue of the collection, by means of which the present position of every specimen may be readily ascertained. The present state of the collection is highly satisfactory. There are now 3,213 specimens of drugs on exhibition. The reserve series contains 1,203 specimens. The total number of specimens in the collection, including the illustrations, is 5,915. The number of catalogue entries during the year is 179.

Section of Graphic Arts.—The arrangement of the collection in this Department has been for the time completed. The manuscript for the labels, which has been prepared for some time, is still in the printer's hands. A circular has been printed explaining the arrangement of the collection.

The most important accession during the year is the collection of materials, prints, and tools illustrative of the process of chromoxylography in Japan, given to the Museum by Mr. T. Tokuno, chief of the Japanese Government Printing Office at Tokio.

A series of drawings made by pupils of the Art Academy of Cincinnati, and presented by the Cincinnati Museum Association has been placed on exhibition.

During the year accessions were received from forty-seven sources, and nine additions were made by purchase to the sectional library. The number of entries made in the catalogue during the year was 577.

DIVISION OF ZOÖLOGY.

Department of Mammals.—The accessions to this Department during the year are regarded by Mr. F. W. True, curator, as being of more than ordinary interest. The collections received from Dr. W. L. Ab-

bott, and those obtained by the naturalists who accompanied the United States Eclipse Expedition to South Africa, are of special interest.

Three new groups of mounted animals have been placed on exhibition during the year, and thirty-three single specimens have been mounted and placed on exhibition.

Five hundred and sixty-one specimens have been added to the collection during the year, in addition to a large amount of material deposited by the Department of Agriculture.

Department of Birds.—The exhibition series in this Department has been very greatly improved during the year. The extensive collections made by the U. S. Fish Commission on the Galapagos Islands, and in other parts of tropical America, have been worked up by the curator, and the results have been published in Vol. XII of the Proceedings of the National Museum. A collection of birds from Costa Rica has been described in Vol. XI of the Proceedings of the National Museum. A careful revision has been made of the genera *Xiphocolaptes* and *Sclerurus*, and published in Vol. XII of the Proceedings of the National Museum. Dr. Leonhard Stejneger has continued his studies on the birds of Japan and the Hawaiian Islands, and has prepared a paper on the extinct Pallas' Cormorant of Bering Island.

The number of specimens in the reserve, duplicate, and exhibition series is now estimated by Mr. Ridgway to be 60,219, giving an increase of 2,245 specimens during the year. The number of catalogue entries made during the year is 1,739.

Department of Birds' Eggs.—The collection of birds' eggs remains in the custody of Capt. Charles E. Bendire, U. S. Army.

Among the accessions received during the year, fifteen are mentioned by Captain Bendire in his annual report as being of special importance. Among the most valuable is a collection of nests and eggs made near Fort St. James and presented by Mr. Robert MacFarlane, of the Hudson's Bay Company, also a collection of nests and eggs from Colorado, presented by Mr. Denis Gale. Several species, new to the collections, have been received during the year, including some nests of rare birds. The number of eggs of North American birds is now 44,326, and of foreign birds 4,424. The number of nests in the reserve and exhibition series is 2,491, making a grand total of 51,241 specimens of eggs and nests in the collection. This gives an increase of 1,068 over the total of last year.

Department of Reptiles and Batrachians.—Dr. Leonhard Stejneger, recently appointed curator of this Department, has commenced a rearrangement of the collections. The collection of North American lizards has been reclassified and catalogued. The most important accession of the year is a large series of reptiles and batrachians collected by Dr. C. Hart Merriam in the San Francisco mountain plateau in Arizona. Collections made by the U. S. Fish Commission steamer *Albatross*, and by Prof. David S. Jordan, president of the Indiana State

University, contain much new material. The curator made a valuable collection of reptiles, birds, and mammals in Arizona, New Mexico, and Texas, during the months of September, October, and November.

The curator has made a special study of the geographical distribution of the reptiles and batrachians of the southwestern Territories of the United States. He has also published in the Proceedings of the National Museum a number of papers describing new species.

The total estimated number of specimens in the Department is now 29,050. During the year 705 catalogue entries have been made.

Department of Fishes.—In the early part of the year the honorary curator, Dr. Tarleton H. Bean, was in Alaska for the purpose of investigating the condition of the fisheries, in connection with his official duties as ichthyologist of the U. S. Fish Commission. During his absence the routine work of the Department was carried on by Mr. Barton A. Bean, assistant.

The number of accessions received during the year is 38. Prominent among them are a collection of fishes from Switzerland; a large collection of fishes from Galapagos Islands, Panama, British Columbia, Alaska, and other regions in the Pacific Ocean, gathered by the naturalists of the U. S. Fish Commission steamer *Albatross*; a collection of American Siluroids, from the Museum of Comparative Zoölogy at Cambridge, Massachusetts; a series of fishes collected in the Yellowstone Park, by Dr. David S. Jordan and his assistants, transmitted by the U. S. Fish Commission. The Fish Commission has also deposited in the Museum an extensive collection of fishes made by Dr. Jordan in several of the southern and western States and Territories, during the summer of 1889.

In the catalogue of the Department 1,016 entries have been made. The estimated number of specimens in the exhibition, reserve and duplicate series, is now about 122,000.

Department of Mollusks (including tertiary fossils).—Mr. William H. Dall, of the U. S. Geological Survey, has continued to take charge of this department. He has been assisted in the scientific work of the Department by Dr. R. E. C. Stearns, as adjunct curator, and by Mr. Frank Burns and Mr. Gilbert Harris, of the Geological Survey, by whom several important results have been accomplished. Considerable progress has been made in the determination, assorting, and labeling of material. Special reports upon collections received from the Fish Commission, the Navy Department, the Department of Agriculture, the Revenue Marine Service, and other sources have been made. A preliminary report upon the collections of the *Albatross* has been completed, and a report upon the collections made by the Eclipse Expedition to Africa is in course of preparation.

Mr. Dall has partially completed a report upon the Plio-Miocene mollusk fauna of Florida, the first part of which is now being printed by the Wagner Free Institute of Science, in Philadelphia.

The total number of accessions received during the year is given in Mr. Dall's report as 87. The total number of specimens received is estimated at 3,500, representing about 1,200 species. Valuable collections have been contributed by Mr. Henry Hemphill, from Lower California. Important additions to the fauna of Florida have been received from Messrs. G. W. Webster, J. J. White, and I. Gregor; and collections of West Florida shells have been presented by Mr. W. F. DeGolier. The Geological Survey has transferred to the Museum a valuable collection of Post-Pliocene types, illustrating the paper of Mr. R. E. Call in regard to the fresh-water fossils of Bonneville Lake Basin, Utah. A series of the smaller species of land shells has been presented by Dr. Sterki. Mr. W. G. Binney has contributed several additions to the Binney collection of American land-shells. A series of slides of sections of typical mollusks has been received from Dr. P. H. Carpenter, of Eton College, England.

Mr. Dall reports that about 75,000 specimens are now ready for systematic arrangement in the new cases which have been provided for this Department.

Department of Insects.—Prof. C. V. Riley, entomologist of the Department of Agriculture, continues in charge of the Department of Insects. The laboratory space of this department has been enlarged. The educational series in the exhibition hall has been improved. A large number of illustrations of North American insects, prepared by Professor Riley for exhibition at the Paris Exposition, have been added to the exhibition series

Several important accessions have been received during the year. Lord Walsingham has presented 125 species of rare Micro-Lepidoptera. Mr. A. Koebele has placed in the collection a well-mounted series of Australian and New Zealand insects, and has also presented to the Museum 4,600 specimens of insects, chiefly Coleoptera, collected by him in California. A collection representing 120 species of Lepidoptera from East Africa has been received from Dr. W. L. Abbott, the collector. An interesting collection of West and South African insects collected by Mr. William Harvey Brown, has been received. The collection of insects belonging to the late Dr. Asa Fitch, and purchased by the Department of Agriculture, has been placed in the Museum.

The arrangement of the collection of North American Coleoptera has been completed. Several special researches on entomological subjects, and relating more or less to Museum material, have been made during the year by the curator, and by Messrs. L. O. Howard, of the Department of Agriculture; John B. Smith, formerly assistant curator; W. H. Ashmead, and Lawrence Bruner.

About 15,000 specimens have been added to the collection during the year, and 89 entries have been made in the catalogue.

Department of Marine Invertebrates.—Mr. Richard Rathbun, honorary curator, reports increased activity in the work of his department,

owing chiefly to the appointment of an assistant curator, Mr. James E. Benedict. All of the material, including the general alcoholic collections in the main storage-rooms, has been kept in excellent condition.

The accessions have been greater in number and of more importance than during the preceding year. A very valuable series of European marine invertebrates was received from Rev. A. M. Norman, of Burnmoor Rectory, Durham, England. The U. S. Commission has transferred to the Museum two very large collections from the Pacific Ocean, gathered by the Fish Commission steamer *Albatross*.

Other accessions deserving special mention were received from Wesleyan College, Middletown, Connecticut; W. H. Brown, naturalist, with the United States Eclipse Expedition to South Africa; the Bureau of Navigation, Navy Department; the U. S. S. *Dolphin*, Commander George F. F. Wilde, commanding; Prof. O. B. Johnson, University of Washington, Seattle, Washington; and Mr. Romyn Hitchcock.

The arrangement of type series of alcoholic specimens has been continued. The alcoholic collection of alcyonarians and actinians, and the entire collections of brachyurans and anomourans, have been overhauled, and the card catalogues revised and completed. The assorting of Mr. Dall's Alaskan collection, which has been in progress for several years, has been completed. Much time has been spent in making up sets of duplicates for distribution.

The shore and shallow-water Echini, collected by the U. S. Fish Commission steamer *Albatross* on the west coast of North America in 1888 and 1889, have been identified and a type series deposited in the Museum.

The assistant curator has identified the crustaceans collected by the United States Eclipse Expedition to West Africa, and has begun the study of the Alaskan annelids obtained by Mr. Dall and by the Fish Commission. Prof. Walter Faxon, of the Museum of Comparative Anatomy, Cambridge, Massachusetts, has finished his investigation of the cray-fishes lent to him, and has returned them, together with a report, which has been published in the Proceedings of the Museum.*

Vertebrate Fossils.—This department is under the honorary curatorship of Prof. O. C. Marsh, of Yale College, New Haven. Mr. F. A. Lucas, assistant curator of the Department of Comparative Anatomy, has classified and arranged in drawers a portion of a large number of types of the species described by Dr. Leidy.

The most important addition to the collection is a skull of *Thoracosaurus neocesaurus*, presented by Mr. Nelson C. Page.

Department of Paleozoic Invertebrate Fossils.—Among the most important accessions to the collection of paleozoic fossils during the year, three are mentioned in the report of the curator. The first is from the British Museum, and includes a large number of trilobites. The second consists of 592 specimens from the Lower Cambrian and the

Lorraine formation of Ordovician, transferred by the U. S. Geological Survey. The third, also transferred by the U. S. Geological Survey, is a collection of 178 specimens from the Hudson Terrane of the Ordovician, and 109 specimens from the Upper Silurian.

The curator has been specially interested in the collection of material for the illustration of the middle Cambrian fauna, and in studying the literature of the Cambrian rocks of America. The fossils from the Cincinnati formation of Ohio have been rearranged by Prof. Joseph F. James, and attention has been paid to the exhibition series of crustaceans from the Waterlime formation of New York, and to the collection from the Chazy horizon of New York and Vermont, which has been relabeled and placed upon exhibition. Dr. R. R. Gurley has been employed in labeling and in making a special study upon American graptolites. Twenty-nine accessions have been received during the year. These represent 1,229 individual specimens, including 180 genera, 239 species, and 5 varieties. Five thousand four hundred and twelve entries have been made in the catalogue.

Department of Mesozoic Invertebrate Fossils.—Dr. C. A. White, of the U. S. Geological Survey, continues to act as curator of the collection of mesozoic fossils. The pressure of work connected with his duties as an officer of the Geological Survey has rendered it impossible for him to devote more than a small portion of time to Museum matters. Considerable progress has been made in identifying collections transferred to the Museum by the Geological Survey.

The arrangement of the exhibition series has been for the present completed.

DIVISION OF BOTANY.

Department of Botany.—The report of Dr. George Vasey, honorary curator, shows that several collections of considerable value have been added to the National Herbarium during the year.

Among the more important accessions are: A set of 550 species of Japanese plants from S. Tegima, Director of the Educational Museum, Tokio, Japan; 335 specimens collected in Mexico by C. G. Pringle; 1,800 specimens of Southern Californian plants from C. R. Orcutt, San Diego, California; 80 species of Canadian grasses from John Macoun, Geological and Natural History Survey of Canada; 2,817 specimens of Texan plants collected by G. C. Nealley, of Houston, Texas; 900 specimens of East Florida plants from J. H. Simpson, Manatee, Florida; 400 specimens, collected in Lower California and Western Mexico by Edward Palmer; 327 specimens of Californian and Mexican plants, from the California Academy of Science; the first 135 species of a set of Bolivian plants collected by Miguel Bang; about 100 Pacific Slope species from E. L. Greene, Berkeley, California; 142 species of the *Hepaticæ Cubensis Wrightianæ*, from the Harvard University herbarium; 500 specimens from the United States Eclipse Expedition to Africa;

320 species of European mosses from Dr. I. Hagen, Trondhjem, Norway; 800 specimens collected by Frederick V. Coville, of the Department of Agriculture, in Virginia and North Carolina.

The total number of specimens in the National Herbarium is estimated as follows: Mounted, 155,000; duplicates, 18,000.

This portion of the National Herbarium is in great danger owing to the lack of fire-proof rooms in which it can be kept. Dr. Vasey in his report emphasizes the risk of allowing it to continue in inappropriate quarters. He says: "If it were destroyed by fire it could never be entirely replaced, and a large number of type specimens would be lost. The collection of American grasses is the largest in existence, and contains the type specimens of nearly all the species of American grasses described during the last fifteen years."

A new museum building should soon be provided, in which this and several other collections, at present without proper shelter, may be appropriately installed.

Department of Fossil Plants.—A series of fossil plants consisting of about 600 specimens, representing as far as practicable the evolutionary development of plant life has been placed on exhibition. A series of labels has been prepared for these specimens and printed.

The duplicate specimens of fossil plants belonging to the Museum are stored in the Armory building, for lack of other space.

The remaining type specimens belonging to the Museum collections, representing the earlier geological formations, have been entirely rearranged during the year.

Professor Ward has been engaged during the year in the preparation of a monograph of the flora of the Laramie group.

The fine Kansas collection of Dakota group plants, purchased from Mr. Charles Sternberg by the Geological Survey, was incorporated with the Museum collections in 1889. This contains 400 types of the plants of the Dakota group, which were studied by Professor Lesquereux.

Mr. Charles S. Prosser, of the Geological Survey, one of Professor Ward's assistants, has recently studied the flora of the Silurian and Devonian formations, and has made extensive collections in various parts of New York.

Mr. David White, of the Survey, has been engaged in the identification of a series of cretaceous plants collected by himself on Martha's Vineyard, and has also commenced the study of a collection of Carboniferous plants from Missouri.

Mr. F. H. Knowlton has studied a collection of fossil wood from Arkansas; and has prepared a report, which will soon be published by the Arkansas Geological Survey. He has also published a paper upon the fossil wood of the Potomac formation, in which several new species are described; this publication also contains an elaborate review of the literature relating to the study of internal structure, from its earliest mention down to the close of the year 1886.

During the summer of 1889 Mr. Knowlton made collections of fossil plants in New Mexico and Arizona, discovering eight or ten localities from which fossil plants had not been before reported. His collections include a valuable and exceedingly interesting series of Triassic plants from the copper mines near Abiquiu. He also visited the celebrated fossil forest in the vicinity of Holbrook, Arizona, where several hundreds of acres are covered by immense trunks of fossil trees. A large collection of fossil wood was obtained in this locality. He also made a collection of fossil wood from the fossil forest at Calistoga, California. On his return in the fall, he commenced the selection of a series of type specimens from collections made in previous years in the Yellowstone National Park.

Section of Forestry.—Dr. B. E. Fernow, chief of the Division of Forestry in the Department of Agriculture, has, as stated in the report for 1889, taken charge of the forestry collection in the Museum.

It had been expected that the material used in the exhibit prepared by the Department of Agriculture for the World's Exposition at Paris in 1889 would be returned, and form a nucleus for a systematic Museum exhibit. The bulk of the material was, however, at the request of the director of the Jardin des Plantes, in Paris, turned over to that establishment by the representative of the Department of Agriculture.

During the year five exhibits received through the Department of Agriculture have been installed. To the panel exhibiting the forestry interests of the United States, and referred to in Dr. Fernow's report for 1889, two maps from the Census Bureau have been added. These show the distribution of forest, prairie and plain, and of the different forest types as described by Prof. C. S. Sargent.

The collection of the woods of the United States, which was prepared by the Department of Agriculture for the Cincinnati Exposition, has been arranged in four cases.

It is the wish of the curator to make a complete representation of the arborescent flora of the United States, and also a comprehensive exhibit of the more important timber trees, as soon as opportunity shall be afforded.

DIVISION OF GEOLOGY.

Department of Minerals.—The appearance of the exhibition hall devoted to the display of minerals has been greatly improved during the year. Prof. F. W. Clarke, honorary curator, reports that the collection has in a great measure been rearranged, and that a new installation of the gem collection has been commenced. A special feature of the year's work has been the preparation of a large number of duplicate collections of minerals for distribution to schools and colleges. The distributions, which have already been made, are referred to in the statement concerning the work of the Department of Registration and Storage. Among the most important accessions are a large series

of minerals from Missonri and Arkansas, collected by Mr. W. P. Jenney, and a collection of Arizona minerals, collected by Dr. W. F. Hillebrand and transmitted by the U. S. Geological Survey. Specimens of ten meteorites have been received during the year, six of which were acquired by exchange with the British Museum and the Museum of Natural History in Paris.

Department of Geology.—Mr. Merrill, curator of this department, states that a very large portion of his time since October, 1889, has been devoted to the assorting of collections, the preparation of labels, and the identification of material sent to the Museum for examination and report. Sixty-nine lots of material have thus been named and reported upon during the year. Mr. Merrill has prepared in his report a careful synopsis of the plan which he has devised for the rearrangement of the exhibition series. The number of specimens now in the exhibition series is estimated at 16,762. The entries in the catalogue of the Department of Metallurgy during the year were 504 in number. In the catalogue heretofore devoted to the Department of Lithology and Physical Geology 2,268 entries have been made.

G.—REVIEW OF THE ADMINISTRATIVE WORK.

PROGRESS OF GENERAL AND INCIDENTAL WORK.

REGISTRATION AND STORAGE.

Mr. S. C. Brown, registrar, has prepared the tabulated statement here printed, showing the number of packages received at the Smithsonian Institution during the year :

Books, number of volumes	41,300
Miscellaneous packages for Smithsonian Institution	7,716
Loads of specimens and supplies	42
Packages containing Museum specimens	827
Packages containing Museum supplies	1,638
Personal packages	506

Total number of packages received

52,079

The number of packages sent out both from the Smithsonian Institution and the National Museum was 2,154.

DISTRIBUTION OF DUPLICATES.

The distribution of duplicate specimens has been continued, and 308 packages of specimens, as shown in the accompanying table, have been sent out during the year. The larger part of these contained specimens presented to schools and colleges for use in connection with their scientific work.

DISTRIBUTION OF SPECIMENS.

Arranged by departments in the Museum.

Department.	No. of pack-ages sent out.	Department.	No. of pack-ages sent out.
Materia medica.....	4	Marine invertebrates.....	50
Textile industries.....	2	Comparative anatomy.....	2
Oriental antiquities.....	5	Invertebrate fossils.....	6
Ethnology.....	20	Plants.....	5
Pottery.....	5	Minerals.....	74
Prehistoric anthropology.....	8	Lithology and physical geology.....	13
Mammals.....	22	Metallurgy.....	7
Birds.....	20	Direct exchanges.....	7
Birds' eggs.....	1	Photographs and plans of cases, etc.....	5
Reptiles and batrachians.....	9	Returned to owner.....	107
Fishes.....	8	Total.....	308
Mollusks.....	5		
Insects.....	3		

The transmission of specimens to museums and colleges, at home and abroad, has been actively carried on, especially in connection with the department of minerals, a large quantity of duplicate material having been obtained last summer by Prof. F. W. Clarke, Curator of Minerals, especially for this purpose.

Numerous exchanges of specimens have also been completed. The following statement, arranged geographically, contains the names of the recipients of the material sent out, the character of the specimens, and the conditions under which transmitted, *i. e.*, whether as a gift or in exchange.

Geographical statement of the distribution of specimens during the year ending June 30, 1890.

FOREIGN COUNTRIES.

AFRICA. Department of Public Instruction, Cape Town: Dried insects (295 specimens) in exchange. (D.* 6359.)

AUSTRALIA. Australian Museum, Sydney, New South Wales: Two boxes of aleobolic fishes, and skeleton of Great Auk in exchange. (D. 5965.)

School of Arts, Newcastle, New South Wales: Minerals (set 43). Gift. (D. 6290.)

AUSTRIA. Dr. A. Brezina, Vienna: Rocks (41 specimens) in exchange. (D. 6067.)

BAVARIA. University of Munich, Munich: Minerals (136 specimens) in exchange. (D. 6271.)

BELGIUM. Prof. Ernest van den Broeck, Brussels: Rocks (16 specimens) in exchange. (D. 6284.)

BRITISH GUIANA. The Colonial Museum, Demerara: Birds' skins (37 specimens) in exchange. (D. 6056.)*

* D. refers to the distribution record kept by the registrar.

- ENGLAND. Henry Balfour, Oxford: Zuni pottery (8 specimens) and flaked implements (24 specimens) in exchange. (D. 6360.)
 Edward Bartlett, Kent: Birds' skins (48 specimens) in exchange. (D. 6043.)
 British Museum, London: Minerals (15 specimens) in exchange. (D. 6275.)
 Edward Lovett, Croydon, Surrey: Ethnological specimens (135) in exchange. (D. 6071.)
 Oxford University Museum, Oxford: Stone implements (7 specimens) and 1 Kadiak lamp in exchange. (D. 6178.)
 Rev. A. M. Norman, Fence Houses, Durham: Specimens of Echini (14) and two boxes of duplicate marine invertebrates in exchange. (D. 6253.) (D. 6342.)
- FRANCE. Mineral Laboratory, College of France, Paris: Minerals (33 specimens) in exchange. (D. 6257.)
- GERMANY. Dr. August Müller, Berlin: Birds' skins (29 specimens) in exchange. (D. 6049.)
 Royal University of Berlin, Berlin: Collection of batrachians in exchange. (D. 6243.)
 Royal Ethnological Museum, Dresden: Twenty casts of Indian heads in exchange. (D. 6220.)
 Haus Graf von Berlepsch, Mündeu: Birds' skins (108 specimens) in exchange. (D. 6096.)
 Dr. Adolph Nehr Korn, Braunschweig: Birds' skins (20 specimens) in exchange. (D. 6045.)
- HUNGARY. National Museum, Buda-Pesth: Birds' skins (36 specimens) in exchange. (D. 6095.)
- ICELAND. Icelandic Natural History Society, Reykjavik: Two boxes of duplicate marine invertebrates in exchange. (D. 6336.)
- INDIA. Government Central Museum, Madras: Birds' skins (55 specimens) in exchange. (D. 6102.)
- ITALY. Dr. Paolo Mantegazza, Florence: Archaeological specimens (55) in exchange. (D. 6237.)
 Zoological Museum, Royal University, Florence: Ethnological specimens (24) in exchange, and archaeological and ethnological specimens (35) in exchange. (D. 5982.) (D. 6236.)
- JAPAN. Tokio Educational Museum, Tokio: Botanical specimens (400) in exchange. (D. 6108.)
- SYRIA. Syrian Protestant College, Beirut: Four boxes alcoholic reptiles, batrachians, rocks, birds' skins, marine invertebrates, and 1 box of minerals (set 1.) (D. 6006.) (D. 6177.)

UNITED STATES.

- ALABAMA. State Agricultural and Mechanical College, Auburn: Minerals (set 20). Gift. (D. 620.)
 State Normal School, Jacksonville: Minerals (set 26). Gift. (D. 6215.)
- COLORADO. Museum of the Denver Chamber of Commerce, Denver: Two models of cliff-dwellings. Gift. (D. 6004.)
- DISTRICT OF COLUMBIA. George H. Boehmer, Washington: Zuni pottery (14 specimens) in exchange. (D. 6109.)
 Catholic University, Brookland: Minerals (18 specimens) and rocks (30 specimens). Gift. (D. 6119.)
- GEORGIA. N. P. Pratt, esq., Atlanta: Minerals (11 specimens) in exchange. (D. 6047.)
- ILLINOIS. Lake High School, Lake: Minerals (set 30). Gift. (D. 6219.)
 Peoria Scientific Association, Peoria: Minerals (set 46). Gift. (D. 6318.)
 Central Illinois Scientific Association, Virginia: Two boxes duplicate marine invertebrates. Gift. (D. 6289.)
 Charles K. Worthen, Warsaw: Birds' skins (27 specimens) in exchange. (D. 6093.) (D. 6135.)

- INDIANA. De Pauw University, Greencastle: West coast fishes (set 7). Gift. (D. 6279.)
 Hanover College, Hanover: Minerals (set 32). Gift. (D. 6225.)
 John W. Spencer, Paxton: Corals (32 specimens) in exchange. (D. 6280.)
 State Normal School, Terre Haute: West coast fishes (set 42). Gift. (D. 6278.)
- IOWA. Coe College, Cedar Rapids: West coast fishes (set 66). Gift. (D. 6288.)
 The Clinton High School, Clinton: Minerals (set 14). Gift. (D. 6198.)
 High School, Council Bluffs: Marine invertebrates (series IV, set 161). Gift. (D. 6144.)
 Simpson College, Indianola: Minerals (set 23). Gift. (D. 6212.)
 State University of Iowa, Iowa City: Specimen of Pentacrinus. Gift. (D. 5967.)
 Western Normal School, Shenandoah: Two boxes of marine invertebrates. Gift. (D. 6281.)
- KANSAS. College of Emporia, Emporia: Minerals (set 49). Gift. (D. 6344.)
 State Normal School, Emporia: Minerals (set 29). Gift. (D. 6218.)
 Ottawa University, Ottawa: Marine invertebrates (series IV, set 158.) Gift. (D. 6123.) Minerals (set 15). Gift. (D. 6199.)
- KENTUCKY. Berea College, Berea: Minerals (set 24). Gift. (D. 6213.)
 Central University, Richmond: Minerals (set 47). Gift. (D. 6339.)
- LOUISIANA. New Orleans University, New Orleans: Marine invertebrates (series IV, set 162). Gift. (D. 6151.)
 Gilbert Seminary, Winsted: Minerals (set 36). Gift. (D. 6230.)
- MAINE. George L. Brigham, Bolton: Minerals (50 specimens) in exchange. (D. 6264.)
 Lorin B. Merrill, Paris: Minerals (49 specimens) in exchange. (D. 6263.)
 Colby University, Waterville: Rocks (13 specimens) in exchange, and minerals (set 39). Gift. (D. 6201.) (D. 6260.)
- MARYLAND. St. John' College, Annapolis: Marine invertebrates (series IV, set 170). Gift. (D. 6361.)
 Woman's College of Baltimore, Baltimore: Minerals (set 18). Gift. Marine invertebrates (series IV, set 163). Gift. (D. 6205.)
- MASSACHUSETTS. Massachusetts Agricultural College, Amherst: Marine invertebrates (series IV, set 168). Gift. (D. 6347.)
 George H. Barton, Boston: Geological specimens (41) in exchange. (D. 6039.)
 Boston Society of Natural History, Boston: Alcoholic fishes of east coast (54 specimens) in exchange. (D. 6157.)
 Barnum's Museum, Tuft's College, College Hill: Twelve casts of fishes, 6 casts of cetaceans, 10 antiquities, marine invertebrates (118 specimens) in exchange. (D. 6265.)
 Peabody Museum, Cambridge: Twelve boxes Indian pottery, 4 boxes of Indian costumes in exchange. (D. 6013.) (D. 6074.) (D. 6158.)
 Clark University, Worcester: Marine invertebrates (series IV, set 155). Gift. (D. 5960.)
- MICHIGAN. Michigan Agricultural College, Lansing: Collection of fibers. Gift. (D. 6267.)
- MINNESOTA. Minnesota Academy of Sciences, Minneapolis: Minerals (set 57). Gift. (D. 6242.)
- MISSOURI. Missouri School of Mines, Rolla: Minerals (set 54). Gift. (D. 6354.)
- MONTANA. College of Montana, Deer Lodge: Minerals (set 31). Gift. (D. 6224.)
- NEBRASKA. Doane College, Crete: Minerals (set 51). Gift. (D. 6348.)
 University of Nebraska, Lincoln: Minerals (set 50). Gift. (D. 6345.)
 Gates College, Neligh: Minerals (set 53). Gift. (D. 6350.)
 Creighton College, Omaha; Minerals (set 52). Gift. (D. 6349.)
 Nebraska Institute for the Deaf and Dumb, Omaha: Minerals (set 55). Marine invertebrates (set 169). Gift. (D. 6355.)
 Nebraska State Normal School, Peru: Minerals (set 45). Gift. (D. 6317.)

- NEW HAMPSHIRE. High School, North Charlestown: Minerals (set 9). Gift. (D. 6193.)
High School, Franklin: Minerals (set 8). Gift. (D. 6192.)
- NEW JERSEY. High School, Bloomfield: Minerals (set 34). Gift. (D. 6223.)
South Jersey Institute, Bridgeton: Marine invertebrates (set 166.) Gift. (D. 6256.)
- NEW YORK. Cornell University, Ithaca: Four boxes of textiles, Indian foods, etc., in exchange. (D. 6017.)
American Museum of Natural History, New York: Skin, skull, and bones of bird in exchange. (D. 5949.) Birds' skins (10 specimens) in exchange. (D. 6065.)
College of the City of New York, New York: Minerals (set 38). Gift. (D. 6249.)
Columbia School of Mines, New York: Minerals (19 specimens) in exchange. (D. 5333.)
Prof. J. J. Stevenson, New York: Rocks and ores (15 specimens) in exchange. (D. 6316.)
University of the City of New York, New York: Ores (125 specimens) in exchange. (D. 5939.) Cretaceous and Tertiary fossils (48 specimens) in exchange. (D. 6029.) Cambrian fossils (12 specimens) in exchange. (D. 6334.)
High School, Olean: Marine invertebrates (series IV, set 164). Gift. (D. 6227.)
- NORTH CAROLINA. United States Assay Office, Charlotte: Minerals (set 4). Gift. (D. 6188.)
C. W. Kessler, Charlotte: Minerals (83 specimens) in exchange. (D. 6287.)
- OHIO. Cincinnati Society of Natural History, Cincinnati: Specimen of *Pentacrinus*. Gift. (D. 6165.) Two boxes of duplicate marine invertebrates in exchange. (D. 6325.)
Ohio Wesleyan University, Delaware: Minerals (set 25). Gift. (D. 6214.)
Oberlin College, Oberlin: Ethnological material (73 specimens) in exchange. (D. 5981.) Specimen of *Pentacrinus*. Gift. (D. 6014.) Two boxes of marine invertebrates in exchange. (D. 6088.) Birds' skins (42 specimens) in exchange. (D. 6170.) Minerals (set 42). Gift. (D. 6283.)
- OREGON. State Agricultural College, Corvallis: Minerals (set 33). Gift. (D. 6226.)
Marine invertebrates (series IV, set 165). Gift. (D. 6226.)
- PENNSYLVANIA. Muhlenberg College, Allentown: Marine invertebrates (set 159). Minerals (set 22). Gift. (D. 6133.) (D. 6211.)
Central State Normal School, Lock Haven: Minerals (set 16). Gift. (D. 6200.)
Academy of Natural Sciences, Philadelphia: Two boxes duplicate marine invertebrates in exchange. (D. 6299.)
Convent of the Sacred Heart, Philadelphia: Shells (85 specimens). Gift. (D. 6338.)
Dr. Heilbron Cresson, Philadelphia: One box of stone implements in exchange. (D. 6118.)
Wagner Free Institute of Science, Philadelphia: Specimen of *Pentacrinus*. Gift. (D. 5954.) Minerals (63 specimens) in exchange. (D. 6207.) Two boxes duplicate marine invertebrates in exchange. (D. 6292.)
George Vaux, jr., Philadelphia: Minerals (41 specimens) in exchange. (D. 6305.)
Pittsburgh Female College, Pittsburgh: Minerals (set 2). Gift. (D. 6183.)
- RHODE ISLAND. Brown University, Providence: Dried plants (71 specimens) in exchange. (D. 6131.)
- SOUTH CAROLINA. Charleston Museum, Charleston: Birds' skins (3 specimens). Gift. (D. 6050.)
Arthur T. Wayne, Charleston: Birds' skins (2 specimens) in exchange. (D. 6086.)
University of South Carolina, Columbia: Marine invertebrates (series IV, set 157). Gift. (D. 6112.)

- SOUTH DAKOTA. Dakota Agricultural College, Brookings: Minerals (set 5). Gift. (D. 6189.)
 South Dakota Normal School, Madison: Minerals (set 6). Gift. (D. 6190.)
 Dakota University, Mitchell: Minerals (set 35). Gift. (D. 6229.) Marine invertebrates (series IV, set 167). Gift. (D. 6300.)
 Pierre University, Pierre: Minerals (set 27). Gift. (D. 6216.)
 Redfield College, Redfield: Minerals (set 7). Gift. (D. 6191.)
 University of South Dakota, Vermillion: Minerals (set 48). Gift. (D. 6340.)
- TENNESSEE. University of Tennessee, Knoxville: Minerals (set 11). Gift. (D. 6195.)
 Sweetwater Female Institute, Sweetwater: Minerals (set 12). Gift. (D. 6196.)
- TEXAS. University of Texas, Austin: Minerals (set 28). Gift. (D. 6217.)
 State Agricultural and Mechanical College, College Station: Minerals (set 13). Gift. (D. 6197.)
- VERMONT. Brattleboro Society of Natural History, Brattleboro: Minerals (set 40). Gift. (D. 6261.)
 Ira R. Allen, Fair Haven: Minerals (145 specimens) in exchange. (D. 6286.)
- VIRGINIA. Emory and Henry College, Emory: Minerals (set 17). Gift. (D. 6202.)
 Virginia Normal and Collegiate Institute, Petersburg: Minerals (set 19). Gift. (D. 6204.)
- WISCONSIN. Lawrence University, Appleton: Marine invertebrates (series IV, set 156). Gift. (D. 5986.)
 Elkhorn High School, Elk Horn: Minerals (set 21). Gift. (D. 6210.)
 University of Wisconsin, Madison: One box of Cambrian fossils. Gift. (D. 5998.)
 Marine invertebrates (series IV, set 160). Gift. (D. 6193.) Minerals (set 3). Gift. (D. 6184.)
 State Normal School, Milwaukee: Minerals (set 41). Gift. (D. 6252.)
 Public School, Palmyra: Minerals (set 10). Gift. (D. 6194.)
- WYOMING. Public School of Cheyenne, Cheyenne: Minerals (set 44). Gift. (D. 6291.)

STORAGE.

During the year there were entered upon the temporary storage-records of the Museum 361 boxes.

There were removed from storage and turned over to the officers of the Museum 119 boxes, to be opened and worked into the collections of the Museum.

LIBRARY.

Mr. John Murdoch, librarian, has furnished the following statement concerning the operations of the library.

The total number of publications added to the library during the year was 12,437 (1,479 volumes of more than 100 pages, 2,250 pamphlets, 8,672 parts of regular serials, and 36 charts). Of these, 785 volumes, 1,010 pamphlets, and 6,900 parts of serials were retained for the use of the Museum from the accessions of the Smithsonian Institution. The remainder were obtained, as usual, by gift, exchange, and purchase.

The only notable gift to the library during the year was from the Wagner Free Institute of Science, in Philadelphia, consisting of a nearly complete set of Kiener's "Iconographie des Coquilles vivantes," with magnificent colored plates. The Lea collection, referred to in the last report, has been duly entered and catalogued.

During the year 7,596 books were borrowed from the library and 4,268 returned. Ninety-two persons are now authorized under the regulations to draw books from the Museum library. Two hundred and forty-eight requests were sent to the Library of Congress during the year. Three thousand two hundred and seventy titles have been added to the card catalogue.

Since the last report the sectional libraries of Lithology and Metallurgy have been combined, forming the section of Geology, under the charge of Mr. G. P. Merrill, and the sectional library of Transportation and Engineering, in charge of Mr. J. E. Watkins, has been organized.

The usual inspection of the sectional libraries was made between May 1 and June 10, and the books were found to be in good condition.

The number of books assigned to these libraries is as follows:

- Birds*.—540 volumes, 31 pamphlets, and 177 parts of serials.
- Editor, Smithsonian Institution*.—601 volumes and pamphlets, 546 parts.
- Ethnology*.—143 volumes, 20 pamphlets, 143 parts.
- Fishes*.—82 volumes, 8 pamphlets, 38 parts.
- Geology*.—536 volumes, 303 pamphlets, 412 parts, 32 charts.
- Insects*.—466 volumes, 267 pamphlets, 621 parts.
- Mammals*.—187 volumes, 313 pamphlets.
- Marine Invertebrates*.—85 volumes, 3 pamphlets, 118 charts.
- Materia Medica*.—235 volumes, 4 pamphlets, 269 parts.
- Mesozoic Fossils*.—35 volumes, 10 pamphlets, 13 parts.
- Mineralogy*.—A. 177 volumes, 6 pamphlets, 281 parts; B. 72 volumes, 48 pamphlets, 8 parts.
- Mollusca and Cenozoic Fossils*.—76 volumes, 13 pamphlets, 270 parts.
- Oriental Archaeology*.—225 volumes, 94 pamphlets, 283 parts.
- Plants, Recent and Fossil*.—380 volumes, 204 pamphlets, 886 parts.
- Prehistoric Anthropology*.—66 volumes, 17 pamphlets, 49 parts (in addition to the Rau Memorial Library, which is not yet wholly catalogued).
- Textiles and Foods*.—27 volumes, 43 pamphlets, 30 parts.
- Transportation and engineering*.—46 volumes, 292 parts.

The books referred to in the last report as having been sent to the Government bindery were all bound and returned to the library by August 15, 1889.

The assignment of additional clerical assistance to the library has enabled the librarian to dispose of a considerable portion of the accumulated arrears of cataloguing and other similar work, and it will soon be possible to begin the much-needed subject-catalogue.

Eight new book-cases have been built in the passage-way adjoining the library. By filling these with classes of books less often referred to, relief was obtained for the crowded cases in the library, but the latter are rapidly filling up again.

The library grows so fast that any temporary measures like those mentioned are of little real moment. The library needs a room large

enough to allow for the expansion, and at the same time to permit a rational classification of the books upon the shelves.

FOREIGN EXCHANGES.

Exchanges of duplicate specimens, in continuation of the custom of previous years, have been carried on. The domestic exchanges are indicated in the accession list (section V), and the following statement relates only to exchanges made with individuals and scientific establishments outside of the United States.

Arts and industries.—The Sapporo Agricultural College, Sapporo, Japan, through Shosuke Sato, acting director, sent in exchange a collection of Aino articles, consisting of a dried fish, wooden dipper and spoon, fish-bowl, rice-bowl, tray, an "ikoro," man's coat, woman's coat, belt, apron, pair of leggings, bow and quiver with arrows, loom and two harpoons of different forms, for which an equivalent is to be sent.

The Insetsu Kioku (finance department), Tokio, Japan, through Mr. T. Tokuno, chief, sent samples of Japanese woodcuts, printing and engraving tools and a few samples of Japanese printing. This collection illustrates Japanese methods of engraving. An exchange was sent in return for these, consisting of a set of apparatus, tools, books, catalogues and other materials relating to the photomechanical processes in use in the United States.

Ethnology.—The Museum of Natural History, Paris, France, sent 52 samples of hair of various races, representing fourteen different types of mankind.

A saucer-shaped lamp made of pottery from Cyprus was received from Mr. Henry Balfour, of the Museum, Oxford, England, for which a Kadiak stone lamp, and some rude stone implements from the District of Columbia, were sent in exchange. Through Mr. Henry Balfour, in behalf of the Museum, was received a model of a Hindoo fire-drill, for which 3 models of fire-drills were sent in exchange.

From the Ethnological Museum, Berlin, Germany, were received ethnological objects collected from Morocco, Wasaguan Indians, Africa, Paola, South Pacific Ocean, New Caledonia, and Adansonia, for which a collection of 240 stone implements was sent in exchange.

Numerous exchanges of ethnological specimens have been made with Mr. Edward Lovett, of Croydon, England.

Prehistoric anthropology.—Six specimens of Carib stone celts from the West Indies were received from Mr. Henry Balfour, Oxford, England, for which 8 pieces of Zuñi pottery and 25 flaked stones from Piney Branch, near Washington, D. C., were sent in exchange.

Mammals.—A collection of mammal skins was received from Louis Molnar, Molna Szeesöd, Hungary. For these skins an exchange consisting of birds' skins was sent. This is referred to under the heading of *Birds*,

The British Museum, London, England, sent a skull of *Lutra felina*.

From the Museum of Natural History, Genoa, Italy, through Marquis Giacomina Doria, director, were received a skin and skull of *Lophiomys inhausii*; 100 bats in alcohol, 2 shrews, and 1 Meadow-mouse. An equivalent for this valuable collection will be prepared at as early an opportunity as possible.

Birds.—Louis Molnar, Molna Szecsöd, Epyházos Hollos, Hungary, sent in exchange 86 specimens of birds' skins, representing 71 species, from Hungary, for which 92 specimens of birds' skins were sent in exchange. This was also sent in exchange for the mammal skins mentioned above.

From the museum at Demerara, British Guiana, through Mr. J. J. Quelch, were received 4 skins of adult Hoatzins (*Opisthocomus cristatus*), and 7 young specimens of the same species in alcohol; also 2 skeletons. For these, 37 specimens of birds' skins were sent in exchange.

A. Nehr Korn, Riddagshausen, Braunschweig, Germany, sent 5 birds' skins, representing 5 species, from Palawan, for which similar material was sent in exchange.

Mr. T. McIlwraith, Hamilton, Ontario, Canada, sent 4 specimens representing 4 species of birds from British Columbia. Birds' skins were sent in exchange for this collection.

Fishes.—From the Australian Museum, through Prof. Edward P. Ramsay, curator, was received a collection of Percoid fishes, in exchange for a collection of fishes and a skull of the Great Auk. A collection of fishes, together with a skin of *Antilocopra americana* and a skull of American bison, will also be sent in exchange.

Insects.—From Prof. Targioni Tozzetti, were received 31 specimens of European *Microlepidoptera*, representing 8 species. In exchange for this collection, 29 specimens of European Orthoptera, representing 8 species, were sent.

Vicomte R. Du Brysson, France, sent 77 specimens, representing 26 species of *Chrysididae*, well mounted and named. An equivalent in material desired has been sent.

Prof. R. Gestro, Genoa, Italy, sent 14 species of blind Coleoptera, from the Mediterranean countries, in return for which entomological material has been transmitted.

From J. H. Brady, Department of Public Education, Cape Town, Africa, through Mr. William Harvey Brown, a collection of Coleoptera from South Africa was received, for which 295 specimens, representing 87 species, of dried insects, were sent in exchange.

Marine invertebrates.—Duplicate specimens of 8 rare species of Echini were sent to the Rev. A. M. Norman, England, as a partial equivalent for the valuable collections which have been received from him at various times.

Invertebrate fossils (Paleozoic).—From the British Museum, London, England, have been received in exchange for Lower Cambrian fossils,

57 specimens of Cambrian, Lower Silurian, and Upper Silurian fossils. These specimens represent 25 genera and 35 species.

Botany.—Dr. I. Hagen, of Trondhjem, Norway, sent in exchange a fine collection of Norwegian mosses, representing 320 species. A partial equivalent for this collection has been already transmitted, and a further sending will be made before long.

Minerals.—From the Royal Museum, Stockholm, Sweden, were received specimens of minerals from Sweden, Norway, Finland, and Greenland. This collection was sent in exchange for a collection of minerals which had been previously transmitted.

The Museum of Natural History, Paris, France, has sent in exchange for minerals received, a meteoric stone from Aumale, Algeria, and two meteorites.

From the Australian Museum, Sydney, New South Wales, through the U. S. Geological Survey, were sent in exchange 32 specimens of Australian minerals and rocks.

The British Museum, London, England, sent 3 casts of meteors and a specimen of orpiment, also 86 specimens of minerals. Three boxes of minerals were sent in exchange for this collection.

PUBLICATIONS.

In the report for 1889 (pp. 54–65) the history and condition of the publications of the National Museum are fully discussed. The increase in the publication fund, which would have made possible a more generous distribution of the volumes of "Proceedings" and the "Bulletin," has not been allowed by Congress.

To meet the numerous applications for the volumes of these publications, the following circular was printed:

CIRCULAR RELATING TO THE PUBLICATIONS OF THE UNITED STATES NATIONAL MUSEUM.

The Smithsonian Institution will probably find it necessary to discontinue the republication of the Proceedings and Bulletins of the National Museum for distribution to libraries, the cost being found too heavy a burden upon its limited publication fund.

Congress has been asked to increase the annual appropriation for the Museum publications, in order that every important library and institution of learning may be supplied with a full series of those hereafter to be issued. Should Congressional action be favorable, a request will be made for the republication of the back volumes for the use of the same libraries and institutions.

In the meantime the publications of the years 1883 and 1889 will be sent to a limited list of libraries, chiefly scientific, in the United States and abroad.

Bulletins No. 17 to No. 32, and Proceedings, Vols. v to xi, inclusive, can not be supplied at present. Bulletins No. 1 to No. 16, and Proceedings, Vols. i to iv, are included in the Smithsonian series of Miscellaneous Collections.

The number of copies of the earlier publications, printed under the authority of the Interior Department, was very small, and a few copies placed at the disposal of the National Museum were used for distribution to scientific societies and museums, and to individual specialists and in exchange for collections.

The applications for the Museum publications are now so numerous as to render it impossible to continue the sending out of full volumes of the Proceedings or complete series of the Bulletins to individuals.

So far as possible, each scientific correspondent of the Smithsonian Institution and National Museum will be supplied with publications essential for his use in the field of investigation in which he is individually engaged.

S. P. LANGLEY,
Secretary.

SMITHSONIAN INSTITUTION, *Washington, D. C.*

The custom of printing the Proceedings signature by signature, which was maintained during the publication of the first eleven volumes, has now been discontinued, for reasons given on page 58 of the last report. Commencing with Vol. XII, a limited number of copies of each paper is printed in advance of the bound volume, for distribution to specialists. These are distributed as soon as received from the Government Printing Office. The bound volumes are now reserved for public libraries and other educational establishments, whose publications the Museum receives in exchange.

Reports of the National Museum.—During the year the reports of the Museum (constituting Part II of the Smithsonian Report) for 1886 and 1887 have been published. The report for 1888 has been put in type, and the manuscript prepared for the report for 1889.

The report for 1886 was issued in October, 1889, and contains xi+842 pages. The volume contains the following special papers relating to and illustrative of collections in the Museum:

The Meteorite Collection in the National Museum: A Catalogue of Meteorites represented November 1, 1886. By F. W. Clarke.

The Gem Collection. By George F. Kunz.

The Collection of Building and Ornamental Stones: A Handbook and Catalogue. By George P. Merrill.

The Collection of Textiles: list of Fibers and Fabrics. By Romyn Hitchcock.

Instructions for Preparing Microscopical Mounts of Vegetable Textile Fibers. By Romyn Hitchcock.

Instructions for Collecting Skins of Mammals, for Study or Mounting. By William T. Hornaday.

The report for 1887 was issued in December, 1889, and contains xviii+771 pages. The special papers based upon collections in the Museum and published in the report are:

Cradles of the American Aborigines. By Otis T. Mason.

Notes on the Artificial Deformation of Children among Savage and Civilized Peoples. (With a biography.) By Dr. J. H. Porter.

The Human Beast of Burden. By Otis T. Mason.

Ethno-Conchology: A Study of Primitive Money. By Robert E. C. Stearns.

A Preliminary Catalogue of the Eskimo Collection in the U. S. National Museum, arranged geographically and by uses. By Lieut. T. Dix Bolles, U. S. Navy.

The Extirpation of the American Bison. With a Sketch of its Discovery and Life History. By William T. Hornaday.

The Preservation of Museum Specimens from Insects and the effects of Dampness. By Walter Hough.

Proceedings of the U. S. National Museum.—The extension of the scope of the National Museum during the past few years, and the activity of the collectors employed in its interest, have caused a great increase in the amount of material in its possession. Many of the objects gathered are of a novel and important character, and serve to throw a new light upon the study of nature and of man. The importance to science of prompt publication of descriptions of this material led to the establishment of the present series of publication, in 1878, entitled “*Proceedings of the United States National Museum.*” The papers in the *Proceedings* consist chiefly of papers prepared by the scientific corps of the National Museum, and of papers by other investigators, founded upon the collections in the National Museum.

Volume XI, for 1888, was issued in October, 1889. It contains 714 pages, 60 plates, and 122 text figures. The volume contains 85 papers by 43 authors, 19 of whom are connected with the National Museum. The papers relate to the following subjects :

Subject.	No. of papers.	Subject.	No. of papers.
Birds	14	Mammals	9
Chemistry	2	Mineralogy	1
Ethnology	11	Mollusks	4
Fishes	20	Osteology	3
Fossil animals	1	Recent plants	3
Fossil plants	6	Reptiles	4
Geology	3	Total	85
Insects	4		

Nineteen signatures (304 pages) of volume XI had been published before the beginning of the fiscal year covered by this report. The remainder were published on the following dates :

Nos. 20–27, on July 5, 1889.

Nos. 28–33, on September 3, 1889.

Nos. 34–35, on September 20, 1889.

Nos. 36–41, on September 25, 1889.

No. 42, on September 27, 1889.

Commencing with volume XII, the method of publishing the separate papers was changed, for reasons already explained. The bound volume has not yet been received from the Public Printer. A list of the titles of the separate papers with the names of the authors, is here given :

No. 761. A Review of the Genus *Xiphocolaptes* of Lesson. By Robert Ridgway. Pp. 1–20.

No. 762. A Review of the Genus *Sclerurus* of Swainson. By Robert Ridgway. Pp. 21–31.

No. 763. Descriptive Notes of New Genera and species from the Lower Cambrian or Olenellus Zone of North America. By Charles D. Walcott. Pp. 33–46.

No. 764. New North American Acrididae found North of the Mexican Boundary. By Lawrence Bruner. Pp. 47–82.

- No. 765. Contribution to the History of Pallas' Cormorant. By Leonhard Stejneger. Pp. 83-94.
- No. 766. Description of Two New Species of Snakes from California. By Leonhard Stejneger. Pp. 95-99.
- No. 767. Scientific Results of Explorations by the U. S. Fish Commission Steamer *Albatross*. No. I. Birds collected on the Galapagos Islands in 1888. By Robert Ridgway. Pp. 101-128.
- No. 768. Scientific Results of Explorations by the U. S. Fish Commission Steamer *Albatross*. No. II. Birds collected on the Island of Santa Lucia, West Indies, Abrolhos Islands, Brazil, and at the Straits of Magellan in 1887-'88. By Robert Ridgway. Pp. 129-139.
- No. 769. Scientific Results of Explorations by the U. S. Fish Commission Steamer *Albatross*. No. III. Report on the Batrachians and Reptiles collected in 1887-'88. By E. D. Cope. Pp. 141-147.
- No. 770. Scientific Results of Explorations by the U. S. Fish Commission Steamer *Albatross*. No. IV. Description of New Species of Fishes collected at the Galapagos Islands and along the Coast of the United States of Colombia, 1887-'88. By David Starr Jordan and Charles Harvey Bollman. Pp. 149-183.
- No. 771. Scientific Results of Explorations by the U. S. Fish Commission Steamer *Albatross*. No. V. Annotated Catalogue of the Insects collected in 1887-'88. By L. O. Howard. Pp. 185-216.
- No. 772. Scientific Results of Explorations by the U. S. Fish Commission Steamer *Albatross*. No. VI. List of the Plants collected in Alaska in 1888. By Dr. George Vasey. Pp. 217-218.
- No. 773. Scientific Results of Explorations by the U. S. Fish Commission Steamer *Albatross*. No. VII. Preliminary Report on the Collection of Mollusca and Brachiopoda obtained in 1887-'88. By William Healey Dall. Pp. 219-362.
- No. 774. Notes on the Occurrence of *Gillichthys Y-Cauda* at San Diego, California. By Charles H. Gilbert. P. 263.
- No. 775. Description of a New Genus and Species of Inarticulate Brachiopod from the Trenton Limestone. By Charles D. Walcott. Pp. 365-366.
- Nos. 776, 777. I. The Archaeology of the Potomac Tide-water Region. By Otis T. Mason. II. The Palaeolithic Period in the District of Columbia. By Thomas Wilson. Pp. 367-376.
- No. 778. Notes on a Third Collection of Birds made in Kanai, Hawaiian Islands, by Valdemar Knudsen. By Leonhard Stejneger. Pp. 377-386.
- No. 779. Descriptions of New Ichneumonidae in the Collection of the U. S. National Museum. By William H. Ashmead. Pp. 387-451.
- No. 780. Description of the Yellow-Finned Trout of Twin Lakes, Colorado. By David Starr Jordan and Barton Warren Evermann. P. 453.
- No. 781. Contribution toward a Monograph of the Noctuidae of Temperate North America. Revision of some Taniocampid Genera. By John B. Smith. Pp. 455-496.
- No. 782. Catalogue of the Described Araneae of Temperate North America. By Dr. George Marx. Pp. 497-594.
- No. 783. Notes on the Serpentine Rocks of Essex County, New York; from Aqueduct Shaft 26, New York City; and from near Easton, Pennsylvania. By George P. Merrill. Pp. 595-600.
- No. 784. A Revision of the Genus *Aranearioxylon* of Kraus, with Compiled Descriptions and Partial Synonymy of the Species. By F. H. Knowlton. Pp. 601-617.
- No. 785. Notes on North American Crayfishes, Family Astacidae. By Walter Faxon. Pp. 619-634.
- No. 786. Descriptions of Two New Species of Bats, *Nyctinomus europis* and *N. orthotis*. By Harrison Allen. Pp. 635-640.

- No. 787. Scientific Results of Explorations by the U. S. Fish Commission Steamer *Albatross*. No. VIII. Description of a New Cottoid Fish from British Columbia. By Tarleton H. Bean. Pp. 641-642.
- No. 788. Description of a New Lizard from Lower California. By Leonhard Stejneger. Pp. 643-644.
- No. 789. Scientific Results of Explorations by the U. S. Fish Commission Steamer *Albatross*. No. IX. Catalogue of Fishes collected at Port Castries, St. Lucia, by the Steamer *Albatross*, November, 1888. By David Starr Jordan. Pp. 645-652.

These papers were published on the following dates :

- Nos. 761-772 on February 5, 1890.
 No. 773 on March 7, 1890.
 No. 774 on March 4, 1890.
 No. 775* on March 4, 1890.
 Nos. 776-777 on March 7, 1890.
 No. 778 on March 8, 1890.
 No. 779 on April 21, 1890.
 No. 780† on April 21, 1890.
 No. 781 on April 19, 1890.
 Nos. 782-786 on May 22, 1890.
 Nos. 787‡-788 on July 3, 1890.
 No. 789 on July 17, 1890.

Bulletin of the U. S. National Museum.—The Bulletin of the National Museum, the publication of which was commenced in 1875, consists of elaborate papers, frequently monographs of groups of animals, which for special reasons it is considered more desirable to publish separately than as papers in the "Proceedings."

Five bulletins have been published during the year, aggregating 1,321 octavo pages of text, with 120 figures in the text and 240 plates of illustrations.

Bulletin 34; *The Batrachia of North America*, by E. D. Cope, was issued July 6, 1889. It contains 525 pages of text, with 120 text-figures and 81 plates. This work is the result of an exhaustive study of the characters of the species of Batrachians of North America, with their variations, and has been rendered effective by the very full collections in the National Museum. A thorough discussion of the osteology of the class is presented, based on material contained in various museums in the United States and Europe. These results are expressed largely in systematic form, in the belief, as the author says, that descriptive zoölogy will never be complete until the structure is exhausted in furnishing definitions. Wherever practicable, reference is made to the relations between the extinct and living forms. Many of the manuscript descriptions used by Professor Cope in the preparation of this bulletin were written by Professor Baird and Dr. Girard many years ago, with such a publication as the present one in view. Some of the illustrations were drawn by Professor Baird.

* Advance sheets issued December 10, 1889.

† Advance sheets issued January 20, 1890.

‡ Advance sheets of No. 787 issued March 4, 1890

Bulletin 35; *Bibliographical Catalogue of the Described Transformations of North American Lepidoptera*, by Henry Edwards, was issued August 15, 1889, and contains 147 pages. This is an important work of reference for entomologists. The author's intention is to issue a yearly supplement to this list, keeping pace with the progress of current work. The references are in chronological order under each species.

Bulletin 36; *Contributions to the Natural History of the Cetaceans, a Review of the Family Delphinidæ*, by Frederick W. True, was issued August 8, 1889, and contains 191 pages and 47 plates. It was prepared after careful research in the principal museums of Europe where the types of Gray, Cuvier, Gervais, Schlegel, and other English, French, and Dutch naturalists were examined and measured. Some of the greatest hindrances to the study of the dolphins are the scarcity of material, the ignorance of the limits of specific variation, and the incompleteness of the descriptions of the species of Cetaceans.

Bulletin 37; *A Preliminary Catalogue of the Shell bearing Marine Mollusks and Brachiopods of the Southeastern Coast of the United States, with illustrations of many of the species*, by William Healey Dall, A. M., was issued September 12, 1889, and contains 221 pages, with 64 plates. This bulletin is intended to assist students of the Mollusca of the United States, by bringing together for their use a large number of illustrations of species belonging to the fauna of the southern and southeastern coasts of the United States, and the adjacent waters. Hitherto there has been no catalogue which covered the ground. The author has attempted to steer a middle course between overdivision of large natural groups and the conservatism which confounds unlike things together. In including or omitting groups of mollusks from this catalogue, he has been guided by convenience, rather than by systematic completeness.

Bulletin 38; *Contribution toward a Monograph of the Insects of the Lepidopterous Family Noctuidæ of Temperate North America*.—Revision of the Genus *Agrotis*, by John B. Smith, contains 237 pages. This was put in type during the year covered by this report, although it was not published until after the close of the fiscal year. This bulletin is the result of a study of the principal collections in the United States. Efforts have hitherto been made to divide this genus, and there exists an abundance of generic names and types, but the true characters have apparently not been recognized, and species have been erroneously associated, so that the result has been that sooner or later the proposed terms have gone into the synonymy, thus increasing the present confusion. The author has endeavored to use, as far as possible, existing generic terms in his division of the genus.

The manuscript and drawings of a bulletin relating to deep-sea fishes of the western Atlantic Ocean were transmitted to the Public Printer during the year, and the engraving of the illustrations was completed,

but the text has not yet been printed. This Bulletin is by Dr. G. Brown Goode and Dr. T. H. Bean.

In a subsequent section of this report will be found a statement of the publications of the Museum during the year, and a bibliography of papers by officers of the Museum, and other investigators whose writings are based upon Museum material. The authors of these papers number 103, of whom 31 are connected with the Museum, 8 being honorary officers. The papers number 448, and are distributed under the following subjects:

Subjects.	By Museum officers.	By other investigators.	Total.
Bibliography and biology	6	2	8
Birds and birds' eggs.....	27	29	56
Chemistry.....	18	1	19
Ethnology.....	32	8	40
Fishes.....	37	30	67
Foods and textiles.....	2		2
Geology.....	30	4	34
Insects.....	48	23	71
Mammals.....	8	16	24
Marine invertebrates.....	5	2	7
Mollusks.....	19	4	23
Morphology.....		4	4
Photography.....	3		3
Recent and fossil plants.....	29	8	37
Reptiles and batrachians.....	5	4	9
Miscellaneous.....	42	2	44
Total.....	311	137	448

VISITORS.

During the year the total number of visitors to the Museum building has been 274,324, and to the Smithsonian building 120,894. The greatest number of visitors in the buildings in any one day was on October 9, 1889, during the Knights' Templar Conclave, when 10,203 were registered in the Museum and 7,229 in the Smithsonian building.

The monthly register as kept by the doorkeepers is here recorded :

Year and month.	National Museum building	Smithsonian building.
1888.		
July	13, 933	5, 485
August	18, 573	8, 733
September	23, 701	11, 274
October	46, 648	25, 172
November	19, 750	6, 999
December	22, 052	8, 775
1890.		
January	18, 382	7, 541
February	23, 813	9, 105
March	23, 718	9, 699
April	27, 161	11, 612
May	21, 832	9, 283
June	14, 761	7, 216
Total	274, 324	120, 894
Approximate daily average on a basis of 313 days in the year.....	876	322

Table showing the number of visitors to the Museum and Smithsonian buildings since the opening of the former in 1881.

Year.	Museum building.	Smithsonian building.	Total number of visitors to both buildings.
1881.....	150, 000		150, 000
1882.....	167, 455	152, 744	320, 199
1883.....	202, 188	104, 823	307, 011
1884.....	195, 322	91, 130	286, 452
1885 (January-June).....	107, 365	60, 428	167, 793
1885-'86.....	174, 225	88, 960	263, 185
1886-'87.....	216, 562	98, 552	315, 114
1887-'88.....	249, 665	102, 863	352, 528
1888-'89.....	374, 843	149, 618	524, 461
1889-'90.....	274, 324	120, 894	395, 218
Total	2, 111, 949	970, 012	3, 081, 961

The Bureau of Information seems to be regarded more and more as a convenience to strangers, who are constantly applying for information and advice, not only in regard to the Museum, but as to other public buildings and the Government departments in general. This bureau has made over 30,000 connections by telephone during the year.

LECTURES AND MEETINGS OF SOCIETIES.

In accordance with the custom of previous years, the use of the lecture hall of the National Museum has been granted for lectures and for the meetings of scientific societies.

A statement of the meetings held is here given :

The Association of American Agricultural Colleges and Experiment Stations : November 12 to 15 inclusive. Night sessions were also held on November 13 and 14.

The American Historical Association : December 28 to 31, inclusive.

The American Institute of Mining Engineers : Evening of February 18.

Memorial Meeting of the Academy of Sciences : March 27.

The Geological Society of America : April 17.

The National Academy of Sciences : April 15, 16, 17, and 18.

The National Geographic Society : Evening of May 2. The Museum lantern was used on this occasion.

Permission was granted verbally to Prof. J. J. Newberry, of the School of Mines, Columbia College, New York, for the meeting of the Committee on Arrangements of the Geological Congress, on April 18.

Permission was granted to the National Geographic Society, through its vice president, Everett Hayden, to use the lecture hall of the Museum for an illustrated lecture by Ensign J. B. Bernadou, U. S. Navy, on the evening of April 11.

The course of Saturday lectures for 1890 consisted of two series, the programme of each being as follows :

FIRST SERIES.

February 1.—Prof. JOHN M. COULTER : The Physical Basis of Life.

February 8.—Prof. W. O. ATWATER : Food and Health.

February 15.—Prof. HENRY C. ADAMS : An Interpretation of the Social Movement of Our Times.

February 22.—Capt. C. E. DUTTON : The Future of the Far West.

February 27.—Prof. H. CARRINGTON BOLTON : Four Weeks in the Wilderness of Sinai.

SECOND SERIES.

March 8.—Prof. C. R. VAN HISE : Deposits of Iron Ore in Northwestern States.

March 13.—Hon. W. T. HARRIS : A Study of Two Pictures of Raphael and One of Holbein.

March 20.—Dr. TARLETON H. BEAN : The Salmon of Alaska.

March 29.—Prof. T. C. MENDENHALL : Chance and the Long Run.

April 3.—Mr. EDWARD BURGESS : Yachts and Yachting.

This course was delivered under the direction of the Joint Committee of the scientific societies of Washington.

Table showing the number and dates of Saturday lectures since 1882.

Year.	Date of first and last lecture.	No. of lectures.
1882.....	March 11, April 29	8
1883.....	January 13, March 31	12
1884.....	January 5, April 26	17
1885.....	February 7, May 2.....	12
1886.....	March 6, May 8.....	10
1887.....	March 12, May 7	12
1888.....	February 18, May 5.....	12
1889.....	March 9, May 11.....	19
1890.....	February 1, April 3.....	10
Total.....	103

A course of four lectures on the anthropological exhibits at the Paris Exposition of 1889, was given by Mr. Thomas Wilson. The subjects of his lectures were:

Tuesday, May 13.—Prehistoric Anthropology.

Friday, May 16.—Ancient Industries, Charms and Amulets.

Wednesday, May 21.—History of Human Habitations.

Friday, May 23.—Anthropological Congresses and Prehistoric Museums.

The meetings of the Biological Society of Washington have been held during the past year at the assembly hall of the Cosmos Club, this location being found more convenient than the National Museum.

The use of the Museum lantern has been granted on several occasions for the purpose of illustrating lectures, both in the Museum building and elsewhere. This was done without charge, excepting for the actual cost of the gas. The services of an assistant were also given by the Museum free of charge.

STUDENTS.

Previous to the organization of the staff of curators in the National Museum, it was customary to send collections to all parts of the United States, and, in some instances, to foreign countries, to be worked up by specialists. This system was then necessary, owing to the fact that there were few specialists in Washington. During the last ten years the policy of the Museum in this respect has been modified, owing to the presence in the Museum of a trained staff among whom the collections are now usually assigned for study.

Requests are occasionally made by students for material to be used for comparison in connection with their special studies, and such requests are always granted when it can be done without detriment to the Museum.

During the year several lots of birds' skins have been lent to Dr. J. A. Allen, of the American Museum of Natural History. The Museum collection of bats has been placed at the disposal of Dr. Harrison Allen, of Philadelphia, who is engaged in the preparation of a new edition of his monograph of the bats of North America. At the request of Mr. Ernest E. Thompson, of Toronto, Canada, skins of birds and skins and skulls of rodents have been sent to him for study. Dr. C. Hart Merriam, of the Department of Agriculture, has made extensive use of the reserve series of North American mammals. Dr. E. A. Mearns, of Fort Snelling, Minnesota, has examined the collection of prairie dogs. Dr. D. W. Prentiss, of Washington, has had occasion to make a study of the ermine skins in the collection. Specimens of *Doras dentatus* and *Clarias nieuhofii* were lent for study to Mr. Bashford Dean, of the College of the City of New York. A number of Coleoptera were sent to Capt. T. L. Casey for study. The Museum collection of Crustacea from the Bahamas was sent to Prof. C. S. Dolley, of the University of Pennsylvania, for study. Twelve specimens of the ocean-bottom, collected

by the U. S. Fish Commission steamer *Albatross* and the U. S. S. *Dolphin*, were sent to Rev. Albert Mann, jr., of Newark, New Jersey, for study.

Dr. G. Baur, of Clarke University, studied the collection of North American Chelonians in the Museum. Mr. James E. Benedict has begun the study of the collection of *Brachyura* from the North Pacific Ocean. Dr. R. W. Shufeldt was granted permission to study birds' skeletons. The Department of Birds has granted free access to its collections to many authors, whose works are referred to in the Bibliography (section IV).

Mr. A. B. Farnham, of Benning's, District of Columbia, is acting as a volunteer assistant in the department of taxidermy, and Mr. Leigh W. Reed has been doing similar work in the Department of Geology.

Mr. John B. Daish has received instruction in photography and taxidermy.

FINANCE, PROPERTY, SUPPLIES, AND ACCOUNTS.

The statements relating to these branches of the administrative work have been prepared by Mr. W. V. Cox, chief clerk.

The appropriations received by the Museum for the fiscal year ending June 30, 1890, are as follows: For preservation of collections, \$140,000; for furniture and fixtures, \$30,000; for heating and lighting, \$12,000.

PRESERVATION OF COLLECTIONS.

Appropriation by Congress for the fiscal year ending June 30, 1890, for the preservation, exhibition, and increase of the collections from the surveying and exploring expeditions of the Government, and from other sources, including salaries or compensation of all necessary employes, \$140,000 (sundry civil act, March 2, 1859, public No. 154, page 16).

Out of this appropriation \$118,378.99 has been expended for salaries or compensation; \$4,952.67 for supplies; \$2,307.60 for stationery; \$5,141.48 for specimens; \$1,307.61 for books and periodicals; \$1,645.97 for travel; and \$2,416.92 for freight and cartage, making a total expenditure of \$136,151.24 and leaving a balance of \$3,848.76 on hand July 1 to meet outstanding liabilities.

Following is a detailed statement of the salaries or compensation paid from the appropriation for preservation of collections during the present year.

The scientific staff consists of the Assistant Secretary, Smithsonian, in charge U. S. National Museum, at a monthly salary of \$333.33; three curators at \$200 each, three at \$175, two at \$150, one at \$125, and one at \$100; one acting curator at \$150, two assistant curators at \$133.33 each, one at \$125, and two at \$100; one agent at \$100, one collector and two aids at \$80 each, two aids at \$75 each, one at \$65, one at \$60,

two at \$55, and one at \$50, making a total paid to the scientific staff of \$31,512.93.

The clerical staff is as follows: the chief clerk at a monthly salary of \$175, chief of Correspondence and Reports at \$158.33, the registrar at \$158.33, disbursing clerk at \$100, one draftsman at \$83.33, one assistant draftsman at \$40, one clerk at \$125, two at \$115, two at \$100, two at \$90, one at \$83.33, two at \$75, two at \$70, four at \$60, three at \$55, and four at \$50; there are also one stenographer at \$100, one typewriter at \$50, one copyist at \$55, four at \$50, one at \$45, seven at \$40, three at \$35, and two at \$30, making a total paid to the clerical staff of \$34,514.29.

The following preparators were employed this year: One colorist at \$110, one photographer at \$158.33, one taxidermist at \$125, one at \$115, one at \$80, four assistant taxidermists at \$60 each, one preparator at \$100, two at \$80, one at \$75, one at \$60, and one at \$4 per day, making the total paid to this branch of the service \$14,367.96.

In the Department of Buildings and Labor one superintendent was employed at a salary of \$137.50; one assistant superintendent at \$90; one watchman at \$65, two at \$60, twelve at \$50, and three at \$45 each; one skilled laborer at \$70, two at \$50 each, and one at \$2 per day; three laborers at \$45, four at \$40, and thirteen at \$1.50 per day; two attendants at \$40, and five cleaners at \$30 each; two messengers at \$45, four at \$25, two at \$20, and one at \$1.25 per day, making a total of \$29,690.71.

All of these persons were employed by the month or day, and several for part of the year only.

The following amounts have been expended from this appropriation for temporary help during the year: On the scientific staff, \$225.81; on the clerical staff, \$658.96; for preparators, \$354.45; and for laborers, \$1,717 24—a total of \$2,956.46.

In addition to the foregoing amounts, \$1,336.68 has been expended for special contract work, making a total of \$118,378.99 paid out during the year for salaries and compensation on account of preservation of collections.

FURNITURE AND FIXTURES.

Appropriation by Congress for the fiscal year ending June 30, 1890, for cases, furniture, fixtures, and appliances required for the exhibition and safe keeping of the collections of the National Museum, including salaries or compensation of all necessary employes, \$30,000. (Sundry civil act, March 2, 1889. Public, No. 154, p. 16).

Out of this appropriation \$15,926.21 has been expended for services. Following is a detailed statement of the salaries or compensation paid during the year:

One engineer of property was employed at a salary of \$150 per month; one clerk at \$75, and one copyist at \$55; one foreman of carpenters at

\$91 per month; one cabinet-maker and six carpenters at \$3 per day each; one painter at \$65 per month, and one at \$2 per day; three laborers at \$50, and two at \$45 per month; two at \$2 per day, and two at \$1.50; making an expenditure of \$14,125.14 for salaries and wages.

The following extra temporary help has been employed during the year: One clerk at \$50 per month; four carpenters at \$3 per day; one laborer at \$2, and six at \$1.50 per day; one laborer and two cleaners at \$30 per month each, making an expenditure of \$1,803.07 for extra employés, and a total of \$15,926.21 for services.

\$4,423.77 has been expended from this appropriation for exhibition cases, with designs and drawings for the same, as given in detailed list below:

1 mahogany case for moose group, special form	\$662.75
1 mahogany case for musk-ox group, special form	490.00
1 mahogany case for antelope group, special form	316.00
1 mahogany case for Viking ship, special form	103.00
1 ebonized pedestal and glass case for Bryant vase, special form	395.00
1 walnut case for humming birds, special form	16.82
5 double-width, upright, mahogany table cases	478.50
5 double-width, upright, mahogany table cases	451.00
8 pairs mahogany bases	720.00
8 mahogany top cases	280.00
1 pair mahogany bases for Liverpool case	170.00
1 mahogany top and set of carved panels for Liverpool case	54.00
1 flat-top mahogany table case	47.00
7 slide-screen cases, altered	182.70
Designs and drawings for cases	57.00
Drawers, trays, boxes, etc	931.48
Frames, stands, miscellaneous wood work	158.84
Office furniture, chairs for exhibition halls, etc	656.19
Lumber	1,276.88
Apparatus, containers for alcoholic specimens, supplies, etc., have been bought as follows:	
Apparatus	605.50
Glass jars, containers for specimens, etc	395.45
Hardware and interior fittings for cases	1,291.07
Cloth, cotton, etc. (linings for cases)	85.97
Iron brackets and racks	130.00
Tools	107.37
Glass	1,875.38
Paints, oils, brushes	681.68
Tin, lead, etc	90.98
Brick and plaster work	98.00
Rubber-tubing, hose, etc	40.87
Traveling expenses	31.95

List of cases built or remodeled during the year by carpenters employed on the Museum force.

CASES CONSTRUCTED.

3 bookcases, 2 sections each, for library.
 2 bookcases, 1 section each, for library.
 8 pine unit storage cases, south tower.
 1 special mahogany case, for foraminifera.
 1 sliding table case.
 1 pine sample case for unit boxes.
 3 card catalogue cases.
 1 special case around stone slab.

CASES RECONSTRUCTED OR REMODELED.

23 special cases in bird hall, remodeled and extended.
 17 cases rendered insect-proof by lining them with metal and fitting doors with rubber tubing.
 1 large cherry case reconstructed, made into 3 cases.
 2 mahogany floor cases remodeled.
 1 mahogany one-half unit case remodeled.
 1 mahogany pier case reconstructed.
 18 Liverpool cases, remodeled and completed.
 3 sloping cases furnished with panels.

Although the work and purchases on account of furniture and fixtures have been somewhat restricted this year by the lessened appropriation, the plans and methods heretofore adopted have been carried out as far as possible.

Considerable exterior work has been done. Frequent repairs have been required in the roofs of both buildings; the north front of the natural-history laboratory has been reconstructed; flagging has been laid from the main pavement to the door of the animal house, and the window ledges of nearly the entire museum have been tinned.

In the interior many repairs and changes have been found necessary to the building itself, as well as to the cases and other furniture.

The hall, northwest pavilion, has been wainscoted in oak, and a second much-needed staircase has been built; self-closing, sound-deadening doors, which divide this hall from the lecture room, have been made and put in place; raised floors have been constructed in the office of the engineer of property, and in the stationery room, and the wooden flooring throughout the building has been frequently patched.

Several standard, special and sample cases have been built and many more remodeled and extended. The floor of the large special case for the Moose group has been reconstructed; many cases have been repaired, fitted with panels, shelving, racks, brackets, etc., relined, ebonized, polished, glazed, furnished with doors and locks, and otherwise completed.

More than 130 mahogany, oak, and pine frames have been made, some of them of great size, like the frame for the allegorical tile-panel of "Progress" now placed over the north entrance.

Several bases and pedestals, and nearly 5,000 blocks for the display of specimens have been made and completed; screens have been constructed, and more than 900 trays, and many shelves and diaphragms have been made and fitted; several tables have been built, and over 70 wing-frames have been repaired, rehinged, and rehung.

Several pairs of mahogany doors have been made for cases, and the time of the carpenters has been taken up to a considerable extent in refitting the doors of other cases; they have also been required to make a large number of boxes for the storage of specimens, and for the shipment of those designed for exchanges. In fact the general miscellaneous work demanded of them throughout the year has been so extensive as to consume much time, and required a great deal of labor.

Considerable metal work of various kinds has been done; cases have been made insect proof by being lined with metal, and metal partitions have been made for file-holders; about 40 copper and tin tanks for alcoholic specimens have been made, and more than that number completed, besides many cans for collecting purposes; nearly 1,500 brass and tin label-holders have been made.

In addition to the locksmith's work required on new and reconstructed cases, the combination locks, suited to the symbol of each department, have been changed on many of the unit tables in the Museum. This work has been done in great part by a fireman skilled in such matters, at periods when he could be spared from his regular duties in the engine and boiler-rooms.

HEATING, LIGHTING, ELECTRIC AND TELEPHONIC SERVICE.

Appropriation by Congress for the fiscal year ending June 30, 1890, for expenses of heating and lighting and electrical and telephonic service for the National Museum, \$12,000. (Sundry civil act, March 2, 1889, Public No. 154, p. 16.)

Out of this appropriation \$5,114.87 has been expended for salaries or compensation; \$2,058.26 for fuel; \$1,113.82 for gas; \$601.05 for telephones; \$264.49 for electrical work and supplies; \$100 for rental of call-boxes; \$269.25 for heating repairs; \$147.86 for heating and lighting supplies; and \$3.25 for travel, making a total of expenditures to July 1, 1890, of \$9,672.85, and leaving a balance of \$2,327.15 to meet outstanding liabilities.

Following is an analysis of salaries or compensation paid from the appropriation for heating and lighting during this year:

One engineer was employed, for part of the year only, at a salary of \$120 a month;* five firemen at \$50 each, and one at \$40 a month; one telephone clerk at \$60, and one at \$35 a month; \$137.74 has been expended for extra labor, making the total expenditure for services in this department \$5,114.87.

During the winter the engineer reported some of the boilers as being in a very bad condition, the tubes which have been in use many years being so warped, burnt, and corroded as to be liable to give out at any time; he also named 6 pounds as the limit of steam pressure safe under the circumstances, and suggested that the fires be kept up night and

* The death of Mr. A. A. Duly, for ten years engineer, occurred in March.

day, as the only method by which the necessary temperature could be maintained. This suggestion was accordingly carried out. It will, however, undoubtedly be necessary to take some action in regard to heating repairs and changes in the near future.

In several instances it has been found advisable to change the positions of the radiators, and to make new connections. This work, and all repairs to machinery, gas-fitting, plumbing, and the needed blacksmith's work, have been accomplished by men employed on the regular Museum force.

In prosecuting the general routine of Museum work, bids have been advertised for and proposals invited, as in past years, but the list of articles to be purchased has been shortened considerably, it having been found that the requirements of the Museum are so varied that, excepting for articles of general use, it is impossible to anticipate the wants for the entire year.

As a result of the growth and needs of the Museum, it has been found advisable, from time to time, to reconstruct many cases of the types purchased in earlier years, and to make an inventory of cases and furniture in the Museum, based upon new standards and nomenclature. This work, as mentioned in a former report, was begun two years since, under the direction of Mr. J. E. Watkins, the engineer of property.

In making this inventory, every piece of furniture in the Museum has been inspected; the old numbers have been noted, and small brass plates with the new numbers stamped on them have been attached to more than 4,500 cases, bases, pedestals, stands, etc., and to the numerous articles of office furniture.

When an article is condemned, or, by being incorporated with another, loses its identity, the original number is noted in the office of the engineer of property, and such record made that the history of each article can be traced at any time without difficulty.

With a view to simplifying the method of keeping account of services, in January of this year a system of time-books was adopted, in which the record of attendance is kept by the head of each department for himself, and for all employés under his direction.

These books give the name and designation of each person, the rate of compensation, furnish an accurate record of attendance in each case, and state the cause of any absence, so far as necessary to decide whether such is to be counted against annual leave, excused on account of illness, or charged against the individual and deducted from the monthly compensation.

These time-books, after being certified to by the head of each department, are examined by the chief clerk of the Museum, and if found correct are signed by him and forwarded to the disbursing clerk, who uses them as a basis in preparing the pay-rolls.

This method not only simplifies the work in taking careful note of the attendance, but is found advantageous from the facility with which each individual record can be referred to.

ROUTINE.

In the office of the chief clerk 1,451 orders for supplies have been sent out during the year, over 1,000 letters have been written, 550 circular letters and 265 proposals for supplies have been sent out, and 1,051 vouchers have been passed upon and paid.

This work, which can be set down in numbers, is but a small part of the labor which devolves upon this office, and upon the prompt and accurate accomplishment of which the efficiency of the scientific branches of Museum work largely depends. The force, which consists of two clerks and one copyist, are so hard pressed that it has been this year, as usual, a question if all would be able to take more than a fraction of the annual leave which is accorded to employés in the Museum.

CORRESPONDENCE AND REPORTS.

In the report for 1889 the work of this department was referred to at some length in order to indicate, to those who might be interested, the methods of administration which had been adopted in it, and the scope of the work assigned to it. There has been no material change in either during the year.

Mr. R. I. Geare, chief of the division of correspondence and reports, has rendered important aid in this work. The clerical force of the office has been increased, and now consists of three stenographers, two typewriters, an index clerk, and a messenger.

During the year about 7,000 official papers have been prepared for the signature of the Secretary and the Assistant Secretary.

The following geographical statement of letters written in reply to requests for information upon various subjects, may be of interest as showing the amount of correspondence of this kind carried on in different parts of the United States and in other countries.

Locality.	No. of letters written.	Locality.	No. of letters written.
Alabama	27	Indiana.....	72
Arizona.....	41	Iowa.....	68
Arkansas.....	26	Kansas.....	51
California.....	64	Kentucky.....	34
Colorado.....	31	Louisiana.....	25
Connecticut.....	59	Maine.....	63
Dakota.....	11	Maryland.....	133
Delaware.....	5	Massachusetts.....	209
District of Columbia.....	1,478	Michigan.....	52
Florida.....	79	Minnesota.....	39
Georgia.....	12	Mississippi.....	16
Idaho.....	6	Missouri.....	45
Illinois.....	125	Montana.....	24
Indian Territory.....	7	Nebraska.....	24

Locality.	No. of letters written.	Locality.	No. of letters written.
Nevada	5	Canada	25
New Hampshire.....	19	Central America.....	3
New Jersey.....	89	Costa Rica.....	2
New Mexico.....	18	Cuba	3
New York.....	456	England	23
North Carolina	36	France	28
Ohio	119	Germany	20
Oklahoma	2	Greece	1
Oregon	18	Hungary.....	1
Pennsylvania	247	Iceland	4
Rhode Island	23	Italy.....	2
South Carolina.....	29	Japan.....	6
South Dakota.....	19	Mexico	12
Tennessee	76	New Brunswick	1
Texas.....	79	Nicaragua	2
Utah.....	6	Newfoundland.....	1
Vermont.....	19	New Zealand	1
Virginia	118	Nova Scotia	1
Washington	10	Prussia	2
West Virginia.....	19	Russia	9
Wisconsin	40	Scotland	9
Wyoming.....	8	South America.....	2
Africa	4	Sicily.....	1
Alaska	8	Turkey	1
Australia	5	West Indies	11
Bermuda	2		
British Columbia	4	Total	4,475

A special feature of the work of this department consists of the preparation of reports upon material submitted for examination, based upon the official reports of the curators acknowledgments of specimens received as gifts, loans, and deposits are prepared in this office.

During the year 314 lots of specimens (483-796 inclusive) for examination and report have been received. The following statement shows the geographical sources of this material:

Source.	Number of lot.	Total.
North America:		
British America	589, 715.....	2
Central America.....	699.....	1
Mexico	497, 498, 517, 519, 621, 696.....	6
United States:		
Alabama.....	518, 557, 643, 759, 787.....	5
Arizona.....	584, 631, 720, 743, 773.....	5
Arkansas.....	490, 604, 664, 780.....	4
California.....	491, 514, 559, 588, 603, 638, 655, 706, 746, 756, 786, 793, 796.....	13
Colorado.....	543, 593, 646, 657, 662, 682, 776.....	7
District of Columbia.....	485, 537, 724, 725, 739, 762, 763.....	7
Florida	525, 565, 572, 580, 585, 595, 605, 609, 650, 654, 668, 670, 687, 719, 729, 738, 741, 785, 791.....	19

Source.	Number of lot.	Total.
United States—Continued.		
Georgia.....	637, 765	2
Illinois	521, 531, 620, 686, 702, 721, 781, 795	8
Indiana	512, 633, 708	3
Indian Territory	511	1
Iowa	568, 701, 705, 764, 774, 790	6
Kansas	506, 583, 641, 700, 710, 732, 748, 770	8
Kentucky	538, 541, 549, 560	4
Louisiana	641, 656	2
Maine	576, 602, 642, 685, 777	5
Massachusetts	494, 500, 606, 660, 661, 695	6
Maryland	546, 561, 612, 680, 745, 753, 779	7
Minnesota	503, 624	2
Mississippi	704, 736	2
Missouri	513, 526, 533, 539, 540, 562, 582, 607, 684, 690, 691, 742	12
Montana	450, 477, 554, 596, 672, 692, 711, 733, 749, 775, 789	11
Nevada	486, 755	2
New Hampshire	532	1
New Jersey	579	1
New Mexico	698, 713	2
New York	486, 493, 502, 520, 522, 536, 550, 590, 597, 601, 628, 666, 674, 757, 794	15
North Carolina	488, 564, 570, 639, 703, 709, 736, 758, 761	9
North Dakota	771	1
Ohio	508, 647, 651, 718, 728	5
Oregon	545	1
Pennsylvania	542, 558, 567, 578, 581, 599, 618, 760, 778	9
South Carolina	499, 553, 587, 610, 673, 675, 736	7
South Dakota	510, 516, 707, 722, 730, 740, 772	7
Tennessee	489, 527, 563, 577, 613, 615, 617, 622, 623, 625, 630, 644, 652, 659, 665, 667, 669, 726, 734, 763	20
Texas	483, 492, 501, 518, 524, 530, 556, 653, 658, 694, 697	11
Utah	507, 528, 634, 679	4
Vermont	505, 509	2
Virginia	495, 523, 534, 535, 544, 571, 573, 574, 575, 592, 618, 619, 635, 677, 678, 679, 693, 712, 714, 716, 736, 737, 751, 754, 767, 769, 788	27
Washington	529, 552, 569, 594, 744, 747	6
West Virginia	487, 515, 547, 566, 626, 640, 683, 688, 750	9
Wisconsin	551, 555, 629, 632, 645, 663	6
Wyoming	484, 608	2
Europe:		
England	627	1
Spain	504	1
Sweden	621	1
Asia:		
Japan	676	1
Oceanica (Polynesia):		
Sandwich Islands	600, 723	2
Pacific Ocean:		
Easter Island	616	1
Locality not determined	591, 649	2

In March, 1890, the office was furnished with a graphophone, which has been found exceedingly useful.

PREPARATION OF LABELS.

Three thousand nine hundred and twenty forms of labels have been printed during the year, as shown in the following table:

Department.	No. of forms.	Department.	No. of forms.
Materia medica.....	1,309	Comparative anatomy.....	104
Geology.....	1,328	Graphic arts.....	79
Foods and textiles.....	542	Mammals.....	76
Ethnology.....	246	Total.....	3,920
Oriental antiquities.....	156		
Porcelain collection.....	120		

BUILDINGS AND LABOR—POLICE AND PUBLIC COMFORT.

The staff employed for police and protection has remained under the charge of Henry Horan, superintendent of buildings. It consists of watchmen, painters, carpenters, skilled laborers, laborers, cleaners, and attendants.

The number of watchmen is usually sixteen. They are divided into watches, by whom the Smithsonian and Museum buildings, and the collections stored and exhibited therein, are guarded day and night.

Eight or nine carpenters are generally employed, and are kept busy continually in constructing cases and shelves, making frames for labels, remodeling old forms of cases, putting locks on cases, making repairs in the buildings, etc.

The force of skilled laborers is, as a rule, nine or ten in number. Their time is occupied in painting blocks for the exhibition of specimens, painting trays, casing trays, fitting shelves, adjusting panes of glass in cases and windows, and assisting the carpenters and painters in many ways.

There are only two painters constantly on the Museum roll. These, with the assistance of some of the skilled laborers, perform all the work of this kind required in the Museum, including the repainting of walls and ceilings of rooms, staining pedestals for groups of specimens and cases, painting book-cases, shelving, blocks for exhibition purposes, etc.

The force of laborers consists of about twenty-four men. They are kept continually busy moving specimens, arranging cases, attending to the cleaning of offices, and washing the floors in the exhibition halls.

The number of cleaners and attendants averages about eight. They are constantly occupied in cleaning glass, dusting cases, of which there are now more than 1,700, and sweeping. They are also expected to answer, as far as practicable, the questions of visitors.

The telephonic and telegraphic service of the Museum is under the supervision of the superintendent of buildings.

From the reports of the superintendent are quoted the following statements, which will serve to show in part the character of the work accomplished by the laboring force during the year:

1889.

July.—The steam pipes under the south hall were covered with magnesia covering. A raised platform was put in the office of the engineer of property. One extra radiator was placed in the stationery room and also in the property clerk's office. A raised floor was added to the stationery room. The mechanics were engaged during the month in painting 572 blocks, easing 105 trays, painting 299 trays, making and fitting 34 shelves, and putting in 82 lights of glass. Besides this work, a great deal of miscellaneous jobs, covering 49 orders, was executed.

August.—Double-acting base doors were hung at the entrance to the northwest pavilion. A sewer pipe was put in the animal house. The north side of the natural-history laboratory building was bricked up, and a new roof put on. The hollow brick partition was removed from the second floor of the northwest pavilion. A private stairway was built, leading from the first to the second floor of the Assistant Secretary's apartments. The mechanics were kept busy fitting 13 shelves, painting 675 blocks, easing 221 trays, altering 95 locks, and putting in 75 lights of glass. In addition to this, 55 miscellaneous orders were filled.

September.—New frames, jams, etc., were made for the large doors at the west entrance. Two wire screens were made and put up in arches on the west balcony. New storm doors were made and placed at the north entrance of the Smithsonian building. The mechanics were employed in fitting 231 trays, painting and ebonizing 64 blocks, repairing and altering 117 locks, putting in 173 lights of glass. In addition to this work, 69 miscellaneous orders were filled.

October.—The mechanics were kept busy altering locks, making 259 blocks, painting 723 blocks, putting in 179 lights of glass, and glazing cases. Numerous matters of smaller importance were attended to.

November.—Radiators were put in and steam heat substituted for the stove in the label department on the north balcony. During this month the mechanics were employed in ebonizing 146 blocks, altering and repairing 89 locks, putting in 130 lights of glass, making keys, and easing trays. In addition to this, 33 miscellaneous matters were completed.

December.—Steam pipes were attached from the basement to the third floor of the northwest pavilion, and an extra radiator put in. The mechanics were employed in easing 233 trays, ebonizing 374 blocks, making 25 blocks, tinning 102 sills and ledges, putting in 159 lights of glass, making keys, and repairing locks. Besides this work, 46 miscellaneous requisitions for work were attended to.

1890.

January.—The laborers were employed in removing cases, and cleaning and scouring the lecture hall for the course of "Saturday lectures" given under the auspices of the scientific societies of Washington. Gas pipes were run along the ceiling in the northwest and southwest ranges, and fixtures attached. The north, south, east, and west halls, and the east-north and east-south ranges and northwest court were lighted by electricity.

February.—A heavy sarcophagus was removed from the west hall to the rotunda. Water and gas connections were introduced into the paint shop. The cases in the east and west halls were rearranged, necessitating the services of the greater part of the laboring force.

March.—The floor was painted in the gentlemen's lavatory. Nine double Liverpool cases were set up in the main hall of the Smithsonian building for the use of the Department of Mollusks. The front of a Haida house was removed from the Smithsonian building to the Museum, and hung on a pier on the south side of the west hall.

April.—A new window was constructed on the third floor of the northwest pavilion. All locks not working by the regular master key were removed and replaced by the standard lock. A break in one of the water-pipes of the Smithsonian building was repaired.

May.—The trenches and basements in both buildings were whitewashed. The windows were fitted, where necessary, with new awnings. Numerous miscellaneous jobs were completed by the mechanics.

June.—The office room on the east side of the north gallery was cleaned and painted. The room on the south side of the east balcony was prepared for occupation. The water and gas-pipes, roofs and gutters were examined and repaired. The heating apparatus, electric clocks, watch signal station, telephone batteries, etc., were inspected. A duplex water filter was placed in the gentlemen's public comfort room.

THE WORK OF THE MUSEUM PREPARATORS.

TAXIDERMISTS AND MODELERS.

Taxidermy.—The construction of additional groups of important species of North American mammals has been the chief work of the year. The largest group finished was that of the Moose, which comprises six individuals of both sexes and of different ages. This group is somewhat larger than that of the Bison, which was completed last year, and is, indeed, the largest group thus far exhibited. It is in most respects quite as satisfactory as the Bison group, and perhaps more striking. The work was planned by Mr. Hornaday, and executed by Mr. Joseph Palmer and Mr. A. H. Forney. Three specimens of the Musk-ox were removed from the wall-case and brought together to form a group. They were considered sufficiently valuable to merit a more prominent place than they had previously occupied. One of the specimens was partially remounted.

A number of additional groups of mammals were nearly or quite completed during the year, but have not yet been placed on exhibition. The taxidermists mounted in all 32 mammals during the year, including the large forms previously mentioned. In addition, 24 mammals were skinned and 50 dry skins made up. Casts were made of certain of the specimens received in a fresh condition, to be used as aids in mounting the skins. As in former years, a large amount of miscellaneous work, such as cleaning greasy specimens, overhauling duplicate wet skins, repairing mounted specimens, preparing preservatives, etc., was performed. This necessary work consumes a great deal of time, but produces no direct effect in increasing the exhibition series.

The modeler performed various tasks for the Anthropological Department of the Museum, such as making casts of stone implements, inscriptions, bas-reliefs, etc. He also made casts of a number of fishes and of some porpoise-heads, the molds of which had been in the Museum for some time.

At the close of the year the Museum lost the valuable services of Mr. W. T. Hornaday, who resigned his position as Chief Taxidermist.

In April Mr. William Palmer was instructed to proceed to the Pribylov Islands, Alaska, to hunt walrus for the Museum. He was still absent at the end of the year covered by this report.

OSTEOLOGIST.

Mr. F. A. Lucas, Osteologist, states that, as in preceding years, the care of material already in the collections has demanded much time and attention. Owing to insufficient room, frequent changes have been made necessary in the arrangement of the study series.

The placing of casters on the storage bases in the osteological hall necessitated moving the greater portion of the study series, as well as all the smaller mounted specimens in the exhibition series.

The preparation of much needed card-catalogues of ligamentary skeletons, of alcoholic birds, and embryos has been continued, and this important work is now nearly completed, as is also the changing of jars and renewing the alcohol in which the specimens are contained.

In addition to the osteological work summarized in the subjoined table a series of vertebræ of *Rhytina* has been modeled to complete a specimen for the Museum of Comparative Zoölogy, some work done on the synoptic series of invertebrates, and 76 specimens of vertebrate fossils cleaned, repaired, and mounted. In addition, the skeleton of Irish elk and cast of *Phenacodus* have been repaired and the cast of *Dinoceras* skeleton remounted.

The skill of Mr. Scollick has been shown equally in the preparation of vertebrate fossils and of osteological material, and during a great portion of the year he has been the only assistant in this department of preparatory work, although the preparation of osteological specimens, vertebrate fossils, and invertebrates now devolves upon this department.

The number of skulls of small mammals cleaned is omitted from the following table, although included in the report of work for 1888-789.

Summary of osteological work for 1889-'90.

	Mam- mals.	Birds.	Rep- tiles.	Am- phibia.	Fishes.	Total.
Received in the flesh:						
Entire skeletons	12	50	1		1	64
Incomplete skeleton		1				1
Cleaned:						
Entire skeletons	10	31	1	2		44
Skulls	22	4	2		2	30
Incomplete skeletons	17	3	2			22
Mounted:						
Entire skeletons	3	15	1	6		25
Skulls	4					4
Limbs, etc	33	1	1		2	37
Total	101	105	8	8	5	227

Collection of domestic animals.—The work of mounting typical specimens of domestic animals was begun in September, 1889. At the close of the year covered by this report 54 specimens had been secured.

Mr. Nelson R. Wood was directed to attend the American poultry show of January, 1890, held in New York City, for the purpose of obtaining specimens for the Museum. As a result of this visit many fine specimens have since been contributed from various sources, including some winners of first prizes.

The following is a list of the different varieties which have been mounted for exhibition in the National Museum :

DOMESTIC FOWLS.

Light Brahma cock and hen.
 Partridge Cochin hen.*
 Langshan chick.
 Barred Plymouth Rock hen.*
 Silver Wyandotte hen.*
 Jersey Blue chick.
 Indian Game hen.*
 Indian Game hen.
 Eureka Game cock.
 Sumatra Game cock.
 Sumatra Game chick.
 Pit Game cock.
 Muffed, Pit Game, two chicks.
 White-crested, Black Polish hen.
 White-crested, White Polish hen.
 Single-comb, White Leghorn.
 Blue Andalusian.
 Silver-spangled Hamburgh hen and chick.
 Silver Sebright Bantam, three specimens.
 Black-breasted, Red Game Bantam, cock and hen.
 Rose-comb, Black African Bantam, hen and two chicks.

PIGEONS.

Blue Carrier.
 Dun Carrier.
 Short faced, Bald-head, Black Tumbler.
 Red-checked Homer.
 Blue-checked Homer.
 Blue-rock Homer.
 English Fantail.
 Scotch Fantail.
 Black Trumpeter.
 Full-head, Black-barred, Blue-winged Swallow.
 Plain-head, White-barred, Red-winged Swallow.
 White-barred, Blue-winged Fairy.
 Full-head, Blue-winged Swallow.
 Plain-head, White-barred, Blue-winged Swallow.
 Black Magpie.
 Archangel (three ♂, ♀).
 Spangled Ice Pigeon, two specimens.
 Isabel, Pigmy Pouter.
 Common Dove-house Pigeon, five specimens.

COLORIST.

Mr. A. Zeno Shindler has, during the year, devoted the principal portion of his time in preparing for the Department of Ethnology a collection of paintings illustrating the races of men. Among them are the following: Apache Indians, Eskimo, Chinese, Japanese, Aino, Thibetan, Hindoo, Akka, Zulu, Fiji Islander, Dyak of Borneo, Native of Madagascar. A number of Indian photographs, and a life-size model and painting of natives of Samoa have been made.

PHOTOGRAPHER.

During the year Mr. T. W. Smillie has made 357 negatives. Of these 98 were for the Department of Ethnology, 28 for the Department of Mammals, 9 for the Department of Comparative Anatomy, 41 for the Department of Geology, 5 for the Section of Graphic Arts, 176 miscellaneous prints, and 110 transparencies.

The number of prints made during the year is 3,972, distributed as follows :

For the Department of Ethnology.....	196
For the Department of Mammals.....	22
For the Department of Comparative Anatomy.....	15
For the Department of Geology.....	42

* This bird received the first prize at the New York Poultry Exhibition, January, 1890.

For the Section of Graphic Arts	5
For the Section of Transportation and Engineering	32
For the Smithsonian Institution	3,000
Miscellaneous prints	660
Enlargements of photographs	8
Cyanotypes (blue prints of plans and drawings)	153

In pursuance of the agreement with the U. S. Fish Commission, Mr. Smillie has continued the photographic work of the Commission. This has consisted during the year of the following items:

Negatives	6
Silver albumen prints	586
Cyanotypes	243
Photographs mounted	70

The usual routine work has continued, including the numbering and filing of negatives, making up photographic outfits of expeditions, etc.

By order of the Assistant Secretary tests of inks have been made for the U. S. Geological Survey.

DRAFTSMEN.

Mr. W. H. Chandlee and Mr. W. H. Burger have continued the preparation of illustrations for the Museum reports. Among them the more important are illustrations for papers by Prof. O. T. Mason, on "Arrows," "Skin-dressing," "Woman's Knives," "Hafting," "Toys and Games." A large number of drawings were made to accompany the paper by Mr. Romyu Hitchcock on "The Ainos of Yezo," and additional drawings have been made for Paymaster Thomson's paper on Easter Island. In addition a large amount of miscellaneous work has been accomplished, including the tracing and coloring of maps, charts, and diagrams, sketches of and for the arrangement of exhibits, topographical drawings, redrawings, engraving and lettering of labels, and numerous small paintings in water-color, oil, pastel, etc.

H.—ACCESSIONS.

The total number of accessions to the Museum during the year is 1,162 (22179-23340, inclusive). This gives a decrease of 185 accessions as compared with those of 1889. It may be expected that each year will show a smaller number than the last until an additional building is provided by Congress. All special effort to obtain contributions has ceased, since there is no room where the specimens can be either exhibited or stored.

A tabulated statement showing the number of accessions to the Museum each year, beginning with 1881 (the first year of occupancy of the Museum building) is here given.

Year.	Accession numbers (inclusive).	Number of accessions during the year.
1881.....	9890-11000	1, 111
1882.....	11001-12500	1, 500
1883.....	12501-13900	1, 400
1884.....	13901-15550	1, 650
1885 (January to June).....	15551-16208	658
1885-'86.....	16209-17704	1, 496
1886-'87.....	17705-19350	1, 646
1887-'88.....	19351-20831	1, 481
1888-'89.....	20832-22178	1, 347
1889-'90.....	22179-23340	1, 162

A geographical statement, showing the source of the more important accessions, is here presented :

GEOGRAPHICAL REVIEW OF THE MORE IMPORTANT ACCESSIONS.

During the year, material has been received from almost every region in the world, a large proportion, however, coming from various parts of the United States.

This statement refers to the more important accessions. They are arranged, as far as possible, to indicate the localities from whence they are received, rather than the residence of the sender.

AFRICA.

Canary Islands.—From Dr. E. Rey, of Leipsic, Germany, were purchased a number of birds' skins.

Cape Town.—Specimens of materia medica were received from the Botanic Garden, Mr. P. MacOwan, Director, through Mr. William Harvey Brown.

Congo District.—A collection of insects, crystals, minerals, and metals, specimens of *Musa* and *Pancreatium* (plants), palm-fiber from which ropes, tops, mats, and many other things are made; gum copal, African rubber, cocoon of Congo silkworm, hippopotamus tusks, piece of skin from the *Congo seal*, and elephant hair, have been presented by Mr. J. H. Camp, of Herring, Ohio.

Egypt.—A pottery lamp, from Alexandria, was sent by Mr. M. F. Savage, of New York City.

Liberia.—Lieut. Frederic Singer, U. S. Navy, presented a termite queen from Sinou County.

Morocco, New Caledonia, and neighboring islands.—From the Ethnological Museum, Berlin, Germany, were received ethnological objects from these and other regions, and also specimens illustrating the ethnology of the Wasaguan negroes.

Zanzibar.—Dr. W. L. Abbott, of Philadelphia, Pennsylvania, who is making extensive journeyings in Africa and in other regions, has gen-

erously presented to the Museum some very interesting and valuable collections, among which are skins and skulls of large and small animals, including rhinoceros and buffalo heads, wart-hogs and antelopes, from the vicinity of Mount Kilima-Njaro; ethnological objects, including swords, daggers, knives, shields, arrows, clubs, wooden dishes, bowls, spoons, clothing, war-cap, basket-work, beaded belts, neck-rings, arm-lets and anklets, ear-ornaments, snuff-horns, medicine-girdle, a collection of insects, birds' skins, fishes, shells, head of snake, alcoholic reptiles, and skin of crocodile.

Specimens of South African tortoises, and alcoholic specimens of tortoises and chameleons, were placed in the hands of Mr. William Harvey Brown, for the National Museum, by Rev. George H. R. Fisk.

A collection of Coleoptera from South Africa was received from Mr. John H. Brady, of Cape Town, through Mr. William Harvey Brown.

From Mr. P. L. Jouy, U. S. National Museum, was received a specimen of garnet gravel, from the Kimberly diamond mines.

From the Oberlin College, Oberlin, Ohio, was received in exchange a collection of ethnological objects from South Africa.

A collection of marine and land shells from the Gaboon River was received from Mr. J. M. Griggs, of Brooklyn, New York.

A large and varied collection, gathered from various parts of Africa and the islands of the Pacific Ocean, was received from Mr. William Harvey Brown. This collection consists of minerals, alcoholic and dry shells, alcoholic and dry birds, alcoholic birds for skeletons, alcoholic crustacea, echinoderms, worms, snakes, lizards, fishes, mammal skins, and alcoholic mammals, alcoholic sea-weed, alcoholic and dry insects, plants, ethnological objects, fish-trap and spear, rocks, birds' eggs, etc. In making this collection Mr. Brown was materially assisted by the officers and seamen of the U. S. S. *Pensacola*. A carefully prepared report upon the collection will be published in the Proceedings of the National Museum, and a preliminary list will be found further on under the head of Explorations. The papers forming this report are the results of the work of the curators among whom the different specimens were distributed.

AMERICA.

NORTH AMERICA.

BRITISH AMERICA.

British Columbia.—A large and valuable collection of ethnological and natural-history objects, from the vicinity of Stewart's Lake and Fort St. James, was presented by Mr. R. MacFarlane, who for many years has been one of the most valued contributors to the Museum.

Four skins of Mountain-goat were presented by Mr. George Bird Grinnell, of New York City. These were collected by the donor in British Columbia.

Vancouver Island.—Mr. T. D. A. Cockerell, of West Cliff, Custer County, Colorado, transmitted, through Mr. W. G. Binney, of Burlington, New Jersey, a specimen (type) of *Prophysaon pacificum* Cockerell, from Victoria.

New Brunswick.—Mr. S. F. Cheney, of Grand Manan, sent a collection of nudibranchs, worms, crustaceans, and sponges.

Labrador.—From Miss Anna L. Ward, of Connecticut, were received a model of seal-skin *Igloo*, of the Eskimo; seal-skin coat; seal-skin tobacco pouch; a pair of seal-skin *kumings* (infant's shoes); bag of feathers, and two mounted seals.

Manitoba.—Mr. H. A. Perley, of Carberry, sent for examination and report a coin found near that place.

Ottawa.—From the Geological Survey of Canada (through Dr. A. R. C. Selwyn, director) were received paleozoic invertebrate fossils, among which was a fine specimen of *Clonograptus flexilis* Hall.

Prof. James Fletcher, of Ottawa, presented specimens of rare Coleoptera and Lepidoptera, characteristic of the Arctic regions.

Quebec.—Mr. William H. Dall, of the U. S. National Museum, contributed six very fine specimens of *Dictyonema sociale* Salter, from the Upper Cambrian, of Matanne.

The Reverend Abbe J. C. K. Laflamme, of Laval University, Quebec, contributed to the Department of Paleozoic Invertebrate Fossils a slab containing *Triarthrus becki* Green, *Leptobolus insignis* Hall, and *Climacograptus* sp., from the Utica Slate, of Beaufort.

Selkirk.—Dr. R. E. C. Stearns, of the U. S. National Museum, collected and presented a specimen of limestone from near Selkirk, on the line of the Canadian Pacific Railroad.

CENTRAL AMERICA.

Nicaragua.—The Government of Nicaragua, at the instance of Mr. John Crawford, transmitted through Hon. José F. Medina a collection of engraved cocoa and chocolate cups, birds, reptiles, lava figures, and a hammock. These objects formed a part of the Nicaraguan exhibit at the Paris Exposition of 1889.

MEXICO.

Chihuahua.—Twenty-five specimens of land-shells were presented by Mr. T. W. Stanton, of Washington, District of Columbia.

Guanajuato.—From Dr. Alfred Dugès was received a large collection of alcoholic fishes and alcoholic insects, dry insects, shells, marine invertebrates, dried plants, birds' skins, fragments of Indian skull, mammals, and reptiles.

Guaymas and neighboring islands.—From the U. S. Fish Commission were received specimens of insects, botanical specimens from Socorro and Clarion Islands, and specimens of reptiles from Rerdo. A collection of Echini was made in the North Pacific Ocean.

Lower California.—The Fish Commission sent specimens of insects from La Paz, collected by the steamer *Albatross*; a reptile, sample of guano, and a booby's nest from Angel de la Guardis Island and George's Island.

From Mr. Henry Hemphill, of San Diego, California, were received 100 species of marine shells and a series of Chitans. Mr. Hemphill also sent fresh-water shells from Oregon, representing about 200 species, Tertiary fossils, and 3 specimens of Sea-urchin, *Lovenia cordiformis*, from California.

From Lieut. Charles F. Pond, U. S. Navy, were received specimens of rocks, shells, sponges, nullipore coral, photographs of elephant tree, photograph of Port Jackson shark, specimen of hawk's egg, specimens of minerals, and lower jaw-bone of porpoise, from Cerros Island, San Benito Island, and Port San Bartolme.

Monterey.—Mr. B. M. Hayward, of Weybridge, Vermont, sent 12 specimens, representing 10 species, of birds' skins.

From Mr. Henry Ulke, of Hill City, South Dakota, was received an interesting collection of Mexican Coleoptera.

A large and valuable collection of Mexican plants was collected and presented by Mr. C. G. Pringle, of Charlotte, Vermont.

An interesting historical collection, consisting of a Mexican saddle and harness, chapeau, military cap, epaulets, revolver, and two rifles, personal relics of the late Gen. W. S. Harney, were deposited by Mrs. Mary E. Harney.

Messrs. Schuttler & Hotz, wagon-makers, of Chicago, Illinois, contributed to the Section of Transportation a characteristic Mexican cart.

UNITED STATES.

Alabama.—The Fort Payne Coal and Iron Company sent specimens of limonite, hematite, and impure pyrolusite, taken from a mine at Fort Payne.

Alaska.—From Mr. W. H. Dall, U. S. Geological Survey, was received a collection of spiders and myriapods, collected by him on Gibson Island, Chichagoff Harbor.

A skin of the Pacific Kittawake (*Rissa tridactyla pollicaris*), from Kadiak, was presented by Dr. T. H. Bean, of the U. S. Fish Commission.

Several bidarkas with their appurtenances, collected in various parts of Alaska by agents of the Alaska Commercial Company, were received from the company.

The U. S. Fish Commission transferred to the Museum botanical specimens from Old Harbor, Kadiak, collected by the steamer *Albatross*.

Arizona.—From Dr. L. Stejneger, of the U. S. National Museum, were received specimens of mammal skulls, reptiles, birds' skins, and a roosting-nest of *Auriparus flaviceps*. Dr. Stejneger also presented a collection of mammal skins.

From the U. S. Geological Survey were received 260 specimens of minerals, collected by Dr. W. F. Hillebrand.

Through Maj. J. W. Powell, Director of the Bureau of Ethnology, was deposited a duplicate of a model of Wolpi, one of the Tusayan villages, and models of Sechimovi and Tewa, Tusayan pueblos.

The U. S. Fish Commission presented specimens of reptiles from Yuma and Tempe, and specimens of insects from Chino. These were collected by the steamer *Albatross*.

A specimen of green quartz containing gold was presented by Dr. R. H. Lamborn, of New York City.

California.—Maj. J. W. Powell, Director of the Geological Survey, deposited collections of quicksilver illustrating the results of investigations made on the California section of the Pacific coast under the direction of Mr. G. F. Becker.

From Mr. W. Otto Emerson, of Haywards, were received nests and eggs of *Melospiza fasciata samuelis*, *Melospiza fasciata heermanni*, and *Empidonax difficilis*.

Mrs. J. H. Tourtelette, of Minersville, Trinity County, sent 2 specimens of native gold from a mine on Digger Creek.

A limbless lizard (*Aniella pulchra*), peculiar to California, was sent by Dr. Thompson, of San Bernardino.

Mr. Edward Palmer presented a lizard from San Francisco.

Mr. A. W. Anthony, of San Diego, presented 3 eggs (1 set) of *Pelecanus californicus*, new to the collection.

From Mr. L. Belding, of Stockton, were received 7 specimens, representing 4 species, of birds' skins, among them a specimen of the recently described *Turdus sequoiensis* Belding.

A fire drill and fish-hook of the Nokum Indians, and 185 implements of obsidian, jasper, etc., were received from Mr. L. L. Frost, of Susanville. Mr. Frost also contributed ethnological objects and fossil plants.

Mr. Frank L. Belding, of Stockton, presented nests and eggs of *Cyanocitta stelleri frontalis*, *Ammodramus beldingi*, *Contopus borealis*, and *Turdus aonalaschka*.

From the U. S. Fish Commission were received specimens of reptiles, insects, and bats from Horse Shoe Bend; nest of Water-ouzel from McCloud River; stone implements and shells, four human skulls, one human skeleton, and one coyote skull from Santa Rosa Islands; also, one human skull from St. Nicholas Island. They were collected by the steamer *Albatross*.

Mrs. Burton M. Williamson, of University, Los Angeles County, sent shells from the coast of California.

Colorado.—The Colorado Biological Association, through Mr. T. D. A. Cockerell, secretary, sent a specimen of fungus, *Uromyces aconiticoctoni* (D. C.), 3 specimens of *Pupa concinnula* n. sp., and an immature specimen of *Physa cupreonitens* n. sp.

Connecticut.—A collection of musical instruments, comprising square and upright pianos of the Mozart and Beethoven period, harpsichords, violins, violoncellos, violas, clavichord, and zither, has been deposited by M. Steinert, of New Haven.

District of Columbia.—Mrs. E. J. Stone, of Washington, sent a lace pillow with mahogany stand, with specimen of lace made 50 years ago by herself; lace pillow without stand, and specimen of bobinet lace; specimens of bead-work; moccasins made by the Dakota and Oneida Indians; highly polished steel paper-cutter from Mexico; rule of iron-wood taken from the old Government House at St. Augustine, Florida; tusks with ornamental etchings of classical figures; brass warming-pan and bread-toaster (each 120 years old); also maps of Washington from surveys made between 1800 and 1833; stereoscope containing daguerrotypes and transparencies by the albumen process, giving views of Niagara; shell basket of Cuban work; and marine invertebrates collected and prepared by Commodore Lenthall, U. S. Navy.

Florida.—Mr. J. M. Wilson, of Kissimmee, sent a Katydid (*Phylloptera oblongifolia*), remarkable for its red color.

Illinois.—A specimen of *Ancistrodon contortrix* was received from Dr. W. S. Strode, of Bernadotte.

From Dr. R. W. Shufeldt, U. S. Army, and Mr. G. F. Marcom, of Chicago, were received a fine series of water-fowls, ducks, geese, and mergansers, in the flesh.

Indian Territory.—Assistant Surgeon J. C. Merrill, U. S. Army, Fort Reno, sent eggs of *Tympanuchus pallidicinctus*; *Progne subis*; *Spiza americana*; *Quiscalus quiscula ceneus*; *Cardinalis cardinalis*; *Molothrus ater*; *Ammodramus savannarum passerinus*; *Vireo bellii*. Dr. Merrill also contributed a collection of birds' skins.

Kentucky.—From the Peabody Museum, Cambridge, Massachusetts, were received, in exchange, two torches from the Mammoth Cave, collected by Prof. F. W. Putnam and Dr. C. F. Metz.

Maine.—Concretions from Princess Point, Casco Bay, were received in exchange from Colby University.

Mr. W. H. Abbott, of the U. S. Fish Commission, presented 24 models of ships. These were collected by Mr. Abbott from several prominent shipbuilders, at the instance of Capt. J. W. Collins, of the U. S. Fish Commission.

Maryland.—Mr. Robert Ridgway, of the U. S. National Museum, presented 45 specimens, representing 37 species of birds' skins, from the vicinity of Laurel.

A series of rocks, showing inclosures of gneiss, limestone, etc., in eruptive granite, from quarries at Sykesville, were presented by Mr. G. P. Merrill, of the U. S. National Museum.

Massachusetts.—A collection of 7 daguerreotypes of Sioux Indians, taken from life 40 years ago, was received from Mr. W. D. Sanborn, of Winchester.

Mr. William Brewster, of Cambridge, sent eggs of *Tympanuchus cupido* and *Columba fasciata viosca*, both rare and new to the collection.

Minnesota.—From Mr. J. T. Benedict, of St. Paul, was received a skin of Bronzed Grackle (*Quiscalus quiscula vneus*), showing remarkable malformation of the lower mandible.

A gold medal, presented to Mr. Joseph Francis, of Minneapolis, by the President of the United States, April 12, 1890, by act of Congress, as a testimonial to his services in connection with life-saving appliances, was deposited by Mr. Francis.

Through Mr. C. D. Walcott, of the U. S. Geological Survey, were received specimens of *Lingulepis morsensis* and *Planolites* from the Trenton Group, Fountain.

Missouri.—A collection of prehistoric stone implements, from various localities in Greene County, were sent by Mr. J. W. Blankinship.

From Drury College, Springfield, was received a collection of 160 plants.

From the U. S. Geological Survey were received specimens of minerals collected by Mr. W. P. Jenney.

Nebraska.—From Mr. Glover P. Wilcox, Fort Niobrara, were received vertebræ of mastodon, alcoholic specimens of mammals, pieces of petrified wood, alcoholic snake, and pieces of bone and quartz.

Nevada.—From Mr. Charles A. Keeler, of Carson City, were received birds' eggs and birds' nests.

New Jersey.—A portion of the Hornblower engine, the first engine erected on the western continent, imported from England in 1753, was deposited by the New Jersey Historical Society, through Mr. S. F. Meeker, of Newark.

From Dr. W. G. Binney, of Burlington, was received a collection of American land-shells—types described by the donor. This completes the Binney collection in the National Museum.

A specimen of mussel pearl, from Absecon, was sent by Dr. Robert H. Lamborn, of New York City.

New Mexico.—Three alcoholic specimens of reptiles collected at Fort Wingate, were sent by Dr. R. W. Shufeldt, U. S. Army, of Takoma Park, District of Columbia.

From Maj. J. W. Powell, Director of the U. S. Geological Survey, were received 38 offerings from shrines.

Dr. L. Stejneger, of the U. S. National Museum, collected and presented specimens of birds' skins from Silver City and Fort Huachuca, Arizona. He also contributed the skull of a mammal.

New York.—Messrs. Tiffany & Co. sent a silvered copper electrotype copy of the vase presented to William Cullen Bryant in 1875 by the citizens of New York.

Prof. J. J. Stevenson, of the University of the City of New York, sent in exchange specimens of petroleum.

The first straight knife or sickle belonging to the Ogle-Brown reaping machine, invented by Mr. Henry Ogle and built by Mr. Thomas Brown and his son at Alnwick, England, about the year 1820, was received from Mr. Thomas S. Brown, of Poughkeepsie.

The Scientific Publishing Company, through L. Prang & Co., sent two sets of the plates accompanying Mr. G. F. Kunz's work on gems.

From Capt. F. L. Casey, Army building, New York City, were received types of new species of North American Coleoptera.

Through the U. S. Geological Survey was received a type specimen of *Conocoryphe reticulata* Walcott, from the Lower Cambrian of Salem, Washington. The Survey also deposited specimens of calcite and biotite from Port Henry, and magnetite crystals from Mineville.

North Carolina.—Mr. James Mooney, of the Bureau of Ethnology, contributed a Cherokee mortar and pestle, alcoholic specimens of reptiles, alcoholic specimens of insects, associated with the mythology of the Cherokee Indians, and also sent a large stump of a tree with boulders imbedded in it.

Mr. W. C. Hodgkins, Assistant Superintendent of the U. S. Coast and Geodetic Survey, presented specimens of Indian bones, pottery, etc., from Peru Landing (formerly Hache's Point), New River.

Ohio.—From Mr. John T. Gaddis, of New Washington, was received a perforated, boat-shaped object, of banded slate from Seneca County.

The Cincinnati Museum Association contributed 50 drawings executed by students in the Art Academy.

Three hundred and twenty-four archaeological objects obtained from graves in an ancient cemetery and ash-pit near Madisonville, Ohio, were received in exchange, from the Peabody Museum, Cambridge, Massachusetts. These objects were collected by Prof. F. W. Putnam and Dr. C. F. Metz.

Three specimens of distilled zinc and magnesium, used in connection with a recent determination of the atomic weights of these metals, were received from Mr. W. M. Burton, of the Standard Oil Company, Cleveland.

Oregon.—From Mr. Henry Hemphill, of San Diego, California, were received about 200 specimens of marine shells, tertiary fossils, and fresh-water shells. A portion of these were collected in Lower California.

Pennsylvania.—Specimens of work executed by the pupils of Penn's Museum and School of Industrial Art were presented through Prof. L. W. Miller.

From Mr. F. Gutekunst, of Philadelphia, were received two books of specimens of phototypes, with a separate plate and duplicate.

Specimens of articles manufactured from aluminum were presented by the Pittsburgh Reduction Company, through Mr. A. E. Hunt, president.

Dr. Robert H. Lamborn, of New York City, sent specimens of will-

iamsite from Wood's Chrome Mine, Lancaster County, and specimens of amazonstone and sandstone from Delaware County.

Mr. W. W. Walker, of Liverpool, sent in exchange a collection of archaeological objects.

South Dakota.—Dr. V. T. McGillicuddy, of Rapid City, deposited 4 living specimens of American bison.

Mr. Henry Ulke, of Hill City, presented a valuable and well-mounted collection of North American Coleoptera.

Texas.—From Messrs. Ward & Howell, of Rochester, New York, was received a specimen of meteoric iron.

Utah.—From Capt. P. H. Ray, U. S. Army, Omaha, Nebraska, were received three paleolithic implements from the Bridger Basin, on the north slope of the Uintah Mountains.

Virginia.—The U. S. Geological Survey transmitted 22 photographs of the scenery in the region of the Great Dismal Swamp, collected by Mr. I. C. Russell, and minerals from Herndon, collected by E. L. Howard.

From the U. S. Fish Commission were received 115 specimens of crayfishes from Virginia, North Carolina, Tennessee, Michigan, and Indiana, obtained by Dr. D. S. Jordan, assisted by Dr. C. H. Bollman, during 1888.

Specimens of Ordovician (Trenton) fossils, and two crystals of limonite pseudomorph after pyrite, from near Lexington, were sent by Prof. James H. Morrison, of the Virginia Military Institute.

Specimens of reptiles, batrachians, and insects, collected by Dr. D. S. Jordan and his assistants, during the summer of 1888, in Virginia and elsewhere, were received through the U. S. Fish Commission.

From Dr. William C. Rives, of Newport, Rhode Island, were received two specimens of the Mountain Vireo (*Vireo solitarius alticola*), from White Top Mountain. These are new to the collection.

A specimen of quartz with inclusion, from Fairfax Court House, and a specimen of banded quartz, were presented by Dr. R. H. Lamborn, of New York City.

Mr. William T. Hornaday, of the National Museum, sent a living specimen of Woodchuck (*Arctomys monax*) captured near Rosslyn Heights.

Washington.—The Department of the Interior, through Hon. John W. Noble, Secretary, deposited a collection of ethnological objects from the Snohomish, Swinomish, Lummi, Muckleshoot, and Etakmur Indians, on the Tulalip Reservation. These were collected by Mr. E. C. Chirouse, agent in charge of the reservation.

Wisconsin.—Through Mr. C. D. Walcott, of the U. S. Geological Survey, was received a specimen of *Receptaculites oweni*, from the Trenton group, Ripon.

Wyoming.—From the Department of Agriculture, through Dr. C. Hart Merriam, was received a Horned Toad (*Phrynosoma brevirostre*), from Bridger's Pass.

From the U. S. Fish Commission, through Col. Marshall McDonald, Commissioner, were received type series of fishes, alcoholic shells, specimen of *Mus musculus*, and alcoholic specimen of reptile, collected by Dr. D. S. Jordan in the Yellowstone National Park.

Dr. R. H. Lamborn, of New York City, sent a specimen of obsidian from the Yellowstone National Park.

From Mr. William T. Hornaday, of the U. S. National Museum, were received four skins of mountain sheep, in several stages of maturity.

ISLANDS IN THE ATLANTIC OCEAN.

Bermuda.—Mr. Thomas Cunningham, of Chicago, Illinois, sent a sheet-lead impression from a historic inscription on Spanish Rock. This rock is located on the south shore of the island. The inscription is believed to have been cut in the face of the rock by Ferdinand Camelo, a Spanish navigator. A stunted red-cedar tree, which grows at the south end of the rock, has protected it from the elements, and from the overhanging branches were cut the tools with which the cast was made, and which accompany the impression sheet.

From the Wesleyan University, Middletown, Connecticut, were received the collection of annelids, from Bermuda, gathered by Dr. G. Brown Goode in 1877 (?), and identified by Prof. H. E. Webster, formerly of the University of Rochester, and now President of Union College at Schenectady. The following is a list of the annelids collected:

Hermodice carunculata Kinberg; *Eurythoë macrotricha* Baird; *Bhawania Goodei* n. sp.; *Halosydna leucohyba* (Schmarda); *Fallacia proctochona* (Schmarda) Qtrfg.; *Podarke obscura* Verrill; *Nereis Bairdii* n. sp.; *Nereis gracilis* n. sp.; *Eunice mutilata* n. sp.; *Eunice denticulata* n. sp.; *Eunice longisetis* n. sp.; *Eunice longicirrata* n. sp.; *Eunice violacea* Grube; *Marphysa acicularum* n. sp.; *Nicidion Kinbergi* n. sp.; *Arabella opalina* Verrill; *Enone diphyllidia* Schmarda; *Anthostoma* Schmarda; *Ophelina maculata* n. sp.; *Arenicola cristata* Stimpson; *Cirratulus tenuis* n. sp.; *Terebella magnifica* n. sp.; *Enoplobranchus sanguineus* Verrill; *Protulides elegans* n. g., n. sp.; *Sabella melanostigma* Schmarda; *Hydroides dianthus* Verrill.

Bahama Islands.—From Mr. J. C. Maynard, of Newtonville, Massachusetts, were received 18 specimens of Strophia, types of new species described by the donor.

WEST INDIES.

GREATER ANTILLES.

Santo Domingo.—From G. L. Gillespie, lieutenant-colonel of Engineers, U. S. Army, was received a gun-carriage from the citadel of San Domingo City. This carriage is of mahogany, probably made by the Spaniards during the early days of their possession of the island. It was presented in February, 1890, by Gen. Frederic Lithgow, minister of war and of the navy of the Dominican Republic, to Capt. Nathan Appleton, of Boston, Massachusetts, and was presented by him to the National Museum.

Little Cayman.—From Mr. J. C. Maynard, of Newtonville, Massachusetts, were purchased 5 specimens of the recently described *Sula coryi* Mayn.

LESSER ANTILLES.

Barbadoes.—From Rev. F. Gardiner, jr., of Pomfret, Connecticut, was received a basket, one game (Wa-wee), tambourine, violin and case.

Trinidad.—Mr. J. C. Hart, of Trinidad, sent 2 alcoholic specimens of *Eupemphix trinitatis*.

From Mr. Henry Balfour, of Oxford, England, were received in exchange 6 specimens of Carib stone celts.

SOUTH AMERICA.

BRITISH GUIANA.

The Demarara Museum, through Mr. J. J. Quelch, sent in exchange 4 skins of adult Hoatzins, *Opisthocomus cristatus*, several alcoholic specimens of the same, and 2 skeletons.

CHILI.

Messrs. Ward and Howell, of Rochester, New York, presented a specimen of meteoric ore from Puquois.

From the Peabody Museum was received in exchange a basket, found by Prof. F. W. Putnam and Dr. C. F. Metz.

GALAPAGOS ISLANDS.

From the U. S. Fish Commission were received alcoholic specimens of fishes collected by the steamer *Albatross* on the islands and northward.

UNITED STATES OF COLOMBIA.

Aspinwall.—Dr. Joseph L. Hancock, of Chicago, Illinois, presented a living snake which was found coiled around a bunch of bananas. This has been transferred to the Zoölogical Park.

Boyacá.—From Mr. Carlos Martinez Silva, delegate from the United States of Colombia to the International American Conference, was received a case of butterflies from the famous emerald mines of Muso, State of Boyacá.

From the Museum of Comparative Zoology, Cambridge, Massachusetts, were received in exchange alcoholic specimens of South American Siluroids.

ASIA.

CHINA.

Mr. W. W. Rockhill (formerly of the American legation at Pekin) presented Chinese paper currency, and a collection of ethnological objects.

Mongolia.—Mr. Rockhill presented a collection of ethnological objects from western Mongolia.

Thibet.—Mr. Rockhill presented a collection of ethnological objects from Thibet. He also deposited several ethnological objects from east-

ern Thibet, consisting of a pair of silver earrings, finger-ring, shirt-buckle worn by women, a shirt-button; two kinds of Joss-sticks (incense) used in Thibet. He also deposited a chased iron seal, scroll-picture of the Lama convent of Tra shi thunpo in Thibet, strike-a-light set with jewels with jade toggle, brass-teapot, sword, knife and chop-stick in case, bow, arrow, and quiver, bow-case, and gold shirt-buckle.

COREA.

Doctor H. N. Allen, secretary of the Korean legation at Washington, District of Columbia, deposited a large and valuable collection of Korean ethnological objects, and presented a specimen of gold ore from the Wen San mines, in the province of Pyong an do.

Mr. P. L. Jouy, of the U. S. National Museum, presented 10 specimens, representing 4 species, of land and fresh-water shells from Corea.

From Mr. W. W. Rockhill were received 18 Korean paintings, representing costumes.

INDIA.

Mr. Edward Lovett, of Croydon, England, sent in exchange ethnological specimens from India. A series of ethnographical and archæological objects were also obtained from Mr. Lovett by purchase.

From the National Museum, Oxford, England, through Mr. Henry Balfour, was received in exchange a model of a Hindoo fire-drill.

Dr. Joseph L. Hancock, of Chicago, Illinois, presented 14 specimens representing 14 species of birds' skins from India.

INDO-CHINA.

Cambodia.—From Mr. L. H. Jammes, of Realmont Tarn, southwest France, was purchased a collection of stone implements. The Mekong River, the principal river in Cambodia, each year, by reason of the melting of the snows in the mountains of the central plateau of Thibet, overflows its banks and inundates the lower country, which it traverses. Not far distant from the borders of an immense lake into which this river empties, have been found vast shell-heaps, and from this locality the specimens purchased from Mr. Jammes were obtained. The strata of the heaps of shells show different stages of civilization.

Tonquin.—Rev. A. Vathelet contributed 88 specimens of shells, comprising 30 species, from Tonquin and various localities.

JAPAN.

Osaka.—From Mr. Romyn Hitchcock, of the U. S. National Museum, was obtained by purchase a *biva* or balloon-guitar.

Sapporo.—From the Sapporo Agricultural College, through Shosuke Sato, acting director, was received, in exchange, a collection of Aino articles.

Tokio.—The Insetsu Kioku (finance department), Tokio, through T. Tokuno, chief of Insetsu-Kioku, sent in exchange a collection illustrating Japanese methods of engraving and printing, and also presented

13 specimens of pigments used by the Japanese printers of chromoxylographs.

Hiramatz Rei, the chief Buddhist priest of Japan, presented a section of rope made of human hair, which had been used as an ordinary cable in lifting building-material in the construction of a Buddhist temple at Kyoto; a table of the names of the provinces of the donors, showing the size and length of each of the ropes used in the construction of the eastern Hon-gwan-ji temple at Kyoto, and a lithograph of the famous Buddhist temple. The above objects were transmitted through the Department of State, by the Hon. John T. Swift, U. S. consul at Tokio, Japan.

Yokohama.—Messrs. Fraser, Farley, and Varnum, of Yokohama, sent specimens of various grades of teas.

Mr. Romyn Hitchcock, of the U. S. National Museum, presented a collection of insects, mollusks, marine invertebrates, and a bat, *Vesperugo abramus*, collected in Japan, and in addition to these objects a collection of Aino articles, specimens of sulphur collected from the active volcano Iwo-san, botanical specimens from the islands of Yezo, Shikotan, and Yeterof (Iterup). A number of objects illustrating Japanese life were obtained from Mr. Hitchcock by purchase.

ASIATIC RUSSIA.

Syr-Darya.—From Dr. E. Rey, of Leipsic, Germany, were obtained, by purchase, a collection of birds' skins. Eight birds' skins, gathered in different localities in Asia, were also obtained from him by purchase.

ASIA MINOR.

Armenia.—Mr. H. de Morgan, of New York City, presented bones from Armenian graves at or near Allah-Verdi, collected by him. From him were obtained by purchase 78 specimens of prehistoric antiquities collected in America.

Bagdad.—From Dr. John P. Peters, of Philadelphia, Pennsylvania, was received a shepherd's pipe, used by the Arabs of Irak.

Jerusalem.—From Mrs. B. F. Ulman, of Baltimore, Maryland, was received a set of fringes for Jewish ceremonial garment.

Tyre.—Mr. M. F. Savage, of New York City, presented a lamp made of pottery.

TURKEY IN ASIA.

Island of Cyprus.—Mr. Henry Balfour, of Oxford, England, sent in exchange a saucer-shaped lamp of pottery.

EUROPE.

AUSTRO-HUNGARY.

Hungary.—From Mr. Louis Molnar, of Molna Szecsöd, Empyházos Hollos, was received in exchange 86 specimens, representing 71 species of birds' skins, and 6 mammal skins.

BELGIUM.

Spiennes.—Through Mr. Edward Lovett, of Croydon, England, was obtained by purchase a flint implement.

DENMARK.

Greenland (belonging to Denmark).—From the Royal Museum, Stockholm, Sweden, was received a collection of minerals.

The Pennsylvania Salt Manufacturing Company, of Philadelphia, presented specimens of cryolite from Evigtok, Arksut-fiord.

Iceland (belonging to Denmark).—From Mr. George H. Boehmer, of the Smithsonian Institution, were received minerals from Iceland, consisting of stilbite, heulandite, Iceland spar, mesolite, native sulphur, and chalcedony. A collection of ores, rock, and fossil plants were presented by Mr. Boehmer.

Island of Falster.—From Mr. John B. Koch, of Bozeman, Montana, were received two flint hatchets.

Island of Laaland.—Mr. John B. Koch, of Bozeman, Montana, presented a flint hatchet from a dolmen on the island.

ENGLAND.

Bedford.—From Mr. Edward Lovett, of Croydon, England, were obtained by purchase fragments of Roman pottery (Samian ware) from Bedfordshire, Dorset, Kent, and Suffolk, iron implements found in making excavations in the city of London, clay pipes, iron knives, keys, a shoe-buckle, of the sixteenth and seventeenth centuries, and a collection of ethnographical and archæological specimens.

Cornwall.—Mr. Samuel Lanyon, of Bradford, presented tin ore from the Dolcoath mine.

Croydon.—Mr. Edward Lovett presented a porter's knot, carrying-yoke and human harness. These objects were sent in exchange. Mr. Lovett also sent in exchange a collection of ethnological and archæological specimens, and obsolete specimens illustrating English lighting and cooking.

Durham.—Reverend A. M. Norman presented a collection of crustacea and ecninodermata, chiefly Mediterranean.

London.—The British Museum presented a valuable series of bats from its reserve collection, and sent in exchange three meteoric casts and a specimen of orpiment.

From the Guildhall Library Committee, through Mr. Charles Welch, librarian, was received an interesting collection of medals, struck by order of the corporation of London.

Oxford.—From Mr. Henry Balfour was received a model of a Hindoo fire-drill, used to make sacred fire in temples.

Windsor.—From Prof. P. H. Carpenter, of Eton College, were received microscopic slides of shells, slides of foraminifera, one slide of

annelid tubes, and a crab shell, collected by H. M. S. *Porcupine*, *Valorous*, *Lightning* and *Challenger* and mounted by Prof. W. B. Carpenter.

FRANCE.

Paris.—The Museum of Natural History, Paris, France, sent in exchange 52 specimens of the hair of various races, representing fourteen types of mankind.

From Mr. A. Boueard, 7 skins of Birds of Paradise were purchased.

A gold box, diamond-mounted, presented to Mr. Joseph Francis, of Minneapolis, Minnesota, by the Emperor Napoleon III, in recognition of his inventions in connection with his life-saving appliances, was presented by Mr. Francis to the National Museum.

ITALY.

Florence.—From Prof. T. Tozzetti were received in exchange 31 specimens, representing 8 species, of European *Microlepidoptera*, and 29 specimens, representing 8 species, of European *Orthoptera*.

Genoa.—From the Museum of Natural History, through Marquis Giaeoma Doria, director, were received, in exchange, skin and skull of *Lophiomys imhausii*, 100 bats in alcohol, 2 shrews, and 1 Meadow-mouse.

Prof. R. Gestro sent in exchange 14 species of blind *Coleoptera* from the Mediterranean countries.

Isle of Elba.—From Mr. Clarence E. Bement, of Philadelphia, Pennsylvania, was received a specimen of pollucite.

NORWAY.

Trondhjem.—From Dr. I. Hagen were received 320 species of Norwegian mosses.

From Mrs. Zelia Nuttall, of Dresden, Saxony, was received a set of antique carved Norwegian cart harness.

Specimens of minerals were received from the Royal Museum, in Stockholm, Sweden.

RUSSIA.

Finland.—From the Royal Museum, Stockholm, Sweden, were received minerals.

St. Petersburg.—From Dr. F. Schmidt, of the Royal Society, was received a specimen of *Obolus apollinis*, Eichwald, from the Upper Cambrian of Esthonia.

SWEDEN.

Stockholm.—From the Royal Museum were received specimens of minerals.

From Mr. John B. Koch, of Bozeman, Montana, was received a polished ax from Sweden.

SWITZERLAND.

The Federal Department of Industry and Agriculture presented a collection of alcoholic specimens of fishes, comprising 89 specimens, representing 45 species.

TURKEY.

Constantinople.—A Hebrew sacrificial platter, made in Constantinople and used in the celebration of the Passover, was purchased from Dr. Friedenwald, of Baltimore, Maryland.

OCEANICA.

AUSTRALASIA.

AUSTRALIA.

The Department of Agriculture, through Dr. C. V. Riley, entomologist, sent a collection of insects, gathered in Australia and New Zealand by Mr. A. Koebele, agent of the Department. This collection comprises 1,158 specimens, representing 342 species of *Coleoptera*, *Hemiptera*, and *Orthoptera*.

New South Wales.—From the Australian Museum, through Mr. Edward Ramsay, director, were received, in exchange, 44 specimens of percoid fishes, representing 34 species.

NEW CALEDONIA.

From the Ethnological Museum, Berlin, were received ethnological specimens from this and other regions.

NEW GUINEA.

M. A. Boucard, of Paris, France, presented to the Department of Birds a specimen of *Manucodia atra*.

MALAYSIA.

Macassar (Celebes).—A living Macaque monkey, brought to the United States by the U. S. S. *Brooklyn*, was presented by Mr. S. Briggs, of Washington, District of Columbia.

POLYNESIA.

HAWAIIAN ISLANDS.

From King Kalakaua, through Hon. D. A. McKinley, His Majesty's consul-general at San Francisco, was received a supposed fossil tooth for examination and report.

From Mrs. Sybil Carter, of Washington, District of Columbia, was received a collection of ethnological objects, consisting of a feather-plume, hat, wallet, fan, bowl, anklet, Tapa club, carrying-club, photographs, etc., and a specimen of *Peles' hair* from the Hawaiian volcanoes.

Mr. C. A. Brown, of Honolulu, sent three specimens of Awa (Kava), representing the varieties of Puna, Makea, and Papa.

Makaweli Kauai.—Mr. Francis Gay, through Prof. H. Carrington Bolton, of New York City, presented a collection of fiber-yielding plants and fabrics.

Waiawa.—Mr. Valdemar Knudsen sent 48 specimens, representing 20 species, of birds' skins.

SAMOAN ISLANDS.

Apia.—Dr. C. H. White, U. S. Navy, sent a collection of butterflies.

Samoa.—Dr. White, in addition to the collection from Apia, presented a large and valuable contribution of reptiles, fishes, insects, marine invertebrates, birds' skins, and a mammal skin.

Ensign W. E. Safford, U. S. Navy, presented a collection of 33 ethnological objects obtained by him.

Mr. J. D. Milligan, of Boston, Massachusetts, presented 2 specimens of *Cypraea arabica* L.

Mr. Harold M. Sewall, of Bath, Maine, presented a Samoan fire-stick.

Malietoa, Mataafa, and other chiefs of high rank in the Samoan Islands, presented the United States Government, through Rear-Admiral L. A. Kimberly, a collection of ethnological objects, among which were several objects of great value to them. These were sent as a token of their esteem for the friendly interest shown by the United States during the troubles which occurred in the islands.

EASTER ISLAND.

Mr. M. F. Savage, of New York City, sent a feather head-dress from this island.

I.—COÖPERATION OF THE DEPARTMENTS AND BUREAUS OF THE GOVERNMENT.

The National Museum has continued to receive from the Departments and Bureaus of the Government many valuable and interesting collections. The U. S. Geological Survey, whose interests are closely allied with those of the Museum, has, as in past years, been instrumental in obtaining large and valuable collections of geological material, which, after being worked over by the geologists connected with the Survey, have been incorporated with the Museum collections.

The valuable services rendered by several officers of the Army and Navy are highly appreciated. The Department of State has, through its ministers and consuls, rendered important assistance in enlarging the collections of natural history and ethnological objects from foreign countries.

DEPARTMENT OF STATE.

The Government of Switzerland has presented, through Maj. Karl Kloss, chargé d'affaires for Switzerland, a collection of 89 alcoholic specimens, including 45 species, of fishes from Switzerland. *

The Hon. John T. Swift, United States consul at Tokio, Japan, transmitted a section of rope made of human hair, which had been used as an ordinary cable in lifting building-material in the construction of a Buddhist temple at Kyoto, Japan; a photograph of the entire rolls of cables, similarly constructed, still remaining at the new Buddhist temple at Kyoto. A list of the names of the provinces of the donors, showing the size and length of each of the ropes used in the construction of the eastern Hon-gwan-ji temple at Kyoto, and a lithograph of the famous Buddhist temple, were also received. These objects were presented by Hiramatz Rei, chief Buddhist priest of Japan.

Through Hon. Thomas J. McLain, United States consul at Nassau, West Indies, were received specimens of sisal.

*List of species.

Species.	From—	Species.	From—
<i>Perca fluviatilis</i> L	Ponte Tresa.	<i>Telestes Agassizii</i> Heckel.	Aar.
Do	Aar.	<i>Telestes Savignyi</i> Bonap..	Pointe Tresa.
<i>Acerina cernua</i> L.....	Rhine (Basel).	<i>Proximus lævus</i> L.....	Aar.
<i>Gasterosteus gymnurus</i>	Do.	<i>Chondrostoma nasus</i> L...	Do.
Cuv.		<i>Chondrostoma soetta</i> Bonap.	Ponte Tresa.
<i>Cottus gobio</i> L.....	Tessin.	<i>Coregonus Wartmanni</i> ,	Lake of Constance.
Do	Lake of Thoune.	<i>acutirostris</i> Tatio.	
<i>Lota vulgaris</i> Cuv.....	Lake of Morat.	<i>Coregonus crassirostris</i>	Lake of Thoune.
<i>Tinca vulgaris</i> Cuv.....	Aar.	<i>nobilis</i> Haak.	
<i>Barbus fluviatilis</i> Ag	Do.	<i>Coregonus restrictus</i> , Bon-	Lake of Neuchatel.
<i>Barbus plebejus</i> Bon	Ponte Tresa.	<i>della</i> Tatio.	
<i>Barbus caninus</i> Val.....	Do.	<i>Coregonus Schnizii</i> alpi-	Lake of Thoune.
<i>Gobio fluviatilis</i> L	Lake of Morat.	<i>nus</i> Tatio.	
<i>Rhodens amarus</i> L.....	Basel.	<i>Thymallus vulgaris</i> Nilss	Aar.
<i>Abramis brama</i> L	Lake of Moosseedorf.	<i>Salmo salvelinus</i> L.....	Lake of Zug.
<i>Blicca bjoerkna</i> L	Lake of Morat.	<i>Trutta lacustris</i> L.....	Lake of Thoune.
<i>Spirinus bipunctatus</i> Bl ..	Aar.	<i>Trutta fario</i> L	Lake of Berne.
<i>Alburnus lucidus</i> Heckel ..	Lake of Thoune.	<i>Esox lucius</i> L.....	Do.
<i>Alburnus alborella</i> de Fil..	Ponte Tresa.	Do.....	Ponte Tresa.
<i>Scardinius erythrophthal-</i>	Do.	<i>Alosa vulgaris</i> Cuv.....	Rhine.
<i>mus</i> L.		<i>Silurus glanis</i> L	Lake of Bienne.
<i>Scardinius erythrophthal-</i>	Aar.	<i>Cobitis fossilis</i> L.....	Basel.
<i>mus</i> L.		<i>Cobitis barbatula</i> L.....	Berne.
<i>Leuciscus rutilus</i> L.....	Do.	<i>Cobitis tania</i> L.....	Tessin.
<i>Leuciscus rutilus</i> var.....	Lake of Bienne.	<i>Anguilla vulgaris</i> Fl.....	Berne.
<i>Leuciscus pigus</i> de Fil.....	Ponte Tresa.	<i>Petromyzon Planeri</i> Fl.	Aar.
<i>Leuciscus aula</i> Bonap	Do.	lavo.	
<i>Squalius cephalus</i> L.....	Aar.	<i>Petromyzon Planeri</i> ad...	Do.
<i>Squalius leuciscus</i> L.....	Do.	<i>Petromyzon fluviatilis</i> L..	Rhine (Basel).†
<i>Squalius cavedanus</i> Bonap	Ponte Tresa.		

Mr. J. Crawford, of Nicaragua, has expressed his intention of obtaining the consent of the Nicaraguan Government to permit the representative of Nicaragua at the Paris Exposition to transfer to the Smithsonian Institution such portions of the exhibit at Nicaragua as may be desired. The Department of State has kindly offered to render assistance through its minister in Central America.

TREASURY DEPARTMENT.

The National Museum is much indebted to this Department for its continued assistance in connection with the free entry of imported objects and for the interest displayed by several of its bureaus in the work of the Museum.

In connection with the intended visit of Mr. Henry W. Elliott, formerly in the service of the Alaska Commercial Company, to the seal islands of Alaska, on business of the United States Government, the Secretary of the Treasury kindly permitted a taxidermist, selected by the Smithsonian Institution, to accompany Mr. Elliott, for the purpose of collecting specimens for the Museum, and extended special assistance with a view to facilitating their preservation.

At the request of the Secretary of the Smithsonian Institution special facilities were afforded by the Department to Mr. W. E. D. Scott, who had expressed his intention of visiting Florida keys in February, 1890, for the purpose of studying the birds of that region and of making a collection of birds' eggs for the National Museum. Capt. F. M. Munger, of the revenue steamer *McLane*, stationed at Key West, was instructed by the Secretary of the Treasury to aid Mr. Scott in every way in his power.

Life-Saving Service.—Capt. A. H. Meyers, of the life-saving station at Quoddy Head, Maine, sent photographs of a whale (*Balænoptera rostrata*).

Revenue Marine Division.—From Hon. Peter Bonnett, chief of the division, were received 35 photographs of Eskimo and Alaskan scenery.

An interesting collection of 89 photographs of Alaska was obtained by Capt. M. A. Healy, of the revenue steamer *Bear*, and sent to the Museum through the Alaska Commercial Company.

Coast and Geodetic Survey.—Dr. T. C. Mendenhall, Superintendent, kindly supplied charts of the Florida coast to aid Mr. W. E. D. Scott in his investigations of the ornithology of the region.

A collection of Indian bones and pottery was obtained and transmitted by Mr. W. H. Hodgkins, assistant superintendent. These were procured from Peru Landing, formerly Hache's Point, New River, North Carolina.

Light-House Board.—The naval secretary, at the request of the Secretary of the Smithsonian Institution, instructed the light-house keepers on the Florida coast to assist Mr. W. E. D. Scott in his investigations of the ornithology of the region.

WAR DEPARTMENT AND THE ARMY.

The Hon. Redfield Proctor, Secretary of War, has transmitted to the Museum two swords presented to the late Gen. James Shields by the States of South Carolina and Illinois for gallant services in the Mexican War.

From Gen. M. C. Meigs, U. S. Army (retired), was received a whistle, supposed to have been found in an Indian mound near Columbus, Georgia.

A living *Chaehalaea* pheasant, was presented by Maj. George W. McKee, U. S. Army, Allegheny Arsenal, Pittsburgh, Pennsylvania.

Capt. W. L. Carpenter, Ninth Infantry, U. S. Army, presented a skin of the Rocky Mountain Lined-tailed Spermophile (*Spermophilus grammurus*) from Fort Whipple, Arizona. Captain Carpenter also presented alcoholic specimens of reptiles, fishes, and insects from the same locality.

Capt. Henry Romeyn, U. S. Army, presented 13 living White-winged Doves (*Melopelia leucoptera*) from Fort Ringgold, Texas. He also presented specimens of clay tunnels constructed by ants, and two living Peccaries (*Dicotyles tajua*).

Capt. P. H. Ray, U. S. Army, Omaha, Nebraska, sent palæolithic implements from the Bridger Basin, on the north slope of the Uintah Mountains, Utah.

From Lieut. H. C. Benson, U. S. Army, were received 3 eggs (1 set of the long-crested Jay (*Cyanocitta stelleri macrolopha* Baird).

Lieut. Malvern Hill Barnum, U. S. Army, Fort Pena, Colorado, Texas, presented a set of 12 eggs and a skin of the Scaled Partridge (*Callipepla squamata* Vig.).

Dr. R. W. Shufeldt, U. S. Army, sent 8 specimens, representing 3 species of Juncos, from Fort Wingate, New Mexico. Also a mounted skeleton of Trumpeter Swan (*Olor buccinator*).

An exceedingly interesting series of 12 ethnological specimens from the Navajo Indians was received from Dr. Washington Matthews, U. S. Army, Army Medical Museum.

Assistant Surgéon J. C. Merrill, U. S. Army, Fort Reno, Indian Territory, presented 14 eggs (1 set) of *Tympanuchus pallidicinctus*; 19 eggs (4 sets) of *Progne subis*; 18 eggs (4 sets) of *Spiza americana*, and 2 nests; 4 eggs (1 set) of *Quiscalus quiscula ancus*; 3 eggs (1 set) of *Cardinalis cardinalis*; 1 egg of *Molothrus ater*; 5 eggs (1 set) of *Ammodramus savannarum passerinus*; and 3 eggs (1 set) of *Vireo bellii*.

Through G. L. Gillespie, lieutenant-colonel of Engineers, U. S. Army, was transmitted a gun-carriage, brought from the citadel of Santo Domingo City. This carriage is of mahogany, and was probably made by the Spaniards during the earlier days of their possession of the island. It was presented in February, 1890, by Gen. Frederic Lithgow, minister of war and the navy of the Dominican Republic, to Capt. Nathan Appleton, of Boston, Massachusetts, by whom it was presented to the National Museum.

The Quartermaster-General has rendered important assistance in connection with the transportation of four living buffaloes from Rapid City, South Dakota, to Washington. The thanks of the Museum are also due to Lieut. Col. William B. Hughes, chief quartermaster of the Department of the Platte, at Omaha, Nebraska, for facilitating the work of transportation in many ways. Through the courtesy of the Quartermaster's Department several bidarkas, collected for the National Museum in Alaska, were forwarded to Washington.

Capt. C. E. Beudire has continued his work as curator of the collection of Birds' Eggs, and the thanks of the Museum are due to him for the excellent condition of the collection.

NAVY DEPARTMENT AND THE NAVY.

The Museum is under obligation to several officers of the U. S. Navy for the addition of valuable contributions to the collections.

Commodore J. G. Walker, Chief of the Bureau of Navigation, sent specimens of ocean bottom, taken in the North Atlantic Ocean during the passage of the U. S. S. *Dolphin*, under the command of Commander F. F. Wilde, U. S. Navy, from the Straits of Gibraltar to New York.

From Commander C. H. Rockwell was received a specimen of *Ostracion quadricorne*, from Santiago de Cuba.

Lieut. George T. Emmons presented a Haida whistle, the sound of which was an imitation of the young deer, from the southern part of Prince of Wales Island, Alaska; four photographs illustrating witchcraft in Alaska, and among the Hydahs and Tlingits; and a plaited wallet from Washington.

From Lieut. Charles F. Pond were received rocks, minerals, and shells, from Lower California and adjacent islands; two photographs and the lower jawbone of a porpoise found on the beach at San Bartolme, Lower California.

Lieut. Frederic Singer presented to the Department of Insects a termite queen, from Sinou County, Liberia.

From Ensign W. E. Safford was received a collection of 33 ethnological objects obtained by him in the Samoan Islands.

Dr. C. H. White, U. S. Navy, sent a large and valuable collection of alcoholic specimens of reptiles, fishes, insects, marine invertebrates from Samoa, and a collection of butterflies.

Malietao, Mataafa, and other chiefs of high rank at Samoa, presented to Rear-Admiral Kimberly, for the United States Government, a number of ethnological objects. Some of the mats sent are very handsome and of great value, in many cases being heir-looms.

Paymaster William J. Thomson has finished the preparation of an elaborate paper on the ethnology of Easter Island. This is published in the Report for 1889.

Dr. J. M. Flint is still in charge of the Section of Materia Medica, and the collection is, as usual, in excellent condition.

DEPARTMENT OF THE INTERIOR.

The Hon. John W. Noble, Secretary, has deposited in the Museum a collection of ethnological specimens, collected among the Indians of the Tulalip Reservation, Washington, by Mr. E. C. Chirouse, agent in charge of the reservation.

Indian Office.—From General T. J. Morgan, Commissioner of Indian Affairs, was received a wooden hoe, used by the Indians of the Chipewa Reserve, Wisconsin.

U. S. Geological Survey.—The following statement will show the extent of the contributions received from the Survey during the year :

The U. S. Geological Survey presented a type specimen of *Conocoryphe reticulata* Walcott, from the Lower Cambrian of Salem, Washington County, New York; miscellaneous collection of geological material from Madison County, Montana; 30 specimens of minerals; 21 transparencies for windows in the exhibition hall of the Department of Lithology; sandstone with mud and ripple-marks from Grand Cañon group, 7,000 feet below the base of Cambrian, Grand Cañon of Colorado, Arizona; fossils from the Lorraine formation of the Ordovician from several localities in New York, and 36 specimens, comprising 11 genera and 18 species of Lower Cambrian fossils from several localities; specimens of fresh-water Gasteropoda from the Bonneville and Lahontan beds, Utah, and fossils from Nevada; 38 objects, offerings from shrines in New Mexico; specimens of kyanite and anthophyllite from Virginia; and a specimen of iridescent limonite from Cuba, collected by Mr. W. J. McGee; two specimens of urao and one of potassium platinic chloride, prepared by Dr. T. M. Chatard; a specimen of selenite from Fort Washington, Maryland, collected by Mr. George W. Cook; specimens of thiolite from Lake Lahontan, and of wulfenite and cerussite from the Richmond mine, Eureka District, Nevada, collected by C. D. Walcott; specimen of wulfenite from Eureka, Nevada; 287 specimens, representing 24 genera and 32 species of fossils from the Lower Cambrian, Ordovician, and Silurian; 9 specimens of *Lingulepis morsensis*, and 2 specimens of *Planolites* sp., from the Trenton group, Fountain, Minnesota; one specimen of *Receptaculites oweni* from the Trenton group, Ripon, Wisconsin, collected by Mr. C. D. Walcott; living serpents collected by Col. George W. Shutt; 22 photographs of scenery of the Great Dismal Swamp, collected by Mr. I. C. Russell; collections showing the results of the quicksilver investigations of the Pacific Slope, made under the authority of Mr. G. F. Becker; 41 specimens, representing 11 species of Devonian Brachiopoda, from Independence, Iowa; 7 specimens of graphite and specimens of pyrite crystals, calcite and magnetite, from Port Henry, Minnesota, collected by Prof. F. W. Clarke; casts of supposed human foot-prints discovered in the limestone formation near Forest City, South Dakota, sent by Mr. J. C. Collister; specimens of native gold associated with calcite from a mine on Digger Creek, near Muersville, Trinity County, California, sent by Mrs. J. H. Tourtelette, through Mr. J. S. Diller; 13 specimens of minerals, collected by Mr. W. P. Jenney, from Southwest Missouri and neighboring localities, and 3 specimens of marbles from Sugar Orchard Creek, Boone County, Arkansas; a specimen of alunite from Brooklyn Tunnel, Red Mountain District, San Juan, Colorado, collected by Prof. S. F. Emmons; 105 specimens of vanadinite and 1 specimen of wulfenite, from the old Yuma mine, near Tucson, Arizona, collected by Dr. W. F. Hillebrand; a specimen of wulfenite from the Red Cloud mine, Yuma County; 70 specimens of vanadinite from Aqua Fria mine, Yavapai County; a specimen of iodurite from the Old Man mine, near Silver City, New Mexico; 260 specimens of minerals from the Copper Queen mine, Bisbee, Arizona; 64 specimens of vanadinite from the Hamburg mine, Silver District, Arizona, and from the Clara mine, in same locality, and 26 specimens, representing seven genera and 8 species of Cambrian and Ordovician fossils, collected by Mr. C. D. Walcott.

The Survey also deposited specimens of biotite and calcite, from Port Henry, and specimens of calcite on dolomite and magnetite; also copies of two models of Mount Shasta, California. Six slabs of stone exhibiting glacial striæ were received. Two of these were collected by Mr. G. K. Gilbert, in Canada; the remainder by Prof. T. C. Chamberlin.

Several officers of the Geological Survey are officially connected with the Museum in the capacity of honorary curators. These are: Dr. C. A. White, in charge of Mesozoic Fossils; Mr. C. D. Walcott, in charge of Paleozoic Fossils; Mr. William H. Dall, in charge of Mollusks and Tertiary Fossils, with Dr. R. E. C. Stearns as adjunct curator; Prof. O. C. Marsh, in charge of Vertebrate Fossils; Prof. Lester F. Ward, in charge of Fossil Plants; Prof. F. W. Clarke, in charge of Minerals.

DEPARTMENT OF AGRICULTURE.

Hon. Edwin Willits, Assistant Secretary, transmitted a living Otter, obtained by Dr. Allen Stuart, of Beaufort, South Carolina.

The extensive collections of small mammals made by the Division of Economic Ornithology and Mammalogy, have been deposited in the Museum building. A considerable number of cases especially constructed for their reception, and of trays, have been provided by the Museum. The specimens have been entered promptly by clerks employed by the Museum exclusively for that purpose, and the skulls have been cleaned as fast as received, so far as this was found to be possible. This latter work has made it necessary to employ from time to time a number of additional preparators. More than three thousand specimens, comprising skins and skulls, were deposited during the year, and entered upon our catalogues and numbered. The cleaning of the skulls, with a view to putting them into condition for preservation and exhibition, was a task of considerable magnitude. The Museum has also provided glass vials and preservatives, and has printed a certain number of special labels for these specimens.

Dr. C. Hart Merriam has presented an interesting collection of reptiles from Arizona; two living Canada Porcupines (*Erethizon dorsatus*) from northern Minnesota; a Horned Toad (*Phrynosoma brevirostre*) with a sample of the earth upon which it was living, from Bridger's Pass, Wyoming; nests and eggs of *Spizella breweri*, *Sturnella magna neglecta*, and *Falco richardsoni*.

Prof. C. V. Riley, entomologist of the Department, has added to the collection of insects a large series, comprising 1,158 specimens, representing 342 species of Coleoptera, Hemiptera, and Orthoptera, gathered in Australia and New Zealand by Mr. A. Koebele, agent of the Department. Professor Riley has also deposited the collection of insects of the late Dr. Asa Fitch.

Mr. L. O. Howard, assistant entomologist of the Department, sent a tussa silk-moth reared by him from a cocoon sent to the National

Museum from India. The thanks of the Museum are due to Mr. Howard for his services as acting curator of the Department of Insects in the Museum during the absence of the honorary curator.

Through Dr. B. E. Fernow, chief of the Division of Forestry, has been received a large map which was exhibited at the Paris Exposition, showing the percentage of forest-areas.

The valuable services of Professor Riley, as honorary curator of the Department of Insects; of Dr. B. E. Fernow as honorary curator of the forestry collection, and of Dr. George Vasey, as honorary curator of the Department of Botany, have been continued.

UNITED STATES FISH COMMISSION.

The cruise of the steamer *Albatross* in the West Indies and in the Pacific Ocean has resulted in some very important additions to the collections of the National Museum.

The following statement gives the general character of these collections, which have been transmitted to the Museum by Col. Marshall McDonald, Commissioner of Fisheries.

A series of Echini from the North Pacific Ocean; 226 specimens of birds collected by the naturalists of the steamer *Albatross* on the west coast of America during 1888-'89. (The collection was made mainly through the efforts of Mr. Charles H. Townsend.) A collection of alcoholic fishes from Galapagos Islands; specimens of bats, coyote skull, botanical specimens, dried plants, guano, birds' nests, stone implements and shells, human skulls and skeleton, specimens of natural history, reptiles and batrachians, and insects from the western coast of North America, were also received. Samples of dried hake sounds, and sheet isinglass manufactured from the same, two Gulls (*Larus glaucescens*), fresh specimens of Pickerel and of Weak-fish from the aquaria of the Commission, two skeletons of Cormorants (*Phalacrocorax dilophus* and *Phalacrocorax penicillatus*) and a stuffed skin of Saw-fish (*Pristis pectinatus*), have also been received.

Through Dr. D. S. Jordan, president of the Indiana State University, have been received type series of fishes collected in Colorado, Utah, and Kansas; 115 specimens of cray-fishes from Virginia, North Carolina, Tennessee, Michigan and Indiana. Specimens of reptiles, batrachians, and insects, collected in Virginia and elsewhere, also type series of fishes, alcoholic shells, mammals, and reptiles from the Yellowstone Park have been received. Dr. Jordan has made several important collections of fishes during the summer, and, with the assistance of Dr. Bollman, has described them. These descriptions have been published by the Fish Commission. The fishes have been transferred to the collection in the National Museum.

Mr. William F. Page, superintendent of the U. S. Fish Commission station at Neosho, Missouri, presented the wing of a bird which was

shot on the grounds of the station, and a specimen of Black Tern (*Hydrochelidon lariformis surinamensis*).

Through Mr. Vinal N. Edwards fresh specimens of eels collected at Wood's Holl, Massachusetts, were received.

From Messrs. Leslie A. Lee and Thomas Lee was obtained a collection of spears, spear-points, baskets, and other ethnological objects, from the Fuegian Islands, South America.

Mr. William P. Seal, superintendent of the aquaria at Wood's Holl, Massachusetts, sent a fresh specimen of Sheepshead (*Diplodus probatocephalus*) from Chesapeake Bay.

At the instance of Capt. J. W. Collins, a valuable collection of builders' models of vessels was obtained from Mr. W. H. Abbott, of the U. S. Fish Commission. A list of the models is given in the accession list.

The valuable services of Mr. Richard Rathbun, as honorary curator of Marine Invertebrates; Dr. Tarleton H. Bean, as honorary curator of Fishes; and Capt. J. W. Collins, as honorary curator of Naval Architecture, have been continued through the courtesy of the Commissioner.

BUREAU OF ETHNOLOGY.

Through the coöperation of Maj. J. W. Powell, Director, the following collections have been received from the officers of the Bureau:

From Rev. J. Owen Dorsey were received two models of fish-hawks and one model of retrieving-harpoon, from the Näl-tûn-né tûn-né Indians of Oregon.

A model of Wolpi, one of the Tusayan villages, Arizona, and models of Tewa and Sechomovi, Tusayan pueblos, have been deposited in the Museum.

From Mr. James Mooney were received a collection of baskets, mocasins, polishing-stones, conjuring-stones, ball-pants, scratchers, bullet-mold, lancet, cupping-horn, etc., obtained from the East Cherokee Reservation, North Carolina.

Through the courtesy of the Director, the Department of American Prehistoric Pottery in the National Museum, which was established several years ago, has continued under the curatorship of Mr. W. H. Holmes.

J.—EXPLORATIONS.

By an act of Congress,* provision was made to defray the expense of sending a scientific expedition to the west coast of Africa for the purpose of observing the total eclipse of the sun, occurring on December 22, 1889. In accordance with the recommendations of a board appointed by the Chief of the Bureau of Navigation to devise plans, etc., the details of the expedition were arranged.

* Passed March 2, 1889.

Through the courtesy of Prof. David P. Todd, of Amherst College, Massachusetts, in charge of the expedition, arrangements were made whereby Mr. William Harvey Brown, of the National Museum, was detailed to accompany the expedition in the interest of the Museum, for the purpose of making collections of natural history objects, especially fishes and mammals.

The expedition party sailed on October 16, 1889, on the United States steamer *Pensacola*. The steamer served as headquarters for Mr. Brown and his party, and in making the collections he has been very generously assisted by the officers and seamen.

At the Azores, Mr. Brown made a small collection of fishes and shells. Writing from Cape Town on February 3, 1890, he says:

We have succeeded in filling 15 tanks and a number of jars and bottles with alcohols, besides collecting a large number of plants and insects, some skeletons, and some excellent anthropological material. The ungulates of South Africa are rapidly disappearing before the advance of civilization; some are already scarce. If we want a good representation of these in our Museum, now is the time to get them.

Several important collections were received in June, 1890.

From preliminary reports prepared by some of the curators in the Museum the following preliminary statement has been compiled:

ETHNOLOGY.—The Department of Ethnology received a collection of objects, consisting of an idol used in fetish-dance, with grass-fringe dress; gaming-stool, with seeds used in playing; carrying or fishing-basket of twined open work; long carrying-basket or frame, showing work of weaving; finer specimen of carrying-basket; complete outfit of professional carrier, head-band and staff; fruit-wallet; throwing-club; hoe (of native manufacture); bottle of fetish-paint, made of rawhide; pad worn on the arm; musical instrument with gourd resonator; musical instrument (stringed); drum used in fetish ceremonies; weaving outfit, distaff, spindle, cotton-ginning sticks, loom complete with specimens half done; pipe of clay; three pottery dishes; fish-fyke, and fish-spear. All of these objects are new and very acceptable.

MAMMALS.—The mammals collected by the Eclipse Expedition are 33 in number and represent 16 species. With the exception of 7 specimens all were collected at Cunga, on the Coanza River, in Angola. Only two of the species, the Black Rat (*Mus rattus*) and the Bonte-bok (*Alcelaphus pygargus*), were previously represented in the National Museum, and the collection, though small, is of considerable interest.

The following is a list of the mammals received:

Carnivores.

Genetta pardina Geoff. Pardine Genet. Male, adult. Cunga.

Antelopes.

Tragelaphus gratus Selater. Bush Buck.

Male, Cunga, December 28, 1889. (18793.)

Female, Cunga, December 27, 1889. (18794.)

Two excellent skins of this fine antelope were collected by the expedition. The white preocular band is not strongly marked in the male and it is absent in the female. The type of the species was from the Gaboon.

Tragelaphus sylvaticus (Sparrrn.) Bush Buck.

Horns of a male. From South Africa. Presented by Mr. Frye. (18823.)

Gazella euchore (Lichtenstein). Spring-bok.

Two pairs of horns. From South Africa. Presented by Mr. Frye. (18820-21.)

Alcelaphus pygargus (Pallas). Bonte-bok.

A pair of horns. From South Africa. Presented by Mr. Frye. (18822.)

Cephalophus grimmia (Linné). Dnyker Antelope.

A pair of horns from South Africa. Presented by Mr. Frye. (18824.)

Bats.

Phyllorhina commersoni (Geoff.).

Male, adult, Cunga, Dec., 1889. (18795.)

Female, adult, Cunga, Dec., 1889. (18796.)

Nycteris macrotis Dobson.

Male, adult, Cunga, Dec. 25, 1889. (18797.)

The type of this species is from Sierra Leone. It is not included by M. Barboza du Bocage among the mammals of Angola, and its discovery in this region is therefore of interest.

Scotophilus borbonicus (Geoff.).

Female, adult, Cunga, Dec. 25, 1889. (18798.)

Nyctinomus limbatus (Peters).

Three adult females from Cunga, Dec. 25, 1889. (18799-18801.)

Five adult males from Cunga, Dec., 1889. (18802-18806.)

Rodents.

Mus rattus Linne. Black rat.

Females, adult, Cunga, Dec., 1886. (18805, 9, 15.)

Females, young, Cunga, Dec., 1889. (18811, 12.)

Males, adult, Cunga, Dec. 25, 1889. (18813, 14.)

Males, young, Cunga, Dec., 1889. (18810, 16.)

Mus sp.

Female, adult, Cunga, Dec., 1889. (18817.)

This is a small rat with white belly, apparently resembling *M. maurus* of Gray.

Lepus capensis F. Cuv. Cape Hare.

Near Cape Town, South Africa, Feb. 4, 1890. (18818.)

Atherura africana Gray. African Brush-tailed Porcupine.

Almina, Ashantee, Nov. 27, 1889. (18819.)

REPTILES AND BATRACHIANS.—The Department of Reptiles and Batrachians has received a number of specimens from the naturalists attached to the expedition. Some of them were not in a satisfactory state of preservation, and from the fact that the collection was made under unfavorable circumstances, in localities already more or less explored, it could hardly be expected to contain many new species.

FISHES.—The Department of Fishes received a large collection, a list of the genera of which, together with the locality, is given below.

FISHES (MARINE SPECIES).

Horta, Island of Fayal, November 2, 1839.

<i>Tetrodon.</i>	<i>Pomacentrus.</i>
<i>Scomber.</i>	<i>Diplodus.</i>
<i>Lichia.</i>	<i>Tylosurus</i> (long and short jawed).
<i>Box.</i>	<i>Balistes retula.</i>
<i>Mugil, juv.</i>	<i>Trachurus</i> (many).
<i>Ostracion.</i>	<i>Pagellus.</i>
<i>PlatyGLOSSUS.</i>	<i>Serranus.</i>

Porto Grande, St. Vincent, November 11 and 12, 1839.

<i>Balistes.</i>	<i>Gerres.</i>
<i>Scorpena.</i>	<i>Teuthis.</i>
<i>Polynemus.</i>	<i>Hypeneus</i> (29 specimens).
<i>Trachurops</i> (26 specimens).	<i>Lutjanus.</i>
<i>Vomer.</i>	<i>Harengula.</i>
<i>Pagellus.</i>	<i>Diplodus.</i>
<i>Epinephelus.</i>	<i>Diagramma.</i>
<i>Chaetodon.</i>	<i>Muræna.</i>
<i>Salarias atlanticus.</i>	<i>Tylosurus.</i>

St. Paul de Loanda, December 10-12, 1839.

<i>Tetrodon.</i>	<i>Hemirhamphus</i> (6 specimens).
<i>Trichiurus</i> (6 specimens).	<i>Fodiator.</i>
<i>Caranx</i> (6 specimens).	<i>Brevoortia</i> (5 specimens).
<i>Pagellus.</i>	<i>Harengula</i> (8 specimens).
<i>Pristipoma</i> (9 specimens).	<i>Lagocephalus</i> (4 specimens).
<i>Aprion</i> (3 specimens).	<i>Diplodus.</i>
<i>Sphyræna.</i>	<i>Mugil</i> (6 specimens).

Elmina, Ashantee.

<i>Paralichthys juv.</i> (3 specimens).	<i>Elops</i> (several specimens).
<i>Periophthalmus</i> (several specimens).	<i>Torpedo.</i>
<i>Chromis</i> (several specimens).	<i>Gobius</i> (2 species, 5 specimens).
<i>Gerres</i> (9 specimens).	<i>Polynemus.</i>
<i>Teuthis.</i>	<i>Chaetodon</i> (2 specimens).
<i>Caranx</i> (5 specimens).	<i>Pristipoma</i> (several specimens).
<i>Lutjanus</i> (5 specimens).	<i>Serranus</i> (3 specimens).
<i>Mugil</i> (2 or more species, 21 specimens).	<i>Carcharias, juv.</i>

Freetown, Sierra Leone.

<i>Polynemus.</i>	<i>Larimus.</i>
<i>Cynoscion.</i>	<i>Chrysichthys.</i>
<i>Brevoortia.</i>	<i>Selene.</i>
<i>Caranx.</i>	<i>Albula.</i>

Cape Town, January 18, 1890.

<i>Pomatomus.</i>	<i>Trachurus.</i>
<i>Scomber colias.</i>	<i>Mugil.</i>
<i>Pagellus.</i>	

From an old canoe at sea, N. Lat. 6° 38', W. Long. 13° 40'.

Seriola (13 specimens).

St. Helena and Ascension, March 1, 1890.

Glyphidodon. *Julis.*
Salarias.

Ascension Island, March, 1890.

Alutera. *Echeneis.*
Balistes. *Pomacanthus.*
Glyphidodon. *Tylosurus* (2 specimens).

S. Lat. 2° 33' 22", W. Long. 23° 57' 15", April 14, 1890.—From stomach of bonito.

Cephalacanthus juv. (7 specimens). *Tetrodon* (2 specimens).

FISHES (FRESH-WATER SPECIES).

Quanza River, Cunga, Angola, Africa.

Gobius. *Bola.*
Eleotris. *Barbus* (several species).
Chromis. *Mormyrops.*
Hemichromis. *Mormyrops.*
Cyprinoids (juv.). *Ailia* (juv.).
Brachyalestes (*Characinids*). *Clarias.*
Pellonula. *Entropius.*
Cyprinoids (young specimens, from pond) *Chrysiichthys.*
Cunga.

MOLLUSKS.—The Department of Mollusks received a contribution of alcoholic and dry shells, of which the following is a list :

Zonites cellarius Müll, Fayal, Azores Islands.
Patula rotundata, Müll, Fayal, Azores Islands.
Succinea? *St. Helena* Lesson, Diana's Peak, St. Helena.
Achatina balteata Rve, Freetown, Sierra Leone.
Achatina variegata Roissy.
Achatina perdit Lam., Freetown, Sierra Leone.
Achatina (*Limicolaria*) *flammea* Brug, Freetown, Sierra Leone.
Achatina (*Limicolaria*) *numidica* Rve, Freetown, Sierra Leone.
Bulinus (*Pithohelix*) *ventricosus* Drap, Fayal, Azores Islands.
Helix aspersa Müll, Fayal, Azores Islands.
Helix (*Theba*) *pisana* Müll, Fayal, Azores Islands; Cape Town, Good Hope.
Helix similis Fer., Green Mountain, Ascension Island.
Helix Caldeirarum M. and D., Fayal, Azores Island.
Helix barbula Charp, Fayal, Azores Islands.
Siphonaria lineolata Orb., Porto Grande, St. Vincent Island, Ashantee, West Africa.
Siphonaria sp., Porto Grande, St. Vincent Island.
Aplysia sp., Porto Grande, St. Vincent Island.
Bulla striata Brug, Porto Grande, Island St. Vincent.
Terebra strigillata Linn., Porto Grande, St. Vincent Island.
Terebra Senegalensis Lam., Porto Grande, St. Vincent Island.
Terebra chlorata Lam., Porto Grande, St. Vincent Island.
Conus guineacus Hwass., Porto Grande, St. Vincent Island.
Cancellaria similis Sow., Porto Grande, St. Vincent Island.

- Oliva flammulata* Lam., Porto Grande, St. Vincent Island.
Olivancillaria nana Lam., Porto Grande, St. Vincent Island.
Agaronia acuminata Lam., Porto Grande, St. Vincent Island.
Mitra plumbea Lam., Porto Grande, St. Vincent Island.
Mitra fusca Swains, Fayal, Azores Islands.
Mitra barbadosis Gmel., Ascension Island.
Leucozonia triserialis Lam., Porto Grande, St. Vincent Island.
Cominella limbosa Lam., Porto Grande, St. Vincent Island; Cape Town, Cape of Good Hope.
Tritonidea variegata Gray, Porto Grande, St. Vincent Island.
Columbella rustica Linn., Fayal, Azores Islands; Porto Grande, St. Vincent Island.
Columbella (Mitrella) cribraria Lam., Porto Grande, St. Vincent Island.
Murex (Phyllonotus) rosarium Chemn., Porto Grande, St. Vincent Island.
Murex (Ocinebra) angularis Lam., Porto Grande, St. Vincent Island.
Purpura hæmastoma Linn., Fayal, Azores Islands; Porto Grande, St. Vincent Island; Elmina, Ashantee, West Africa.
Purpura hæmastoma Linn., var., Island of St. Helena.
Purpura cingulata Lam., Cape Town, Cape Good Hope.
Purpura neritoidea Linn., Porto Grande, St. Vincent Island.
Sistrum nodulosum C. B. Ad., Porto Grande, St. Vincent Island.
Sistrum nodulosum C. B. Ad., variety or new species, Porto Grande, St. Vincent Island.
Ranella argus Gmel., Cape Town, Cape Good Hope.
Cypræa spurca Linn., Porto Grande, St. Vincent Island.
Strombus bubonius Lam.
Strombus fasciatus Gmel.
Strombus coronatus Defrance, Porto Grande, St. Vincent Island.
Cerithium atratum Brug., Porto Grande, St. Vincent Island.
Cerithium vulgatum Brug., Porto Grande, St. Vincent Island.
Planaxis lineatus Da Costa, Porto Grande, St. Vincent Island.
Vermetus Adansonii Daudin., Porto Grande, St. Vincent Island.
Vermetus interliratus Stearns nom. prov. (perhaps should be separated and placed in a new genus), Porto Grande, St. Vincent Island.
Littorina striata King, Fayal, Azores Islands; Porto Grande, St. Vincent Island.
Littorina pulchella Dkr., Porto Grande, St. Vincent Island; Ashantee.
Littorina cingulifera Dkr., no locality, probably Cape of Good Hope.
Littorina scabra Linn, Ashantee, West Africa.
Tectarius miliaris Q. and G., Ascension Island.
Fossarus ambiguus Linn., Porto Grande, St. Vincent Island.
Lanistes sp., Cunga, West Africa.
Hipponyx barbata Sow., Porto Grande, St. Vincent Island.
Trochita radians Lam., Porto Grande, St. Vincent Island.
Natica forata Rve., Fayal, Azores Islands.
Ianthina communis Lam., Fayal, Azores Islands; Porto Grande, St. Vincent Island.
Pyramidella dolabrata Linn., a variety of this, possibly a new species; Porto Grande, St. Vincent Island.
Nerita neritinoidea Rve., Ashantee, West Africa.
Nerita Ascensionis Chem., Ascension Island.
Phasianella Capensis Dkr., Porto Grande, St. Vincent Island.
Phasianella pulla Linn., Porto Grande, St. Vincent Island.
Phasianella neritina Dkr., Cape Town, Cape Good Hope.
Pachypoma tuber Linn., ?, habitat probably Barbadoes.
Osilinis Tamsi Dkr., Porto Grande, St. Vincent Island.
Gibbula Nassaviensis Chemn.
Gibbula umbilicaris Linn., var., Porto Grande, St. Vincent Island.
Oxystele sagitifera Lam., Cape Town, Cape Good Hope.

- Haliotis striata* Lam., Fayal, Azores Islands.
Fissurella alabastrites Rve., Porto Grande, St. Vincent Island.
Fissurella mutabilis Sow., Cape Town, Cape Good Hope.
Patella Moreleti Drouet.
Patella rustica Linn., var. and junior, Fayal, Azores Islands.
Patella Gomesii Drouet.
Patella rustica Linn., Fayal, Azores Islands.
Patella Argenvillei Krauss, Island St. Helena; Cape Town, Cape Good Hope.
Patella plumbea Lam., Porto Grande, St. Vincent Island.
Patella plicata Born., Porto Grande, St. Vincent Island.
Patella Baudonii Drouet, Cape Town, Cape Good Hope.
Patella ocululus Born., Cape Town, Cape Good Hope.
Patella cochlear Gmel., Cape Town, Cape Good Hope.
Patella pinnosa Krauss, Cape Town, Cape Good Hope.
Patella granularis Linn.
Patella denticulata Mart., Cape Town, Cape Good Hope.
Chiton (Steuoplax) purpurascens C. B. Ad., Barbadoes.
Chiton cyanopunctatus Krauss.
 ? *Chiton capensis* Gray, var., Cape Town, Cape Good Hope.
Spirula fragilis Lam., Fayal, Azores Islands.
Octopus sp., Ascension Island.
Sepia officinalis Linn., St. Paul de Loanda, West Africa.
Ostrea mordax Gould, Ascension Island.
Ostrea frous Lam., Porto Grande, St. Vincent Island.
Spondylus gaederopus Linn., Porto Grande, St. Vincent Island.
Spondylus imbutus Rve., Ascension Island.
Pecten miniacens Rve., Fayal, Azores Islands.
Isognomen perna Linn.
 ? *Isognomen dentiferus* Krauss, Ascension Island; Porto Grande, St. Vincent Island.
Mytilus atropurpureus Dkr., Fayal, Azores Islands.
Mytilus ovalis Lam., Porto Grande, St. Vincent Island.
Mytilus edulis Linn. ?, Cape Town, Cape Good Hope.
Mytilus Magellanicus Chemn., Cape Town, Cape Good Hope.
Lithophagus aristatus Sol.
Lithophagus candigerus Lam., Porto Grande, St. Vincent Island.
Dreissensia Africana Van Ben., Ashantee.
Arca Noe Linn., Porto Grande, St. Vincent Island.
Arca tetragona Poli.
 ? *Arca navicularis* Brug., Ascension Island; Porto Grande, St. Vincent Island.
Arca holoserica Rve, Porto Grande, St. Vincent Island.
Arca rhombica Born., Porto Grande, St. Vincent Island.
Arca senilis Gmel., Porto Grande, St. Vincent Island; Freetown, Sierra Leone; Ashantee.
Pectunculus violescens.
Pectunculus stellatus Lam., Porto Grande, St. Vincent Island.
Unio Gaboouensis Kuster, Cunga.
Cardita ajar Brug., Porto Grande, St. Vincent Island.
Cardium ringens Chemn., Porto Grande, St. Vincent Island; Ashantee.
Venus rugosa Desh., Porto Grande, St. Vincent Island.
Venus striata Gray., Ashantee.
Callista chione Linn., Fayal, Azores Islands.
Dosinia Orbigny Dkr., Porto Grande, St. Vincent Island.
Dosinia isocardia Dkr., Porto Grande, St. Vincent Island.
Dosinia torrida Rve.
 ? *Dosinia orbigny* Dkr., Porto Grande, St. Vincent Island.

Dosinia fibula Rve., Porto Grande, St. Vincent Island.

Diplodonta rotundata Müll., Fayal, Azores Islands.

Donax rugosus Linn., Porto Grande, St. Vincent Island; St. Paul de Loanda.

Mactra Adansoni Phil., Porto Grande, St. Vincent Island.

Loripes lacteus Linn., Porto Grande, St. Vincent Island.

Tellina Madagascariensis Gmel., Porto Grande, St. Vincent Island.

Tellina incarnata Linn., Fayal, Azores Islands.

INSECTS.—The Department of Insects received a collection from southern and western Africa. It arrived in very good condition, the lepidoptera packed in papers, and the remainder of the material in alcohol. The collection comprised some 250 species, most of them represented in fair series and representing the different orders in the following proportions:

Lepidoptera (40 species).

Coleoptera (74 species).

Orthoptera (46 species).

Pseudoneuroptera (10 species).

Hemiptera (19 species).

Hymenoptera (25 species).

Diptera (7 species).

Myriapoda (10 species).

Arachnida (12 species).

The Museum collections are poor in the fauna of this region, and nearly all the species were heretofore unrepresented. The Hymenoptera have been sent to Mr. W. F. Kirby, of the British Museum; the Orthoptera to M. Henri de Saussure, of Geneva, Switzerland; the Hemiptera to M. A. Montandon, of Bucharest, Roumania, and most of the Coleoptera to Dr. David Sharp, of Dartford, England. The majority of the Lepidoptera were determined in Washington, thanks to Mr. Roland Trimen's recent monographs of South African Lepidoptera. The remainder of the Lepidoptera have been sent to Rev. W. J. Holland, of Pittsburgh, Pennsylvania. The Myriapoda are in the hands of Prof. L. M. Underwood, of Syracuse, New York; the Arachnida have been referred to Dr. George Marx, of Washington, and the few Diptera have not yet been disposed of.

The following statement has reference to the Lepidoptera and Coleoptera, and three species of Hemiptera, which have been determined in Washington:

LEPIDOPTERA.

Suborder RHŪPALOCERA.

Family *Nymphalidæ*.

Danais chrysippus L., var. *dorippus* Klug.

Roland Trimen, South African Butterflies, vol. 1, London, 1887; 9 specimens from Congo, and 2 from St. Helena.

Danais chrysippus L., var. *alcippus* Cram.

Trimen, *loc. cit.*, 1 specimen, Freetown.

Danais plexippus Fab., 2 specimens, Fayal, Azores.

Acraa horta L.

Trimen, *loc. cit.*, 9 specimens, Cape Town.

Acraa eucedon L.

Trimen, *loc. cit.*, 11 specimens, Congo.

Acraa serena Fab., var., 1 specimen, Congo.

Pyrameis cardui L., 4 specimens, St. Helena.

Precis amestris Dru., 2 specimens, Freetown.

Nephis marpessa Hopffer.

Trimen, *loc. cit.*, 1 specimen, Freetown.

Diadema misippus L.

Trimen, *loc. cit.*, 3 specimens, St. Paul de Loanda ; 1 specimen, Congo.

Hamanumida dædalus Fab.

Trimen, *loc. cit.*, 1 specimen, Freetown.

Harma cænis Dru., 1 specimen, Freetown, Sierra Leone.

Family *Papilionidæ*.

Terias æthiopica Trimén.

Trimén, South African Butterflies, vol. III, London, 1889 ; 1 specimen, Sierra Leone ; 4 specimens, Congo ; 3 specimens, Freetown.

Mylothris chloris Fab.

Mylothris ruppellii Koch.

Trimén, *loc. cit.*, 2 specimens ♂ and ♀, Freetown.

Mylothris poppea Cram., 1 specimen ♀, Freetown.

Pieris gidica Godart.

Trimén, *loc. cit.*, 8 specimens ♂ and 1 specimen ♀, Congo.

Pieris severina Cram.

Trimén, *loc. cit.*, 2 specimens ♂ and ♀, Porto Grande ; 2 specimens ♂ and ♀, Congo.

Colias electra L.

Trimén, *loc. cit.*, 1 specimen ♀, Cape Town.

Herpænia eriphis Godart.

Trimén, *loc. cit.*, 1 specimen ♀, Congo.

Teracolus evippe L.

Trimén, *loc. cit.*, 2 specimens ♂, St. Paul de Loanda ; 1 specimen ♂, Porto Grande, Cape Verde Islands.

Teracolus omphale Godart.

Trimén, *loc. cit.*, 2 specimens, St. Paul de Loanda.

Teracolus vesta Reiche.

Trimén, *loc. cit.*, 1 specimen, St. Paul de Loanda.

Papilio demoleus L.

Trimén, *loc. cit.*, 2 specimens, Congo ; 1 specimen, Elmina, Gold Coast.

Family *Hesperidæ*.

Pterygospidea fuscus Fab.

Trimén, *loc. cit.*, 1 specimen, Freetown ; 1 specimen, Elmina, Gold Coast.

Suborder HETEROCERA.

Family *Zygænidæ*.

Euchromia fulvida Butler.

Trans. Ent. Soc. London, 1888, p. 112 ; 2 specimens, Freetown.

Euchromia splendens Butler.

Loc. cit., p. 113 ; 1 specimen, Freetown.

Euchromia sperchius Cram.

Three specimens, Freetown.

UNDETERMINED.

Eleven specimens of Diurnals and nine specimens of Heterocera.

COLEOPTERA.

Calosoma rugosum De Geer.

One specimen, Porto Grande, Cape Verde Islands.

Anthia 10-guttata L.

One specimen, Cape Town.

Cybister senegalensis Aube.

Sharp's Monograph No. 1145, 1 specimen, Congo.

Cybister tripunctatus Ol.

Sharp's Monog. No. 1140, 31 specimens, St. Paul de Loanda.

Cybister filicornis.

Sharp's Monog. No. 1129, 6 specimens, Congo.

Eretes sticticus L.

Sharp's Monog. No. 1095, 5 specimens, St. Paul de Loanda.

Dineutes subspinosus Klug.

One specimen, St. Paul de Loanda.

Dineutes acreus Klug.

One specimen, Freetown, Sierra Leone.

Berosus cuspidatus Erichs.

Wieg. Arch., 1843, 1 specimen, Congo.

Goerius olens Müll.

Two specimens, Fayal, Azores.

Gymnopleurus virens Er.

Fifteen specimens, St. Paul de Loanda.

Oryctes boas Fab.

One specimen ♂, Elmina, Gold Coast. One specimen ♀, St. Paul de Loanda.

Temnorhynchus diana Beauv.

One specimen, Congo.

Pachnoda marginata Dru.

Fifteen specimens, Elmina, Gold Coast.

Heterorrhina monoceros Gory et Perch.

Two specimens, St. Paul de Loanda.

Phrynetta spinator Fab.

One specimen, Congo, 58 species unnamed.

HETEROPTERA.

Sphaerocoris argus Dru.

Two specimens, Congo.

Sphaerocoris ocellatus Klug.

Forty-nine specimens, and three specimens larva, Congo.

Hotea gambiæ Fab.

Two specimens, Congo.

GEOLOGY.—The Department of Geology received a specimen of chalcopyrite from Ascension Island; one specimen of shell limestone from the Barbadoes, and several pieces of lava from Porto Grande and Horta, Fayal Island, Azores. So far as can be determined by simple microscopic examination, these rocks are ordinary basalts. A study of thin sections with a microscope might lead to different conclusions, but these can not be well prepared at present, owing to the unusual pressure in other directions. This work will, however, be undertaken at some future time.

The Department of Marine Invertebrates received a collection of crustaceans, echinoderms, worms, bryozoans, sponges, actinians, and nullipore corals, from Azores and Cape Verde Islands.

The Department of Comparative Anatomy received a few specimens of alcoholic birds for skeletons.

The Department of Birds received a collection of dry and alcoholic birds, a report upon which will be furnished hereafter.

A collection was received by the Department of Botany, a report upon which will be furnished by the curator as soon as practicable.

On April 10, 1890, Mr. Brown accompanied an exploring expedition sent by the British South African Exploration Company, with a view to opening up the country for settlement, to Matabela and Mashona lands, about 2,000 miles from Cape Town, and near the Zambesi River. The expedition consisted of two hundred white men and four hundred negroes. Excellent facilities for collecting were furnished by Mr. Johnson, the director of the expedition, who also kindly offered to send specimens of natural history intended for the National Museum free of charge to Kimberly, by the company's ox teams. The Government railway has also offered to carry collections free from Kimberly to Cape Town. Mr. Linley, of the South African branch of the New York Equitable Assurance Association in Cape Town, kindly volunteered to attend to the interests of the National Museum in Cape Town, and arrangements have been made with the taxidermist of the South African Museum in Cape Town to repack the specimens for shipment to the United States.

Incidentally the Museum has received, through Mr. Brown, several collections of African material from private individuals. Rev. G. H. R. Fisk presented an excellent series of living tortoises and some chameleons. Mr. J. H. Brady contributed a series of South African coleoptera. Mr. P. McOwan, director of the Botanical Garden at Cape Town, sent to the Museum bulbs of *Arctopus echinatus*, capsules of *Unaria procumbens*, *Unari Burchellii*, and *Rogena longiflora*. Mr. Frye, of Cape Town, presented, through Prof. Cleveland Abbe, a collection of natural history specimens, including a series of antelope horns. The superintendent of the Kimberly Diamond Mines presented to the Smithsonian Institution some specimens of the rocks in the gold mines. Dr. C. H. White, of the United States steamer *Pensacola*, collected insects for the Museum at Cape Ledo. Offers to exchange birds and mammals were also proposed.

Reference was made in the report for 1889* to the valuable collections obtained in Morocco for the National Museum by Mr. Talcott Williams, and a preliminary report upon the work which he accomplished was published in the same place. It was hoped that it would be possible to publish in this report a full statement of what has been accomplished. This can not be done until the specimens have been unpacked and distributed in the Museum and a list made of them. Unfortunately Mr. Williams has not yet been able to attend to this.

The following information relating to his work has been gathered from

* pp. 144-146.

letters received from Mr. Williams since the report for 1889 went to press:

Five sheets of a Berber manuscript were purchased. These manuscripts are very rare. Neither the Madrid Royal Library nor the British Museum owns one, and the Bibliothèque Nationale at Paris has only two. These sheets are portions of one of a number of translations of Moslem law into the Berber, made probably in the thirteenth century. During the Arab renaissance, which attended the founding of the Sherifian dynasties, these Berber books were destroyed, on the ground that the law could be written only in Arabic.

The botanical collection consists of about 300 plants, all of which, except 4 or 5, are phenagamous. Mr. Williams made no effort to identify the species, but has expressed his willingness, after this has been done and the results published, to contribute a paper indicating their distribution and the changes observed in the fauna of the region while passing from one elevation or one formation to another. Fossils were obtained at Azigen, near Wazan, a place whose geological horizon has not before been determined; concretions from Fez from the only formation near the place; fossils from encrinal limestone at Volubilis, confirming previous conclusions; and a number of recent fossil shells from Wady Ghifra, near Azila, extending the area of the quaternary formation already observed near Tangier. These fossils add nothing particularly new to the observations already made by Mourlon, Maw, and Velain, but, since so few fossils have been found in Morocco, these will be valuable.

A valuable collection of ethnographical material was gathered in Morocco. Mr. Williams states that for \$100 he can have delivered in Washington the complete household equipment of a city and village family.

The costume of a city woman of Fez, a villagers costume, and also the costume of a man and woman of the mountain, representing both the Berber and mountain villagers, were obtained. The city male and female costumes of Tangier are already in the Museum. The male costume in Fez and Tangier is similar, but the female costume differs in many ways. The Jewish costume of northern Morocco is one of the most elaborate in the world. It is a most interesting survival and rapidly growing rare. The complete costume, with its heavy embroidery, costs \$250. This estimate allows for paste jewelry in the costume.

Northern Morocco is inhabited by four, if not five, races—the Moor proper, often of primitive Arab, Berber, or Spanish descent; the Arab, either wandering or sedentary in villages and cities; the Berber, or Riff, in villages, in colonies in the cities, and in some cases, as at Tangier and Tetuan, intermingled with the urban population; and the Jew, for the most part Spanish, inhabiting a separate quarter in each city.

The pottery collection was made with the special design to include all the wares in ordinary use between Tetuan and Fez. The pottery of Spain and Morocco are closely related, and Spanish patterns are still

in use at Fez. Between Spain and Persia are located about a score of pottery centers, which show the steps of development from the old Spanish and Moorish patterns.

Mr. Williams suggests the wisdom of beginning at once a collection of local folk pottery, the varieties of which are fast becoming extinct, owing to the introduction of machinery-made wares. It would probably cost from \$1,000 to \$1,200 to obtain a complete representation of local pottery all over the Mediterranean region. The country lying between Persia and Burmah represents another pottery basin. No European museum has endeavored to make a collection of local folk pottery now in use in these countries save one or two in Germany, and, while such a collection would cost but a small sum now, it will soon become impossible to acquire one at any price. Mr. Williams suggests the following places from which to purchase: Granada, Valencia, Barcelona, Catalonia, two points in Sicily, Rhodes, Dardanelles, Damietta, Upper Nile, Brusa, Damascus, Aleppo or Oorfa, Diarbekir, Bagdad, Erzeroum, Tabreez, Ispahan, Shiraz, and some inland points in Algeria, Sfax, Tunis, Tripoli, and Benghazi. The collection should be made under careful direction, so as to procure pieces of like use, but of different pattern.

Twenty-four musical instruments were secured, among them six varieties of the gimbrede, two oods, a rabab, a canoon, three varieties of the shebab, two ghitas, a zemmar, a lira, four varieties of drum, two varieties of castanets, and some whistles. Photographs illustrating the manner of playing these instruments were also obtained. Mr. Williams has kindly offered to prepare a short paper, giving the name and parts of each instrument, its habitat and manner of playing, its compass, and a comparison between it and other oriental instruments.

Articles illustrating light, fire, and the industry of comb-making and numerous household utensils were secured.

It may be safely asserted that this collection, taken as a whole, is one of the most interesting of its kind that the Museum has ever received, and the sincere thanks of the Smithsonian Institution are due to Mr. Williams for the energetic and intelligent manner in which he has accomplished his mission.

Dr. W. H. Rush, of the nautical school ship *Saratoga*, has consented to collect mollusks and other marine invertebrates during his expedition to the Azores, Madeira, and the English Channel. Two dredges, courteously lent by Col. Marshall McDonald, U. S. Commissioner of Fisheries, have been placed in his hands to aid him in his work of collecting for the National Museum. The attention of Dr. Rush has been especially called to the desirability of obtaining sea-urchins, star-fishes, coral, and crustaceans.

Mr. J. B. Iddings, of the U. S. Geological Survey, has expressed his willingness to bear in mind the interests of the National Museum, as

far as geological material is concerned, during his visit to Vesuvius, Lipari, Stromboli, Etna, and other interesting localities.

Mr. E. M. Aaron, Secretary of the Executive Committee of the American Entomological Society, has, through Prof. C. V. Riley, announced his intention to visit Jamaica, and perhaps Vera Cruz, for the purpose of making collections of insects. In a letter to Professor Riley in reference to his plans, he expresses the general hope that he may be able to present to the National Museum a part of his collections. It was not possible to offer Mr. Aaron a commission to collect for the Museum. He has, however, been informed that biologic material in any orders where the life history of each species is represented, will be acceptable, as well as any good specimens of species of the families *Coccidæ*, *Psyllidæ*, and *Aleurodidæ*, and of all families of parasitic Hymenoptera.

Mr. C. R. Orcutt, of San Diego, California, who since 1880 has presented to the National Museum about thirty collections, including specimens of reptiles, mammals, insects, mollusks, birds, fossils, and ethnological objects, has been furnished with copper-tanks, jars, and alcohol to be used in preserving specimens which he may collect during his expedition to the Colorado desert and the Gulf of California, for which regions he started on January 1, 1890, with the expectation of spending four months in collecting specimens.

Mr. A. J. Miller, of Evansville, Indiana, who in a letter dated July 8, 1889 states that he has discovered a buried city in Honduras, has invited the Smithsonian Institution to join with him in carrying on the work of exploration and excavation. It was not possible to furnish the desired sum of money. Mr. Miller was informed, however, that the National Museum would be glad to purchase from the antiquities obtained from the ruins such objects as might be deemed desirable for addition to the collections.

Mr. Henry W. Elliott, for many years connected with the Alaska Commercial Company, has offered to collect specimens of fur-seal, fishes, and marine invertebrates during his visit this summer to the Seal-Islands of Alaska upon business connected with the United States Government. His offer has been accepted. Mr. Elliott left for Alaska on April 24. Through the courtesy of the Secretary of the Treasury, arrangements have been made for shipping a supply of alcohol to the Seal Islands for Mr. Elliott's use in preserving specimens. Mr. William Palmer, of the National Museum, has been detailed to accompany Mr. Elliott. In the next report will be published a list of specimens obtained by Messrs. Elliott and Palmer.

COLLECTOR'S OUTFITS.

With a view to facilitating the work of those who have expressed their willingness to collect specimens for the Museum, as well as those who have been sent out as collectors by the Museum, outfits of appara-

tus, tanks, alcohol, etc., have been furnished. During the year 1889-'90 the following collectors have been supplied :

1889.

October 1.—Mr. William Harvey Brown, of the National Museum, who was appointed naturalist on the United States Eclipse Expedition to South Africa, was supplied with a large outfit, including tanks, alcohol, jars, oil, linen, tools, guns and ammunition, to be used in collecting natural history specimens. Several collections of fishes, shells, and marine invertebrates from the Azores have been received.

November 12.—Mr. Frank Burns, of the U. S. Geological Survey, kindly offered to collect shells and birds in Florida. An outfit has been sent to him, including tanks, alcohol, and shellac. One wood-pecker, 8 specimens of shells from Chattahoochee Station, and 21 shells from the Kitchen midden at Alum Bluffs have been received.

December 17.—Mr. John C. Tolman, collector of customs at Kadiak, Alaska, has expressed his willingness to collect birds, shells, and plants in that vicinity for the National Museum. He has been supplied with cotton, dissecting-tools, etc. Unfortunately, however, owing to ill-health, he has been compelled to defer his work. He has, therefore, placed the outfit in the hands of Mr. W. J. Fisher, who has been for many years a generous collector for the Smithsonian Institution. Mr. Fisher has been requested to collect ethnological specimens, and to endeavor to complete, as far as possible, our collections of the fauna and flora of Alaska. Mr. Tolman intends, however, to send a collection of bird's skins.

December 27.—Dr. John I. Northrop, of Columbia College, New York, who sailed in January for the Bahama Islands, has kindly offered to present a duplicate series of specimens of marine invertebrates and fishes from the Bahamas to the Smithsonian Institution. An outfit, including tanks and tags, has been sent to him. He expects to collect star-fishes, sea-cucumbers, small corals, and shore species of fishes.

1890.

January 6.—Mr. C. R. Orcutt, of San Diego, California, having arranged for an expedition to the Colorado River and the Gulf of California, kindly offered to collect shells, fishes, reptiles, and plants from that region. An outfit, consisting of tanks, tank-boxes, alcohol, butter-jars, padlocks, and a small seine, was sent to him at Yuma, Arizona. On September 23, 3 cans, containing 31 specimens of reptiles, snakes, and lizards, were received from him. Mr. Orcutt has already donated 26 collections to the National Museum.

January 7.—Rev. F. Gardiner, jr., who sailed from Newport News, Virginia, for the West Indies, in February, was supplied with tanks, tank-boxes, alcohol, tin-tags, etc., for the purpose of collecting natural-history specimens. Two tank-boxes, containing alcoholic specimens of fishes, have already been received.

January 25.—An outfit, including tanks, tank-boxes, alcohol, etc., has been forwarded to Mr. J. Francis Le Baron, Superintendent of the Nicaragua Canal Construction Company, at San Juan del Norte, Nicaragua, for the collection of reptiles and insects. Several bottles of alcoholic specimens, principally snakes and insects collected in Nicaragua and Costa Rica, have been received. Mr. Le Baron has for more than twenty years taken a great interest in the welfare of the National Museum, having since 1867 been a contributor to the collections from the New England States and Florida. Since the transmission of the outfit, the Museum has been informed that Mr. Le Baron has severed his connection with the company. His outfit has been turned over to Mr. Menocal, who has kindly consented to carry on the work of collecting specimens.

February 14.—Mr. C. H. Eigenmann, of San Diego, California, contemplating a journey to Wood's Holl, offered to spend two or three weeks in collecting natural history specimens between Yuma and St. Louis, along the Texas Pacific and Iron Mountain routes, and on his return between New Orleans, Houston, San Antonio, and Northeastern Mexico. A collecting outfit was forwarded to him. A tank has been received from him containing alcoholic specimens of fishes, mollusks, crabs, and shrimps.

March 13.—Mr. Henry D. Woolfe, who went to Point Barrow, Alaska, in the employment of the Pacific Steam Whaling Company, has kindly offered to continue to collect birds' skins, insects, fossils, mammals, minerals, fishes, and ethnological specimens. An outfit has been forwarded to him, in care of the Pacific Steam Whaling Company, in San Francisco. He has already made large collections for the National Museum.

April 24.—Dr. William H. Rush, of the United States Naval Hospital, Philadelphia, Pennsylvania, who accompanied the school ship *Saratoga* on its recent trip to the Azores and the English coast, has offered to make a collection of fishes for the National Museum. For this purpose dredging-nets have been sent to him.

April 25.—The collecting outfit which had been placed at the disposal of Ensign W. L. Howard, has been transferred to Mr. Henry W. Elliott, to be used for the preservation of the smaller specimens obtained during his visit to Alaska. Mr. Elliott was also supplied with a large outfit, including cotton-batting, alum, arsenic, etc. Twenty-two packages of specimens have been received, but have not yet been examined.