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p. 4.

FIELD MUSEUM OF NATURAL HISTORY.

PUBLICATION 202.

REPORT SERIES.

VOL. V, No. 4.

ANNUAL REPORT OF THE
DIRECTOR

TO THE

BOARD OF TRUSTEES

FOR THE YEAR 1918.

1917



CHICAGO, U. S. A.

January, 1919.

Natural History Library



Photo. by Baker Art Gallery, Columbus, Ohio.
THEODORE ROOSEVELT.
NATURALIST.

FIELD MUSEUM OF NATURAL HISTORY.

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January 1, 1919.

ANNUAL REPORT OF THE DIRECTOR.

1918

To the Trustees of Field Museum of Natural History:

I have the honor to present a report of the operations of the Museum for the year ending December 31, 1918.

The negotiations of the National Government to secure the new Museum structure for hospital purposes, the contract to this end which was entered into, the resulting increase in building operations in accordance with the terms of the contract and the subsequent sudden cancellation by the Government of the contract following the European armistice had naturally a confusing and disturbing effect upon the affairs of the Museum during the later part of the year. The preparations for the transfer to the new building had been underway for sometime, but work of this character was more actively prosecuted after the contract with the Government had been entered into and the methods of packing were altered in view of the expectation to store the material for several years, or during the operation of the contract or lease. The probability as now appears, that the transfer to the new building may take place next year and possibly in the autumn, will require continued and assiduous efforts in preparation for this event that will leave little else to be done in the old building. The progress so far made and the methods employed may be said to be satisfactory but not remarkable.

The Museum has felt the common influence of the war upon its economic affairs and, operating upon a fixed income, has reduced its expenditures as far as possible to the necessities of maintenance. The high prices of fuel and of materials of every variety entering into the every day affairs of the Institution have, except for reserves, practically exhausted the annual receipts and left little to be recorded in the way of new or progressive activities.

To what may be ascribed the large decrease in attendance is doubtful. The public in some way appears to have gained the impression, which it has not been easy to correct, that the present building has been closed or was in a state of some confusion, because of preparations for immediate removal to and storage of its contents in the new building, which was to be used for three years as a Government hospital. This may be regarded as one reason. Probably, however, the falling off in attendance has been due very largely to the consuming interest of the public in the war and

in the circumstances reaching into every home immediately or indirectly associated with it. People generally have not felt at sufficient ease and unconcern to visit places of the character of the Museum for pleasure, pastime or study. At the same time the extent of the decrease in attendance, even with these allowances fully made, is still unaccountable.

President Field returned from his duties in France in September after a year's service. Trustee Sprague, Major of Infantry, has received his discharge from the Army and has returned to Chicago. Trustee Marshall Field, Captain of Artillery, is still on duty in France.

Dr. Frank W. Gunsaulus, Pastor of the Central Church and President of Armour Institute, accepted election as a member of the Board of Trustees of the Museum, filling the vacancy caused by the death of Honorable George E. Adams. Mr. William Wrigley, Jr., prominent manufacturer, has been elected to fill the vacancy caused by the death of Mr. Henry Field.

The general staff of the Museum saw fit to recognize the Twenty-fifth Anniversary of the Director's appointment by presenting him with an engrossed Appreciation signed by the entire personnel; an act which was sincerely appreciated by its recipient.

The Assistant Curator of Economic Botany with several laboratory assistants transferred the activities of the Mrs. Stanley Field Plant Reproduction section to Miami, Florida, in October, where accommodations were secured from the United States Agricultural Department in its laboratory there, to carry on the work of reproducing the plants of that section; the expedition expecting to be absent six months or more. Reports from Assistant Curator Dahlgren reflect a gratifying outcome of this enterprise.

Acknowledgment is made of the contributions of funds from Mrs. T. B. Blackstone and from Mr. Charles R. Crane, to defray the cost of a publication in the Museum series by Curator Laufer of the Department of Anthropology, entitled: "Sino-Iranica; Chinese Contributions to the History of the Civilization of Ancient Iran."

Somewhat extensive reference is made elsewhere in this report to the Japanese painting presented to the Museum by Trustee Gunsaulus; a most valuable gift from both an ethnologic and artistic standpoint.

The Finance Committee of the Museum authorized an arrangement to finance the subscriptions of the employes of the Institution to the Third and Fourth Liberty Loan bond issues, under which arrangement a most gratifying subscription resulted, both as to individuals and the amounts taken.

The Museum sustained a signal loss in the death of Mr. Odell Edward Lansing, Jr., Keeper-of-the-Herbarium, Department of Botany.



PORTION OF A LEAF

A TRAP

579611-12

ENLARGED LEAF AND TRAP MECHANISM OF THE BLADDERWEED.

(*Utricularia vesiculata*.)

The finely divided leaves bear numerous bladder-like traps. Round to oval, translucent and slightly convex, sessile, attached to the mouth of each trap is a set of bristly, prickly hairs which serve to guide the animals within. Minute crustaceans, water fleas, young water-bugs, small house flies, etc., which alight to gather about the water-filled grooves, serve as food for these plants.

The fringe of minute, sub-erect hairs around the mouth of the trap may serve as a special lure.

Pushing against the membranous door of the trap, which gives

readily to the slightest pressure, they pass in and their heads are retained. Pushing down the bodies and causing the door to flutter, they are held in position and the water within is drawn in.

In the above, greatly enlarged trap is shown a typical "float," one of a ridge (Common); an animal (fly); a water bug (Dobson); and the shaft of one retracted proboscis (Aphid). The other bladder also contains a well-developed mass of water insects.

From the large number of bladders on a leaf it is evident that the total quantity of nitrogenous food obtained in this manner may be considerable.

Enlarged leaf and trap. George Engelmann, Field Museum of Natural History.

AN ENLARGED "FLOAT" OR "BLADDER" OF THE BLADDER-WEED REPRODUCED IN GLASS AND NATURAL COLOR.

It illustrates the carnivorous character of the plant.

Mr. Lansing had been in the service of the Museum twenty-three years during which his conscientious, untiring devotion to his work, and cheerful presence, had endeared him to all his associates. He was a diligent and discriminating collector, making his special field of labor the Plant Life of the Chicago Basin, in Illinois and Indiana. To this he devoted all his spare time and often his periods of vacation. He also collected in various parts of Illinois, Michigan and Wisconsin, and in the Ozark region of Missouri. In 1903, on a commission from the Museum, he made a thorough and comprehensive botanical exploration of all the sand keys of Florida from Key West westward. His original collections (4,563 specimens) are preserved in the herbarium of the Museum, and duplicates in various herbaria of America and Europe.

MAINTENANCE.—The annual Budget Authorized by the Board of Trustees provided the sum of \$158,496.00 for the maintenance of the Museum for the fiscal year. The actual amount expended was \$137,740.00, leaving a balance within the anticipated expenses for the year of \$20,756.00. In addition to the cost of maintenance the sum of approximately \$5,000.00 was expended for collections and packing supplies, that brought the total to \$142,740.00.

PUBLICATIONS.—During the year four publications were issued, comprising parts of four volumes, details of which follow:

- Pub. 197.—Zoological Series, Vol. XIII, Part II, No. 1. The Birds of the Americas. By C. B. Cory. March 1918. 315 pages, 1 colored plate. Edition 1,150.
- Pub. 198.—Zoological Series, Vol. XII, No. 2. Notes on Fishes from the Athi River in British East Africa. By Carl L. Hubbs. January 1918. 4 pages, 3 halftones. Edition 1,000.
- Pub. 199.—Botanical Series, Vol. IV, No. 1. New Species of *Xanthium* and *Solidago*. By C. F. Millspaugh and E. F. Sherff. April 1918. 7 pages, 6 halftones. Edition 1,000.
- Pub. 200.—Report Series, Vol. V, No. 3. Annual Report of the Director for the year 1917. January 1918. 74 pages, 11 halftones. Edition, 2,000.

These publications were distributed to individuals and institutions whose names appear on the Domestic mailing list. On account of the enhanced sea risk a few copies of the Annual Report only were sent abroad.

THE LIBRARY.—The books and pamphlets accessioned during the year were 1,484, a decrease from preceding years, but this is amply explained by war conditions. In the interest of general economy and the desire to cooperate with the War Industries Board in the saving of paper, publishers have issued limited editions. Periodicals and serials that

had been previously received as gifts or exchanges were discontinued. Foreign exchanges were scant and irregular. The total number of books and pamphlets in the Library is 71,020, which are distributed as follows:

General Library	44,750
Department of Anthropology	3,616
Department of Botany	7,476
Department of Geology	10,460
Department of Zoology	4,718

Purchases were made of forty-six books necessary for work in hand in the departmental libraries. Among those received are: Crawford's History of the Indian Archipelago, 1820; Im Thurm's Among the Indians of Guiana, 1884; Rickard's Ruins of Mexico; Robelo's Diccionario de Aztequismos; Walters' Ancient Pottery; Tutton's Crystallography; Pennant's Synopsis of Quadrupeds, 1771. Through the continued generosity of Mr. Edward E. Ayer, a handsomely bound and illustrated copy of Lord Rothschild's Extinct Birds, and continuations of Matthews' Birds of Australia were purchased for the Ayer Ornithological Library. Mr. William S. McCrea donated a copy of Herrick's Audubon the Naturalist. Interesting additions were also received from Mr. William J. Chalmers, Mr. Charles L. Freer, Detroit, Mr. J. Nilsen Laurvik, San Francisco, Mr. Elmer D. Merrill, Manila, Mr. Edward S. Morse, Salem, Mr. James Weir, Missoula. The general activities of the Library have continued in as earnest and energetic a manner as existing conditions permitted. New work has not been undertaken during the year, but the development of resources at hand has progressed. The steadily rising cost of binding materials made it impractical to bind the usual number of books, and only 227 periodicals and serials were bound during the year. There were written and filed in the catalogues 15,612 cards. Twelve monthly installments of approximately a thousand cards each of the John Crerar Library were received and filed. Preparatory to moving to the new building a general weeding out has been made of literature no longer of use in the work of the Museum. Much of this material had been accessioned before it was definitely determined that the scope of the Museum would be confined to natural history. For lack of shelf-room these books have been packed in boxes for some years. What is of exchange value was checked off the records and repacked; all duplicate material was carefully examined and what was of importance for exchange purposes was also packed. All of these forty-eight boxes were properly labeled and stored ready for shipment. What was fit only for waste paper was sold. In all 1,780 numbers were checked off the records, which reduces to 71,020 the total number of books and pamphlets in the Library.

DEPARTMENTAL CATALOGUING, INVENTORING, AND LABELING. — During the current year the work of cataloguing in the Department of Anthropology has been carried on as usual, and the total number of catalogue cards prepared amounts to 5,441. These cards are distributed over the various divisions as follows: China, India and Philippines 47; Melanesian Ethnology 984; North American Ethnology 594; Mexican and South American Archæology 598; and Physical Anthropology 3,218. All these cards have been entered in the inventory books of the Department, which now number 38. The number of annual accessions amounts to 16, of these 11 have been entered. The total number of catalogue cards entered from the opening of the first volume amounts to 153,111. The photographer made 63 negatives and supplied 503 prints to the Department. There were added to the label file 224 new label cards. A total number of 2,309 labels was turned out by the printer for use in the exhibition cases of the Department. These labels are distributed as follows: China and Philippines 20; Melanesian Ethnology 129; and Mexican and South American Archæology 2,160. The printer further supplied the Department with 2,050 catalogue cards and 5,600 shipping labels. The cataloguing of the collections secured under the auspices of the Joseph N. Field Expedition is now completed. All together 11,390 cards are written on this collection. General case-labels have been installed in all cases of Halls 2 and 3 and those in the East Court. The condensation and reinstallation of the Philippine collections, carried on during 1917, made necessary the relabeling of a large portion of the exhibits. This was completed early in the spring by the labeling of sixteen cases covering the Bukidnon tribes of Northern Mindanao and the Bagobo of Davao Gulf. Labels have been written for thirty-five specimens in the case of Egyptian bronzes. The general case labels for six cases of Egyptian archæology installed last year have been properly placed. The Ushebti figures have been classified, and the translations of their inscriptions made by Dr. Allen will be utilized for the preparation of the labels. The Canopic jars have also been carefully studied, classified, and inscriptions read. Under an agreement with the Department of Egyptology at the University of Chicago the Museum received for some time the services of Dr. Allen for the translation of Egyptian inscriptions in exchange for Egyptian material of the University to be treated or repaired by the Department's preparator. Dr. Allen's notes will form a useful foundation for the labels to be prepared for this section. Since the first of June, the Assistant Curator of Mexican and South American Archæology has concerned himself almost entirely with the Zavaleta collection of Calchaqui archæology. This collection consisted of 4,565 numbers; two hundred and

seventy-one of these had already been catalogued in the Peruvian collection, the remaining 4,294 have been numbered in 2,120 catalogue numbers; about four hundred of these have been catalogued to date.

In the Department of Botany the entries made number 7,754, bringing the total entries to 477,490. The permanent card reference-indexes maintained in the Department of Botany, and their composition, are as follows:

	Number of Cards	
	Augmented 1918	Total
Index of Botanical Species	2,500	147,650
Index to Common names of plants	1,200	19,950
Index to Yucatan plants	160	6,362
Index to Euphorbiacæ	85	4,225
Department Labels	262	3,100
Index to Collectors and Collections	95	9,850
Index to Geographic collections	16	2,750
Index to Botanical Titles (articles)	178	1,500
Index to Department Library	137	8,800
Index to Illinois Flora	900	900
Index to Hand Specimens of Woods	800	800
Index to Cases Installed		595
Index to Photographs		600
	6,333	207,082

All accessions in the Department of Geology have been duly catalogued as received. The total record of catalogue entries to date is as follows: Number of Record Books 22; Entries during 1918, 510; Total number of entries to December 31, 1918, 140,429; Total number of cards written 8,018. The Chalmers Crystal collection has been labeled throughout, 166 additional labels having been provided for this purpose. Other series for which new labels have been made are those of Quaternary vertebrates and about 500 miscellaneous specimens of ores and minerals. The whole comprises a total of 745 labels which have been printed and for the most part installed during the year. In addition 168 labels have been prepared and are ready for printing.

Owing to the small number of new accessions in the Department of Zoology the total number of new entries in the catalogues was the smallest in the history of the Department. The total number of regular entries was only 185, of which 155 were in Ornithology and 30 in Mammalogy. In the classified card catalogues, the number of entries also has been limited. In Ornithology about 150 new entries were made and in Mammalogy correction and revision of about 100 cards were made. New exhibition labels to complete the relabeling of the synoptic collection of mammals were received from the printer and in part have been installed, the remainder being held until after removal. The work of re-identifying, re-cataloguing and re-tagging the study collections

of the Division of Ichthyology and Herpetology has proceeded throughout the year. Most of the new material entered and some of the old material has been supplied with tin tags, stamped in the machine purchased for that purpose last year. In the Division of Osteology fifteen skeletons were catalogued and index cards were written for the same. Including the duplicates, 1,700 shell labels were received from the printer. Of this number 1,381 have been installed. There were also installed 133 labels for scorpions, tarantulas, centipedes and silkworms.

The following table shows the work performed on catalogues and the inventorying accomplished:

	Number of Record Books	Total Number of Entries to December 31, 1918	Entries During 1918	Total Number of Cards Written
Department of Anthropology . . .	38	153,111	5,441	153,111
Department of Botany . . .	58	477,490	7,754	83,374
Department of Geology . . .	22	140,429	510	8,018
Department of Zoology . . .	40	101,249	789	35,713
The Library	14	108,360	2,640	258,972
Section of Photography . . .	20	119,138	1,299	.....

ACCESSIONS.—The Curator of Anthropology makes the following observations on the painted Japanese screen of the Tosa school presented to the Museum by Dr. Frank W. Gunsaulus in commemoration of the Director's twenty-fifth anniversary of service: The Tosa school, so named for the painter Tsunetaka, a governor of Tosa Province, flourished in the thirteenth century, and in its artistic aspirations was anti-Chinese, cultivating a vigorous nationalism and representing the taste of Japanese aristocracy as developed at the court of Kyoto. The characteristics of the Tosa masters were a magnificent combination of harmonious color and remarkable skill of composition. In conformity with their national tendencies they turned their attention toward historical subjects, and as illustrators of historical incidents or court romances and ceremonies on a grand scale they are peerless in the pictorial annals of Japan. In the epic style of their painted narratives they became for Japan what the rhapsodists of the Homeric poems were for Greece. Their best work is accordingly found on screens and sliding doors which offered the most suitable background for the expression of their inspiring conceptions. Distinguished forms, a delicate finesse of the brush exhibiting a decided affinity with the best miniatures of Persia, and the illustrated missals of our middle ages, a delicate severity of outlines, a certain conventionality of aristocratic sentiment, an incomparable talent for minutest detail in depicting trees, flowers, and birds, vivid, opaque and plastic coloration—these are the predominant traits of Tosa art all of which are reflected in this screen. Art was en-

riched by these masters with a striking innovation which omitted the roofs of the buildings, representing the interiors from a bird's-eye view and blending the surrounding scenery with the domestic events. This principle is felicitously embodied in this painting which depicts three scenes from the famous classical romance *Genji Monogatari* written in A.D. 1004. The scene on the right-hand side shows the hero, Prince Genji, engaged with his friends in a discussion of the character of women. The scene in the upper portion of the centre illustrates Prince Genji gazing through a hedge at a group of ladies in the building. The scene on the left-hand side of the screen represents Genji and his friend *To-no-chujo* performing a war dance before the emperor in the palace *Suzaku-in*, accompanied by the orchestra below, of two reed-organs, two flutes, and two drums. The audience is formed by the members of the court seated in a hall on the left-hand side; the women spectators being confined to a special box on a lower level than the men. The characterization of the figures is exquisite, and the technical means employed to this end are of highest quality. In the costumes of four figures the designs are embossed or raised in relief in the paper, while a rich scale of pigments is set off from a gold-speckled brown background. The whole composition is as monumental and artistic as the treatment of details is refined, accurate, and instructive. This painting personifies a live source of inspiration for the study of ancient Japanese life, customs, and decorative forms, and it is no exaggeration to say that this screen is one of the greatest Oriental works of art which ever came to the Museum. Dr. *Gunsaulus'* ingenuity and perspicacity in the discovery of this treasure cannot be praised enough, and he is deserving of our heart-felt gratitude for his generous presentation, as well as for the thoughtfulness and spirit in which it is made.

In the Department of Anthropology there were received as a gift from Mr. H. W. *Narjal* five pieces of *tapa* cloth and three war clubs from Samoa, a pair of Eskimo skin boots, and an ancient suit of chain mail coming from Sweden, but probably manufactured in Persia. A very interesting lot of Chinese pottery fragments was presented by Mr. E. B. *Christie* who at a time was connected with the Philippine Museum of the Bureau of Science, Manila, and discovered these bits in 1915 in ancient burial caves of *Bohol*, Philippine Islands. Some of these shards have artistic and archæological value, being as early as the time of the *Sung* dynasty (tenth and eleventh centuries). There are several good examples of celadons which show that the sea-green glaze of this ware was wrought over a porcelain body at that period, and a large series of other glazes, particularly blue and whites. It is hoped that this material will give occasion to a renewed and more profound study of the problem of Chinese pottery in the Philippines, which was taken up in a pub-

lication of the Museum some years ago. A valuable museum purchase is represented by the grave material secured from a cave on the Pecos River, Val Verde Co., West Texas, by Mr. J. H. Hudson. The principal object was dug up four feet underground, being the skeleton of an Indian child in excellent state of preservation, wrapped in an antelope skin and adorned with a necklace of shell beads of intrinsic value. In the same cave were found a finely woven mat with very interesting painted designs, two plain undecorated mats, several deer or antelope skins, two smaller mats, a rabbit fur robe, and a bone awl. Besides there is the skull of an Indian woman and some detached bones discovered in another cave. Prominent among the year's accessions is a rare robe, the gift of Mr. Homer E. Sargent, which is a welcome addition to the choice collection of blankets given by him last year. It is a blanket made at Spuzzum, B. C., about 1863; it soon passed into the possession of a Hudson Bay Company's factor, in whose family it remained for more than fifty years until it was purchased for Mr. Sargent. While this type of blanket was formerly produced by Lower Thompson and some of the neighboring Lower Frazer Indians of Yale, not more than six are known to be now in existence. Through Mr. Edward E. Ayer, the Museum purchased several articles from the rapidly vanishing Tolowa tribe in the extreme northwestern part of California; among these being two fine buckskin festival dresses, also a beautiful head-band worn in the Jumping or Fall dance. A metate with muller from Mexico was turned over to the Department as a gift from Mr. Ayer. The most important addition of this year is represented by the material received in exchange from Mr. George G. Heye, director of the Museum of the American Indian, New York, and making a total of seven hundred objects. The collection covers two regions: Ecuador and the West Indies. The majority of the material comes from the West Indies (412 specimens): Trinidad, Carriacou, St. Kitts, St. Vincent, Santa Lucia, Grenada, the Virgin Islands, and Cuba. It contains a large quantity of stone axes of different shapes and of shell celts which are available for exhibition. The balance of the West Indian material consists of pottery fragments and sherds, entire vessels being excessively rare from this region. A large number of the fragments contain relief figures suitable for exhibition, but, on the whole, the collection has greater scientific value because of its rarity. The Ecuador collection is excellent, consisting of 288 specimens, principally entire pottery vessels of high exhibition quality and of types not heretofore possessed by the museum. There are also a few stone and a very few metal pieces from this region. On the whole it is an excellent collection of almost perfect exhibition value. Two sacred bundles from the Sauk and Fox were

purchased through Dr. T. Michelson of the Bureau of American Ethnology; they form a valuable addition to the sacred bundles from other Indian tribes in the collections.

The Department of Botany received the following important additions to its herbarium during the year: The highly valuable "Centuriæ Species Blancoanæ," distributed specially by the Philippine Bureau of Sciences, to illustrate, by topotypic plants, the species treated by Blanco in his Flora of the Philippines, and in addition to these 374 further Philippine species; "Plantæ Wilsonianæ," 753 plants of China and Japan; 457 Philippine plants from a series specially collected for the Arnold Arboretum; the herbarium of Professor Hall, formerly State Geologist of New York, 1,311 plants representing the Flora of Troy, N. Y.; Earl E. Sherff, 446 plants of Illinois; Dr. Robert Ridgway, 267 plants of Illinois; C. F. Millspaugh, 117 plants of Wisconsin, and 182 North Carolina; F. C. Gates, 390 plants of Michigan; Florence Beckwith, 85 plants of Illinois; Walter Fischer, 299 plants of Argentina; New York Botanical Garden, 363 plants of Jamaica (Harris); A. A. Heller, 306 plants of California and Oregon; and Ira W. Clokey, 170 plants of Colorado. On account of lack of preparatorial assistance for poisoning and mounting specimens the additions to the herbarium fall far below the usual annual quota. The regional distribution of fully organized material added to the herbarium in 1918, is shown in the following tabulation:

LOCALITY	Added this Year	Total in Herbarium
NORTH AMERICA:		
Assiniboia	1	21
Manitoba	3	262
Ontario	3	1,670
United States:		
Alabama	8	1,468
Arizona	9	8,221
California	288	25,583
Magdalena Islands	17	33
Colorado	11	12,585
Connecticut	38	692
Carolina, North	211	4,754
Delaware	1	1,338
District of Columbia	44	2,712
Florida	5	20,331
Georgia	11	3,995
Idaho	4	3,655
Illinois	833	27,968
Indiana	102	6,943
Kansas	6	546
Kentucky	3	1,373

LOCALITY	Added this Year	Total in Herbarium
United States: (continued)		
Maryland	86	1,366
Massachusetts	7	5,350
Michigan	397	3,912
Missouri	4	3,886
Nevada	1	1,295
New Jersey	30	3,037
New Mexico	36	3,722
New York	911	7,471
Ohio	7	2,070
Oklahoma	1	296
Oregon	48	8,986
Pennsylvania	22	10,158
Rhode Island	2	602
Rocky Mountains	2	59
Tennessee	3	1,370
Texas	10	9,888
Utah	3	3,301
Vermont	6	3,604
Virginia	107	4,843
Washington	11	7,511
West Virginia	14	2,042
Wisconsin	122	5,007
Bahama Islands:		
Inagua	1	444
Long Cay	1	12
New Providence	3	2,428
West Indies:		
Barbados	3	346
Cuba	44	10,957
Dominica	7	98
Grand Cayman	2	146
Jamaica	365	7,694
Porto Rico	1	4,731
Santo Domingo	1	1,323
CENTRAL AMERICA:		
Costa Rica	4	612
Guatemala	2	3,083
Mexico	70	31,314
Lower California	1	1,685
Yucatan	6	6,759
Cozumel Island	2	200
SOUTH AMERICA:		
Columbia	1	2,431
Argentina	299	1,368
Uruguay	2	168
Venezuela	1	707
EUROPE:		
England	1	2,459

LOCALITY	Added this Year	Total in Herbarium
AFRICA:		
Congo (French)	1	2
ASIA:		
Amboinia	124	124
China	679	2,260
Japan	74	339
Philippines	715	11,653
Horticultural	127	3,181
Illustrations, mounted as Herbarium specimens . .	45	2,236

The Department of Geology received its most important accession during the year from Mr. William J. Chalmers, who provided ninety additional specimens for the collection of mineral crystals. These specimens are of high quality and interest and greatly enhance the value of this already unique and remarkable collection. A valuable series of minerals and gems, some of them cut, associated with the diamonds of the Jagersfontein, South Africa, mines, was presented by Mr. Alexander Fay Brigham. The Great Northern Railway presented a large painting of the Rome glacier of Glacier National Park, Montana. Several valuable accessions were received by exchange, among which a series of Permian reptiles from the University of Chicago was of first importance. The series contains skulls, vertebræ and other bones of the rare, primitive forms, *Eryops*, *Labidosaurus*, *Pariotichus* and *Dimetrodon*. The great scarcity of remains known from the Permian and the primitive characters of these forms, make the addition of these specimens to the collections a valued accession. From the Australian School of Mines, Sydney, Australia, a number of rare Australian minerals were secured by exchange. These specimens included chiefly opal, chromite and different forms of tetrahedrite. By exchange with Joseph N. Prokes, fourteen large specimens of an interesting form of calcareous tufa produced by spring deposition were obtained. By purchase, the type specimen of *Paolia superba*, an insect of the Carboniferous period allied to the modern locust was obtained. The specimen shows chiefly the wings of the insect, which are about three inches in length and are preserved with complete venation in a fossil concretion. Several large specimens of minerals were also secured by purchase, of special importance among them being some unusually brilliant and well-formed pyrite crystals.

In the Department of Zoology the accessions of mammals and birds during the year have been few, 12 mammals and 66 birds having been donated, while only 18 mammals and 4 birds were purchased. Five British fishes, representing new groups for synoptic series, were purchased from the well known fish taxidermist Mr. Sherman F. Denton. Mr. L. L. Pray presented to the Museum several small Michigan fishes

and two large fishes, a sheephead and a muskallunge, mounted by himself. Some additional fishes and reptiles from California, including paratypes of two new species, were presented by Assistant Curator Hubbs, who also collected some local cold-blooded vertebrates. By exchange the study collection of fishes was enriched in several directions, the following list of material having been secured: 375 fishes, amphibians and reptiles from British Honduras, comprising the collections of the late Dr. B. G. Bailey, Coe College, Cedar Rapids, Iowa; 38 fluviatile fishes from Eastern Mexico, from the Museum of Zoölogy of the University of Michigan; 33 fishes, mostly of the family *Atherinidæ*, including the paratype of *Ischnomembras gabunensis*, from the Academy of Natural Sciences of Philadelphia, and four desirable fishes and salamanders of Southern California, from the San Diego Society of Natural History. The acquisitions in the Division of Entomology during the year consisted mainly of small gifts from various donors. The large number of insects accessioned is wholly due to the fact that it includes the collection received from Dr. William Barnes several years ago. A brief description of Dr. Barnes' donation was given in a former report. The insects received by donation number 3,148 and by exchange 4.

INSTALLATION, REARRANGEMENT, AND PERMANENT IMPROVEMENT, PACKING FOR REMOVAL TO NEW BUILDING.—In the Department of Anthropology installation was carried on only during the first five months of the year, fifteen cases being installed during this period. Thirteen of these belong to the section of Mexican and South American archæology, and comprise two cases devoted to Central American archæology, two to Mexican archæology, four to Mexican ethnology, and five to South American ethnology. Labels have been printed for all of these and installed in all but four cases. As five cases of Mexican archæology and ethnology were installed in 1917, a total of eighteen, out of the number of seventy-eight cases planned for Hall F in the new building, have been completed to date. One four-foot case housing New Guinea material was installed. In it are exhibited some fine examples of the carved wooden drums known as *garamuts* and found on the north coast of the island. These illustrate the principal variations which occur in this region. A case containing more than eighty-five bronze vessels collected in Egypt largely through Mr. Edward E. Ayer's efforts, and comprising ladles, basins, ewers, bowls, cauldrons, jugs, amphoræ, vases, plates, libation pourers, pails and strainers, has been carefully installed in conformity with the plan previously formulated. In accordance with instructions issued on May 20 installation was discontinued, and preparations were at once initiated to mobilize collections for their future reception in the new building. Methods of packing and

material required for this purpose were discussed at meetings with the staff, and the suggestions brought out during these discussions proved most helpful. This Department has adopted the principle of packing, wherever feasible, in the cases and disturbing the material as little as possible. Following is a summary of the material packed during 1918 in the Department of Anthropology: 150 exhibition cases, 209 crates, 131 boxes, 1 burlap, and 1,194 carton-boxes. For the packing of pottery and bronze the exhibition-case is regarded as the safest receptacle: the method followed is to use two boards of the dimensions of a shelf and to place one along the front and the other along the back of a case against the glass and above the floor, whereby a box-like container is insured. The objects are then removed from the shelves, wrapped with corrugated paper, and tightly placed on the bottom of the case; the boards prevent them from coming in contact with the glass. Delicate pottery pieces or fragile clay figures are first packed in carton-boxes stuffed with paper shavings. Halls 50, 51 and 56 of the East Annex were closed during the summer, and the material displayed in the exhibition cases and a great amount of storage material were made ready for transportation. In June orders were somewhat modified, and instruction was given to spare exhibition-cases and to proceed with the packing of storage-material. Efforts then turned toward clearing up the West Annex which for a number of years has been the repository of several ten thousands of objects not yet prepared for exhibition. These were brought to light, assembled, sorted, and classified to be finally boxed or crated. This material embraces collections from the Philippines, Java, India, Turkey, Egypt, New Guinea, Mexico, and South America. Throughout this work has been done intelligently: exchange and study collections are grouped and packed separately, while all exhibition material is selected and so cut out and arranged that it is in readiness for installation in the new building without delay. Exact records were kept of all cases packed and all crates, boxes, and other packages made. As far as possible, labeling was also continued, the labels being placed with the material to which they belong. In the autumn the embargo on closing exhibition-halls was raised, and accordingly Hall 17, sheltering the Hopi altars and the Hopi home-scene, was broken up. Fifteen large cases were dismantled and their contents packed in nine crates, nine boxes, and four standard cases, while seven altar cases were packed *in situ*. The Eskimo Hall is now undergoing the same operation, but simultaneously it is planned to raise this interesting collection to a higher standard of exhibition. First installed some twenty years ago, it has long since outgrown its present system of arrangement. Collections have been secured from new



HOPi MASKS OF THE STANLEY MCCORMICK COLLECTIONS.
Showing method of installation

localities, while notable additions have been made to districts already represented. It is now possible to present an adequate picture of Eskimo life and to illustrate minor variations in the culture of the tribes, due to contact with other peoples, environment, and similar factors. Of the Zavaleta collection, five cases have been arranged for future exhibition. Labels have been written for three of these and are now being printed. One case has been completely catalogued and packed for shipment. The archæological collection from La Plata Island was examined, arranged for installation in one case, labels written, and the material packed. The balance of this collection, as far as it has not been sent to the Museum of the American Indian for exchange, is likewise packed and labeled as study material. Two cases of the Mexican section have been packed for transportation, and the study material from the South American collections is packed in forty-three boxes. During the past year the entire collection of skeletal material has been thoroughly overhauled, sorted, cleaned, arranged geographically, and numbered by the assistant curator of physical anthropology. The cataloguing of it is now complete, so that data relating to any part of the collection are readily available. In addition to the descriptive catalogue cards, a considerable amount of laboratory work was done on the Peruvian material. Carton-boxes of two sizes have been provided, and the entire collection, including the portion displayed in the exhibition-cases on the east gallery, has been carefully packed in cartons which are numbered and labeled. A list of this material has been prepared in duplicate for future reference in the moving operations. The collections of facial masks and plaster busts of racial types are included in this lot. As this material has been accumulating through twenty years, and an account of its scientific value has not yet been offered, a short summary may be of interest. The total number of crania and skeletons is approximately three thousand six hundred, while casts number about two hundred. There are four hundred and fifty specimens from South America, chiefly from Peru, Bolivia, and Argentine. Among these are many interesting examples which show deformation and trepanning. A large collection of busts has been obtained from Mexico; also a very interesting series of crania excavated in the vicinity of an old temple site at Tezontepc. All these skulls are broken in the occipital region, and it is supposed that they were once displayed on a pole in sacrificial ceremonies. Artificial deformation is found in nearly all these specimens. Prehistoric American burials are well represented by collections from the neighborhood of Trenton, New Jersey; the Hopewell, Oregonia, and the Warren County mounds of Ohio; as well as from various sites in Illinois, Wisconsin, and Indiana. Cliff Dweller crania and skeletons

amount to two hundred, while prehistoric Hopi is adequately illustrated by more than three hundred objects. Representative collections have been obtained from the Huron, Blackfoot, Iroquois, Pawnee, and Sioux, while collections in smaller numbers come from Central and Southern groups. The most complete collections from North America relate to the Northwest Coast, those from the Haida numbering one hundred and twenty, Kwakiutl one hundred, Nootka forty-five, Chinook sixty. Other groups are also represented. The California material, while small in number, contains many interesting specimens, two of which gathered by Dr. Hudson are of an exceedingly primitive type. Oceanica (South Seas) is particularly well illustrated by six hundred and forty skulls, many of which exhibit instructive examples of carving and face moulding; while small types of skull deformation, trepanning, etc., are found; the collection also contains mortuary figures provided with human heads and other parts of the skeleton. Malaysia and China yield one hundred and twenty-five objects gathered in connection with the Museum's ethnological expeditions. Owing to the scarcity of skeletal material from these regions in our museums the specimens are of especial interest. The bulk of the material relative to Negroes and Whites consists of complete skeletons, secured in the Middle West and macerated at the Museum. Some one hundred and seventy-five individuals are represented in this section. Many minor collections covering Egypt, ancient Sardinia, and parts of Africa and Europe, are also included in the lists. Since the organization of the section of Physical Anthropology, considerable attention has been paid to measurements on the living, and charts representing more than four thousand individuals are now on file. Of this number the greater part refers to the pagan tribes of the Philippines. Various rearrangements were made in the course of the year. In the Egyptian Hall three hanging wall cases were emptied of their contents consisting of mummies of hawks, cats, alligators, and other small animals; Ushebti figures, basketry and writing materials, for future re-installation in standard cases. Two cases of small working groups and wooden burial figures were also vacated, studied with reference to labels, and packed for transportation in a standard case. One case of vases and mortuary jars, one of boxes and biers, and another of canopics or viscera jars, were dismantled, the contents studied and packed in a standard case. In the East Court, three cases of Mexican, Venezuela and British Guiana ethnology were stripped for immediate installation, following the elimination of study and duplicate material. One Peabody case containing archaeological collections from Nicaragua, Bahama and Santo Domingo was released for storage, the material being properly divided for re-installation. The

Shastan collection was removed from a standard case to storage and will be re-installed at a later date. This change was made necessary by the arrival of new material. Six Peabody cases formerly used for storage purposes in Halls 68, 69 and 72, emptied of their contents in the process of packing, were removed and stored in the basement to give floor space for the cartons containing skeletal material in Hall 69 and the crated Melanesian material in Hall 72. In the repair section of the Department four hundred and forty-nine objects were restored, and more than two hundred and fifty received treatment. There were 50,591 new numbers marked on specimens, chiefly those relating to physical anthropology and archæological collections from Columbia, Peru and Argentine.

In lieu of installation in the Department of Botany this year, all effort of the staff, with the exception of herbarium installations and the work of plant reproduction, was expended in preparation for moving the collections to the new building. All those exhibition-cases designed to be moved without disinstallation, and intended to be kept on exhibition until moved, have been opened, their contents and labels securely anchored in place, and the storage locker contents packed in containers therein. In the east and west court galleries two hollow rectangular spaces were enclosed by these cases and within them 60 cases, secluded from public view, were completely disinstalled and their contents packed for shipment in the lockers beneath. In this manner more than half of the Department cases are now ready for shipment without seriously impairing the public attractiveness of the botanical display as long as the present building may be open. The activities of the Mrs. Stanley Field Plant Reproduction section have resulted in the production of the following life-like studies that have either been installed in the families to which they pertain or cased on view temporarily, awaiting true installation: A complete Pitcher-leaf plant (*Nepenthes*) in full leaf, flower and "pitcher," enlarged male and female flowers, and a "pitcher" in section showing its contents of partly digested insects; a large Trumpet Creeper vine (*Bignonia*) in full leaf, flower and fruit, a Catalpa flower in section, revealing its essential organs, a long rachis of Sausage fruits (*Kigelia*) with leaf above and two clusters of Candle-tree fruits (*Parmentiera*) suspended from the trunk of the tree; a complete plant of Poison Ivy (*Toxicodendron*) in full vernal leaf and flower, another in autumnal maturity with colorate leaves and ripe fruit, a section of a floral cluster enlarged to reveal the tree distinctive floral characters of the family, a leafy twig of the Mango (*Mangifera*) in ripe fruit and another of *Kemanga* in like condition; a large branch of *Gonocaryum* in full leaf, flower and fruit, produced from material and studies secured,

by the Curator, in the Botanical Gardens of Buitenzorg, Java, also an enlargement of the peculiar fleshy flower of the species; a complete, leafy, fruiting branch of the Sassafras, with an enlarged flower of the Alligator-pear (*Persea*) also a twig of the latter in leaf and ripe fruit and a fruit in section; summit of a Bitter-sweet vine (*Celastrus*) in full leaf and ripe fruit, a small twig in full flower, and a single flower enlarged; a large branch of Witch Hazel (*Hamamelis*) in full autumn leaf, flower and fruit and a single flower enlarged; a series of enlarged flowers of *Grevillea* showing the peculiar character of anthesis in the Proteaceæ; cluster of three plants of *Galax*, growing *in situ*, in full leaf and flower and a portion of a floral cluster, enlarged, showing buds and two flowers in different stages of anthesis; a Passion-flower vine (*Passiflora*) in full leaf, flower and fruit; a complete plant of the Fox-glove (*Digitalis*) in full leaf and flower; a large flower of the Corn Poppy (*Papaver*) sectioned to reveal its essential organs; a complete Arrow-head plant (*Sagittaria*), *in situ*, in full leaf and flower; a frond of the Tuna cactus (*Opuntia*) in full ripe fruit illustrating one of the cultivated varieties now becoming prominent in the fancy fruit shops of our cities; a leafy, flowering and fruiting branch of the Indian Mulberry (*Morinda*), another peculiar fruit now and then reaching our northern markets; an enlarged flower of the Bladder-wort (*Utricularia*) sectioned to reveal its peculiar structure, an enlarged leaf of the plant with its interesting bodies commonly known as "floats," a single float, or bladder, highly enlarged and opened to reveal its contents (partly digested larvae and minute water animals) proving these "bladders" to be, in reality, stomachs, and the plant to be carnivorous; the smaller Algæ, the Flagellatæ, Dinoflagellatæ and Peridinæ, groups of micro-plants, have been completed through the production of single individuals or several forms in the following genera: *Spirogyra*, *Spirulina*, *Nostoc*, *Rivularia*, *Trichodesmium*, *Lingyba*, *Oscillatoria*, *Clathrocystis*, *Coccolithophora*, *Discosphæra*, *Syncrypta*, *Euglena*, *Conocladium*, *Rhabdosphæria*, *Ornithoceras*, *Ceratium*, *Peridenium*, *Gymnodenium*, *Spirodenium* and *Cochlo-denium*. In October it was decided to transfer the laboratories and staff to Miami, Florida, where, through the courtesy of the Bureau of Plant Introduction of the United States Department of Agriculture, quarters were granted this Museum in the Department Laboratory Building at that place. All necessary appliances and apparatus were shipped forward and the staff left in a specially equipped automobile on the 19th of that month. On the way south studies and casts of the cotton plant were secured. Arriving at Miami, without special incident, immediate preparations were begun for the re-establishment of the work which is now progressing as before removal. The opportunity to thus secure needed

semi-tropical representative plants is an excellent one. The Section of Plant Reproduction will remain in Florida until April or early May.

In the Department of Geology about one hundred and twenty-five specimens were added to the Chalmers Crystal collection and the whole series re-installed, the additions making it necessary to move part of the collection to another case. The specimens are all mounted in correct crystallographic positions on individual mahogany stands and have separate individual labels. In the arrangement of the collection as exhibited, specimens illustrating the six crystallographic groups are first shown in order and subsequent to these, specimens of twin crystals, crystal groupings, crystal inclusions, crystal distortions, etc. The work begun last year of repolishing and re-etching the sections of iron meteorites, has been continued, thirty-six specimens having been thus treated during the year. These specimens have been re-installed as fast as the work upon them has been completed. Several relief maps that had been exhibited in the Court were removed and packed, while others were re-installed. The large painting of a Montana glacier presented by the Great Northern Railway was installed in this court in connection with large specimens showing glaciated surfaces. A model of the Natural Bridge of Virginia, based on the accurate survey and studies in the field made by the Assistant Curator last year, has been executed by the Assistant Curator and also placed on exhibition in the West Court. The model is five feet six inches long, three feet three inches wide, and two feet ten inches high, thus being of a size which is as large as will fit into the ordinary type of case. The scale is ten feet to the inch. This scale, without producing a model of unwieldy size, is large enough to show minor details distinctly. In this model an attempt has been made to simulate nature as closely as possible and to avoid the conventionalized and generalized systems of representation frequently employed in geological modeling. Also the vertical and horizontal scales are the same, thus avoiding the distortion which is also frequently employed in geological models. The model represents a length of 660 feet of the gorge of Cedar Creek in Rockbridge County, Virginia, with the well-known Natural Bridge of limestone spanning it at an elevation of 215 feet above the water. The stream bed and the vertical cliffs are of limestone, with coatings of bright-colored clays. The higher levels and the more sloping portions of the cañon walls are densely wooded. The basis of the model is reinforced concrete. The limestone surfaces and cliffs are modeled, the concrete mixtures at the surface being varied to meet the changing requirements of the rock texture. The strongly colored surfaces of the limestone have been reproduced in the model by permanent pigments which have been introduced into the pores of the con-

crete, thus avoiding a painted effect. Some carved pebbles were employed to represent individual rock features. The wooded portions of the model contain over 1000 miniature trees. The most prominent geological feature illustrated by this model is the formation of a natural bridge by the collapse of the roof of a cave, leaving only a fragment in the form of a bridge. The cañon of Cedar Creek marks the position of the former cave and traces of the latest falling of the roof appear as large limestone boulders in the creek immediately above and below the bridge. The geological reason for the location of the bridge in its present position is indicated by the appearance of the rock on the west wall of the gorge, which shows distinctly at the bridge the axis of a syncline where the beds of limestone lie level and also tend to be less broken than elsewhere. Other characteristic cave features illustrated by the model are light-colored stagmalitic deposits on the wall under the bridge and two vertical pits, one above and one below the bridge. The skeleton of the Irish Deer in Hall 36, having been found to be undergoing injury on account of imperfect mounting, was in part disarticulated and the supporting framework reconstructed. The upright rods were lengthened, reinforced and attached to the base in such a manner as to give a rigid support. Some fractures in the skeleton were repaired and a few missing parts restored. In remounting, also, the posture of the body was improved. Considerable progress has been made also towards mounting a skeleton of *Megacerops*. This is an Oligocene titanotherid collected in South Dakota by the Museum expedition of 1898. While the greater part of the skeleton was obtained, restoration of some components was found necessary. Most of these it was possible to model from corresponding parts of the same individual, but in some cases comparative studies of related animals were used as a basis for modeling. It is intended to display the skeleton in three-quarters relief on a combined base and background, these reproducing so far as possible the matrix from which the specimen was taken.

In addition to the attention given to preparation and installation of new material, a large amount of time has been occupied in packing in preparation for removal to the new building. For the most part the collections packed have not been of exhibited material, it being deemed desirable to allow this to remain exhibited as long as possible. The study and stored collections have therefore been those which have been chiefly boxed. This work has so far progressed as now to include the vertebrate paleontological collections which have been stored in the basement of the taxidermy building, and the entire study collections of vertebrate and invertebrate fossils, ores and other economic specimens, lithological

specimens and some apparatus. Careful records of the contents of each box have been made and each box has been marked in such a way as to secure its identification for unpacking and delivery at its appropriate destination in the new building. The record of the material packed during the year is as follows: Invertebrate fossils, 87 boxes; large field specimens of vertebrate fossils, 58 boxes; smaller vertebrate fossils, 48 boxes; lithology specimens, 27 boxes; ores, 67 boxes; apparatus and miscellaneous, 22 boxes and 22 barrels; relief maps, 10 boxes, making a total of 331 barrels and boxes.

In the Department of Zoology the work of the year has been largely directed to matters looking toward removal to new quarters. This has involved some rearrangement of specimens, some elimination of undesirable material, considerable planning and estimating and actual packing. The usual care in preventing damage to specimens from insects has been exercised. The skin dresser has been occupied chiefly in preparing skins of large mammals which have been in the possession of the Museum for a number of years but which, owing to pressure of other work, have remained in the raw state. These were found in good condition. Recently obtained skins, principally from South America, also were dressed for permanent preservation or for mounting. Plans for moving specimens of mammals and birds have been made by which the majority of such specimens will be packed in the storage cases where they are now kept and thus they may remain accessible until shortly before the actual time of moving. Considerable progress has been made in packing other material. In Taxidermy, a large number of casts and material for preparing bird and mammal groups has been boxed or crated and similar material not required for immediate use, including field equipment, etc., has also been packed. The collection of leg bones of large mammals reserved for mounting has been reassorted, relabeled, and packed after the elimination of duplicate or unnecessary specimens. Revision of the synoptic exhibit of mammals has continued and a number of specimens have been provided with new bases, while a few others have been set aside for remounting. A large mounted elephant seal was discarded. A group of the common Ruffed Grouse or "partridge" of the Northeastern United States was installed, completing a four-section case of local bird groups. It shows a pair of old birds and their nest under a log, the old female just leaving her eggs in fright at a raccoon which is approaching. A painted background shows a scene from the Forest of Arden near Joliet, Illinois, and the foreground shows an attractive reproduction of characteristic shrubs and smaller plants. The following four groups are now included in this, the latest of the four-section bird cases: Winter Bird of Lake Michigan; Bird Life of

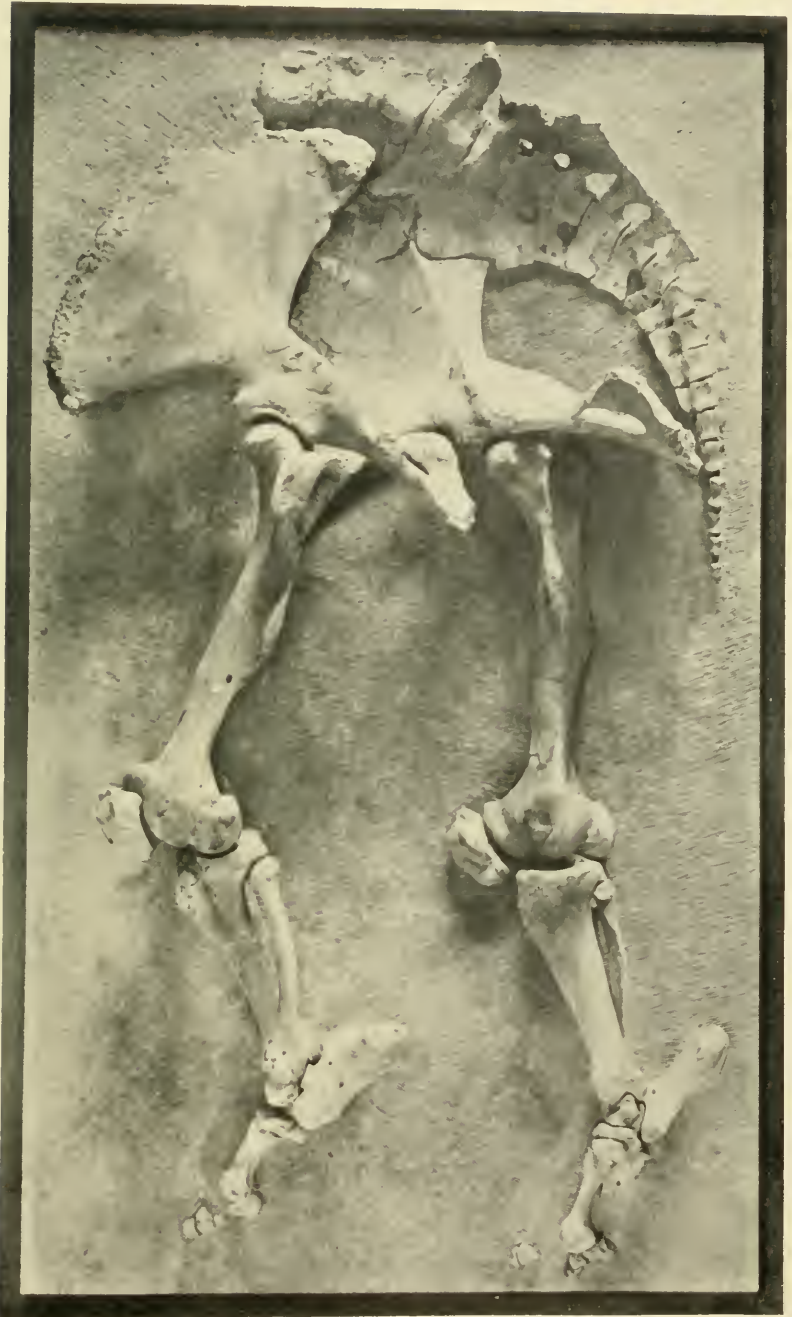
Fox Lake; Winter Bird Life of Northern Illinois, and Ruffed Grouse in its Summer Home. The several animals for the group of American Bison provided through the generosity of Mr. Arthur B. Jones and mentioned in a former report, were mounted during the year; but owing to the large size of the group and the difficulty of obtaining a proper case for it, the final installation was postponed until after removal to the new building. Therefore the animals, mounted on movable bases, have been temporarily placed on exhibition without background or accessories in a large case in the Rotunda of the Museum. Additions to the synoptic exhibition of mammals have been few, the most important being a large male specimen of the extraordinary baboon known as the Mandrill. Work has progressed on accessory material for projected groups of large mammals, especially that of the Olympic Elk, for which the painted background and the specimens of the animals have been in hand for some time. The exhibition work of the Division of Ichthyology and Herpetology was almost wholly of a preparatory character, it being considered unwise to install new material prior to the time of moving. Three snakes (two rattle-snakes and one fox snake), mounted on sanded bases, were the only specimens placed on exhibition during the year. A few fishes already on exhibition were remounted for more effective display. All of the sixty food and game fishes of the Mississippi River, obtained by a Museum Expedition in 1917, were mounted. After considerable planning and experimenting, a type of habitat group for small fishes was developed which promises gratifying results. A sample group which has been prepared shows an excellent sub-aquatic effect, an improvement on groups previously prepared. This group is installed in one of the rectangular glass jars originally designed for the display of fishes in fluid, a practice which has proved by experience in both this Museum and elsewhere to be unsuccessful. By using the type of habitat group mentioned above, seventy-two of the more important of the smaller local fishes can attractively be displayed in their proper environmental setting, in the two twelve-foot cases now utilized for the unsatisfactory exhibition of fishes in fluid. In addition to the actual work outlined above, the whole fish exhibit plans for the new Museum have received further consideration. The number of cases to be used, and to a large degree the detailed contents of each case, have been decided upon. The replacing of the old bottles of varied sorts now used in the collection of the Division with a more uniform and more economical type of specimen jar has been continued. The supply of such jars purchased in 1917 having been largely absorbed in the collection, a new order for 97 dozen jars of appropriate sizes was placed and filled. The most noteworthy work to which the Division of Entomology was de-

voted during the first five months of the year was the completing of an exhibit of scorpions and centipedes and the making of a sample habitat group of insects. Some time also was spent on a group that will represent the well-known and injurious tomato worm in its usual surroundings. The scorpion and centipede exhibit consists of a series of special tablet mounts, of which 29 contain different species of scorpions; 2 show harmless but much feared whip-tailed scorpions, 3 the agile solpugids, the nature of which has been the subject of much controversy, 11 illustrate some of the giant spiders including the tarantulas and trap-door spiders, and 14 tablets contain examples of the larger and hence more poisonous centipedes. This series of specimens with their labels occupies seven of the twelve panels in one of the new A-cases. As an experiment as to what might be done in the way of making groups of insects with accessories to represent natural surroundings, there was prepared a sample case containing the most conspicuous and characteristic insects found in the sand dune region. The group was regarded as a step in the right direction and a case was ordered capable of accommodating two groups and a space for illustrated labels. In addition to the above mentioned groups, the silkworm exhibit was also completed by supplementing photographs illustrating the industry in Japan and by the installation of suitable descriptive labels. The Barnes-Poling collection of moths was taken from the unsafe boxes in which it was received several years ago and transferred to insect-proof drawers. As a result of this work these insects are now arranged systematically in safe, glass-topped drawers and the storage or shipping boxes have been returned to the donors of the collection. Considerable preliminary work was essential before the insects in the laboratory could be actually packed for moving. This was especially true of the large number of specimens that were simply lying loose in shallow trays. As they could not be safely moved in this condition, they were relaxed and then placed between layers of cotton in small boxes. Every specimen in the Strecker collection were next examined in order to ascertain whether its pin was held securely, and, as a precautionary measure, all of the large butterflies and moths were secured by pins so as to prevent them from turning. The other pinned material was treated in a similar manner, but for the insects packed in papers and in small boxes different protective measures were adopted. A limited number of the loose specimens were pinned and labeled, because they could be more safely shipped in that condition. In order that the cases containing insects could be put in proper place in the new building, it was quite evident that they should be numbered before any attempt was made to pack the exhibits. This work was promptly given attention and all of the cases are now numbered so as to correspond with the

numbered space assigned to them on the floor plans of the exhibition-halls. Little was done toward completing the re-installation of the shell exhibit. Fifteen skeletons that were stored in Taxidermy were turned over to the Division of Osteology. These were prepared, catalogued and index cards written for the same. Eighty-seven skulls were cleaned for the Division of Mammalogy. Three skeletons were cleaned for the collection of Comparative Osteology. Since the middle of May the entire time of the Assistant Curator has been devoted to packing skulls and skeletons for moving. During that time fifty-three boxes and crates of large skulls and skeletons were packed. Six drawers of the storage cabinet were packed with small ligamentary skeletons.

THE N. W. HARRIS PUBLIC SCHOOL EXTENSION OF FIELD MUSEUM OF NATURAL HISTORY.

— At the close of the year there were 588 cases available for circulation among the public schools of Chicago. It is very gratifying to be able to report that despite a reduction in the number of the staff, owing to the enlistment of two of its members in the United States Army and the resignation of another, fifty-four cases were installed during the year. It was necessary to alter hanging and increase storage facilities for cases in order to accommodate 250 new cases. It may be said, and with some pride, that the type of case originally adopted by this Department continues to meet the many demands made upon it. The schedule prepared at the beginning of the year for the delivery of cases to public schools during the scholastic year was maintained, except for a period of several days during the early part of January, when deep snow prevented delivery of cases to schools. In connection with civic activities held on the Municipal Pier during the summer, a loan of cases from this Department was requested. During the first part of July twelve cases were sent to the pier in compliance with this request. After these cases had been on exhibition but a few days, the Superintendent of the pier, in a communication, expressed his and the public's appreciation of "the very interesting and highly educational exhibits" and adding "these exhibits are studied with great interest by young and old, and many enthusiastic statements are made concerning them. They are a real attraction to the pier and I am writing you for the purpose of asking you to supplement the present exhibit." In compliance with this later request, twelve cases were sent. The twenty-four cases were on exhibition in a large, well-lighted hall, in which were also exhibited paintings and sculptures. A request was granted to the Twenty-sixth Ward Woman's Civic League for several cases to be exhibited in the field house in Welles Park for the purpose of illustrating a lecture on the extension work of the Museum. The Curator of the Children's Museum of Brooklyn stated in a communication received early in the



POSTERIOR HALF OF A SKELETON OF THE RARE OLIGOCENE AQUATIC RHINOCEROS,
METAMYNODON.

Collected in South Dakota by Museum Expedition of 1905.

year, that their Museum was raising by popular subscription a sum of money to be expended in extending the Museum in the public schools of that city, and requested the loan of a typical case of this Department together with the motion picture film showing methods of storing, delivering cases, etc., which was shown at the Panama-Pacific International Exposition as a part of this Department's exhibit there. In making this request the Curator stated: "The N. W. Harris Public School Extension has set a glorious example for the whole land and an example which I hope we will be able to follow with success. It would help us out immensely and be of great assistance in educating the people up to the meaning of loan collections, and it would have much to do with the success of our campaign." A case and the motion picture film were sent as requested. After using them for several weeks for the purpose desired, an extension of the time of the loan of the case was asked. In support of this request it was stated, "The case and motion picture film were being used quite effectively, and that people here seem to be delighted with the conception of such a loan, and the comments are uniformly enthusiastic." Requests for information concerning construction of cases, methods of installing, distributing and loaning them have been received from various institutions.

PHOTOGRAPHY AND ILLUSTRATION.—The following is a tabulation of the work performed in this Section during the year:

	Number of Negatives made	Number of Prints made	Number of Lantern Slides made	Number of Negatives Developed for Expe- dition	Number of 6½x8½ Positives made. Used in making large Negatives
General	12	213	..	..	..
Anthropology	63	503	..	..	..
Botany	41	98	..	..	4
Geology	11	49	..	..	..
Zoology	10	29	..	..	..
Harris Extension	24	25	..	10	..
Gift . . . . .	..	70	1	..	..
Sale . . . . .	..	95	32	..	..
Totals	161	1,082	33	10	4
Total number of Catalogue entries during 1918					1,290
Total number of Catalogue entries to December 31, 1918					119,138
Total number of Record Books					20

PRINTING.— The number of labels and other impressions made by the Section of Printing during the year is as follows:

	Exhibition Labels	Other Impressions
Anthropology	2,341	8,210
Botany	2,167	10,140
Geology	2,529	7,000
Zoology	1,902	6,700
General . . . . .	.....	22,400
Library . . . . .	.....	1,900
Harris Extension	551	150

Herewith are also submitted financial statements, list of accessions, names of members, etc.

FREDERICK J. V. SKIFF, *Director*.

FINANCIAL STATEMENT.

RECEIPTS AND DISBURSEMENTS.

January 1, 1918, to December 31, 1918.

RECEIPTS

Cash in Treasurer's hands December 31, 1917:			
General Fund	\$2,417.05		
Picture Post Card Fund	275.25		
Endowment Sinking Fund	243.83	\$	2,936.13
<hr/>			
Petty Cash on hand December 31, 1917			739.95
Dues of Annual Members			810.00
Admissions and Check Rooms			3,721.05
South Park Commissioners			15,000.00
Interest on Investments and Bank Balances			9,505.17
Field Endowment Income		131,500.00	
Field Endowment Sinking Fund			4,676.26
Field Endowment Sinking Fund Income			1,477.87
New Building Moving and Furnishing Fund			23,885.00
Picture Post Cards—Sales			595.42
Mrs. Stanley Field Plant Reproduction Fund			8,490.00
Arthur B. Jones Buffalo Group Fund			138.59
Joseph N. Field South Pacific Islands Fund			648.00
Sundry Funds—Investments Interest			5,198.91
Sundry Receipts			357.18
Donations—special			
Homer E. Sargent	\$	250.00	
Charles R. Crane		500.00	
Edward E. Ayer		50.00	800.00
<hr/>			
			\$210,479.53

DISBURSEMENTS

Salaries		\$74,945.04
Guard Service		11,347.66
Janitor Service		6,528.80
Fire Protection		4,177.96
Heat and Light		22,487.19
Repairs and Alterations:		
Wages—Carpenters, Painters and Roofers	\$8,784.08	
Material used—Lumber, Paint, Oils and Glass	335.62	9,119.70
		<hr/>
Packing Supplies		2,000.27
Furniture and Fixtures		512.00
The Library:		
Books and Periodicals	\$554.53	
Binding	320.67	
Sundries	57.90	933.10
		<hr/>
Collections Purchased		1,243.82
Installation Supplies		2,229.94
Publications		2,449.55
Picture Post Cards		9.00
Sections of Photography and Printing—Supplies		300.56
General Expense Account:		
Freight, Expressage and Teaming	\$1,288.49	
Stationery, Postage and Telephone	551.33	
Liability Insurance	670.81	
Sundries	1,020.20	3,530.83
		<hr/>
Mrs. Stanley Field Plant Reproduction Fund		7,781.80
Stanley Field Ornithology Fund		15.00
William J. Chalmers Crystal Fund		165.30
Arthur B. Jones Buffalo Group Fund		28.59
Life Memberships Fund—Investments		1,800.00
Endowment Sinking Fund—Investments		6,050.00
New Building Moving and Furnishing Fund—Investments		27,995.00
Sundry Funds—Investments		17,560.00
Employers Liberty Loan Bonds		3,035.00
In Treasurer's hands, December 31, 1918:		
General Fund	\$3,103.19	
Picture Post Cards Fund	42.32	
Endowment Sinking Fund	347.96	3,493.47
		<hr/>
Petty Cash on hand, December 31, 1918		739.95
		<hr/>
		\$210,479.53

ATTENDANCE AND RECEIPTS FROM JANUARY 1, 1918, TO
DECEMBER 31, 1918.

ATTENDANCE

Paid Attendance:		
Adults	12,530	
Children	1,240	13,770
Free Admission on Pay Days:		
School Children	7,790	
Students	3,154	
Teachers	545	
Members	37	
Officers' Families	44	
Press	2	
Special	643	12,215
Admissions on Free Days:		
Saturdays	28,035	
Sundays	103,021	131,056
*Total Attendance		157,041
Highest Attendance on any one day (August 18, 1918) . .		5,692
Highest Paid Attendance on any one day (July 4, 1918) .		372
Average Daily Admissions (350 days)		448
Average Paid Attendance (259 days)		53

RECEIPTS

Articles checked—9,291 at 5 cents each	\$ 464.55
Admissions	3,256.50
	<hr/>
	\$3,721.05

*Museum closed fifteen days during the year.

ACCESSIONS.

DEPARTMENT OF ANTHROPOLOGY.

AYER, EDWARD E., Chicago.

1 Mexican metate with muller — Monterey, California (gift).

CHRISTIE, EMERSON B., Washington, D. C.

Pottery and porcelain fragments from caves — Bohol, Philippine Islands (gift).

FIELD MUSEUM OF NATURAL HISTORY.

Purchases:

1 bone awl, 2 coarse mats, 1 decorated mat, 5 detached bones, 2 dressed antelope hides, 1 rabbit-fur blanket, 1 skeleton of child with shell necklace, 1 skull of woman, 5 wooden implements — Cave in Val Verde County, Texas.

2 Tolowa buckskin dresses, 1 Tolowa feather head-dress, 1 Tolowa stone dish, 1 Yurok feather head-dress — California.

2 sacred bundles of the Sauk and Fox — Tama, Iowa.

JOSEPH N. FIELD SOUTH PACIFIC ISLANDS FUND.

4 trophy skulls — British New Guinea (gift).

GUNSAULUS, FRANK W., Chicago.

Painted screen of the Tosa School, 13th century — Japan (gift).

HAMILTON, THEODORE, Cleveland, Ohio.

Necklace of boar's tusks — Impur, Naga Hills, Assam, India (exchange).

HARVEY, CHARLES A., Chicago.

Archaeological material — Marblehead, Adams County, Illinois (gift).

HOEFELD, NORMAN A., Chicago.

Collection of ethnological objects, chiefly from the Ute — Colorado (gift).

MUSEUM OF THE AMERICAN INDIAN, New York City.

342 pottery fragments, 29 shell implements, 110 stone implements — West Indies (exchange).

91 clay figures, 13 specimens bronze, carved stone and bead necklace, 123 pottery vessels, 41 spindle-whorls, 20 stone implements — Ecuador (exchange).

NARJAL, H. W., Chicago.

1 pair Eskimo skin boots, 1 suit chain mail — Alaska and Sweden (gift).

5 pieces tapa cloth, 3 war clubs, shell and seed ornaments, miscellaneous objects — Samoa, South Sea (gift).

PARSONS, ELSIE CLEWS, New York City.

8 prayer sticks — Zuñi, New Mexico (gift).

SARGENT, HOMER E., Pasadena, California.

1 blanket with colored designs of Lower Thompson Indians, B. C. — Spuzum, British Columbia (gift).



TYPE OF CASE LOANED TO PUBLIC SCHOOLS BY THE N. W. HARRIS PUBLIC SCHOOL EXTENSION OF FIELD MUSEUM.

WATSON, J. A., Chicago.

Miscellaneous textiles from northern Mexico, Liberia, and Canary Islands (gift).

DEPARTMENT OF BOTANY.

AMERICAN CUTLERY COMPANY, Chicago.

8 specimens woods used for handles for cutlery — various localities (gift).

AMES BOTANICAL LABORATORY, North Easton, Massachusetts.

8 herbarium specimens — Philippine Islands (exchange).

BUREAU OF SCIENCES, Manila, Philippine Islands.

374 herbarium specimens—various localities (exchange).

Centuria 1,2,3,4,5,6,7,8,9,10, "Species Blancoanae" — Philippine Islands (exchange).

BECKWITH, MISS FLORENCE, Rochester, New York.

89 herbarium specimens — Illinois, Indiana and Kansas (gift).

BRAINERD, EZRA, Middlebury, Vermont.

2 herbarium specimens — Vermont (gift).

BROADWAY, W. E., Tobago, British West Indies.

3 herbarium specimens — Barbadoes (gift).

BUSH, BENJAMIN F., Courtney, Missouri.

4 herbarium specimens — Missouri (gift).

CLOKEY, IRA W., Denver, Colorado.

177 herbarium specimens — Colorado and Wyoming (exchange).

COLTON, MRS. THERON, Chicago.

13 herbarium specimens — Illinois and Indiana (gift).

DEAM, CHARLES C., Bluffton, Indiana.

20 herbarium specimens — Indiana (gift).

EVANS, ALEXANDER W., New Haven, Connecticut.

35 herbarium specimens — Mexico (gift).

FARRINGTON, O. C., Chicago.

2 specimens sphagnum moss — Maine (gift).

FLYNN, MRS. NELLIE F., Burlington, Vermont.

12 herbarium specimens — Vermont (gift).

FIELD MUSEUM OF NATURAL HISTORY.

Collated by C. F. Millspaugh:

7 herbarium specimens — Chicago.

Transfer from Department of Anthropology:

1 specimen lace bark — Jamaica.

Transfer from Department of Geology:

1 fossil cryptozoön — Saratoga, New York.

Transfer from Section of Photography:

7 photographs of types — herbarium.

Purchases:

753 herbarium specimens — China and Japan.

457 herbarium specimens — Philippine Islands.

299 herbarium specimens — Argentina.

306 herbarium specimens — California and Oregon.

Mrs. Stanley Field Plant Reproduction Laboratory:

Reproduction in glass and wax of pitcher-leaf plant, sectioned leaf, enlarged flowers; Sausage-tree fruits; Candle-tree fruits.

- Reproductions of Poison Ivy plant in leaf, flower and fruit; poison ivy enlarged flowers; Mango fruits and leaves; Kemang fruit and leaves. 12 reproductions in glass of species of Flagellatae and Peridineae.
- Models in glass of Nostoc, Rivularia, Trichodesmium, Spirulina, Sporogyra. Reproductions of Gonocaryum pyriforme, branch flower and fruit, and enlarged flowers.
- Reproductions of Branch of Sassafras; enlarged flower and fruit of alligator pear and its fruit in section; Micro. plants of Lingbya, Oscillatoria, and Clathrocystis.
- Reproductions of plant, flowers and enlarged flowers of Bitter-sweet. Living plants of Calycanthus, Galax; fruits and seeds of Calycanthus; flowers in formalin, of Calycanthus, Galax, Diospyros.
- Reproductions in glass and wax of Galax plant and flowers; Grevillea flowers; Witch-hazel branch and flower; Catalpa flower.
- Reproductions of Trumpet-creeper vine; Catalpa flower; Indian Mulberry Fruit; Passion-flower vine; Fox-glove plant; Poppy flower; Arrow-head plant; Tuna Cactus fruits; Bladder-wort enlarged leaf and enlarged float.
- GATES, FRANK C., Carthage, Illinois.
390 herbarium specimens — Michigan (exchange).
- GRAY HERBARIUM, Cambridge, Massachusetts.
1 photograph of Vellozo's plate 25, Xanthium brasiliicum (exchange).
- JEPSON, WILLIS L., Berkeley, California.
1 herbarium specimen — California (gift).
- JOHNSON, ARTHUR E., Chicago.
68 herbarium specimens — Illinois (gift).
- LANSING, O. E., Jr., Chicago.
2 fruits and seeds of Staphylea — Jackson Park, Chicago (gift).
- LAUFER, BERTHOLD, Chicago.
1 specimen dried opium — Hankow, China (gift).
- LEWIS, A. B., Chicago.
1 specimen of fungus — Jackson Park, Chicago (gift).
- MATRACIA, A., San José, California.
1 ripe fruiting frond of Tuna cactus — his cultivation (gift).
- MILLSPAUGH, CHARLES F., Chicago.
183 herbarium specimens — North Carolina and Illinois (gift).
118 herbarium specimens — Wisconsin and Illinois (gift).
1 photograph of type of Xanthium canadense — London (gift).
1 photograph of type of Xanthium echinatum Mur. in herbarium de Candolle, Geneva — Italy (gift).
1 photograph of co-type of Xanthium oviforme in herbarium British Museum, London — Washington (gift).
- MILLSPAUGH, CLARA MITCHELL, Chicago.
11 herbarium specimens — North Carolina (gift).
- NEW YORK BOTANICAL GARDEN, New York City.
217 herbarium specimens — various localities (exchange).
44 herbarium specimens — Jamaica (exchange).
148 herbarium specimens — Jamaica and Inagua Island (exchange).
- NEW YORK STATE MUSEUM, Albany, New York.
1 photograph of "Cryptozoon Ledge" — Lester Park, Saratoga, New York (gift).

- POPE, MRS. FREDERIQUE EUGENIA, Racine, Wisconsin.
 1 photograph of *Linnaea borealis* in situ — Sturgeon Bay, Wisconsin (gift).
 1 herbarium specimen — Beach, Illinois (gift).
- RIDGWAY, ROBERT, Olney, Illinois.
 1 photograph of *Tacoma radicans* — Richmond County, Illinois (gift).
 267 herbarium specimens — Illinois and Indiana (gift).
- SEELEY, MR., Asheville, North Carolina.
 2 specimens wool, dyed with walnut bark and hickory bark — Asheville, North Carolina (gift).
- SHERFF, EARL E., Chicago.
 188 herbarium specimens — various localities (gift).
 1 herbarium specimen — Nukahiva Island (gift).
 2 descriptions of species — Library (gift).
 281 herbarium specimens — various localities (gift).
 10 herbarium specimens — Illinois (gift).
- SHULL, CHARLES A., Lawrence, Kansas.
 4 type specimens of *Xanthium* — Kansas (gift).
- STONE, FRANK B., Chicago.
 1 specimen fungus — Chicago (gift).
- TUNDUZ, ADOLF, San José, Costa Rica.
 3 herbarium specimens — Costa Rica (gift).
- U. S. NATIONAL MUSEUM, Washington, D. C.
 Division of Plants:
 246 herbarium specimens — various localities (exchange).
 19 photographs of types — Herbarium (exchange).
- UNIVERSITY OF CHICAGO, Chicago.
 Department of Botany:
 2 herbarium specimens, type — China (gift).
 Department of Geology:
 1311 specimens, Herbarium of William Hall (gift).
- WHERRY, EDGAR T., Washington, D. C.
 3 herbarium specimens — West Virginia (gift).
- WILSON & COMPANY, LABORATORIES, Chicago.
 15 palm products — Brazil (gift).

DEPARTMENT OF GEOLOGY.

- AMERICAN MANGANESE COMPANY, Chicago.
 1 specimen manganese ore — Laramie, Wyoming (gift).
- AUSTRALIAN MINING MUSEUM, Sydney, New South Wales.
 11 specimens minerals — Australia (exchange).
- AXEL, CHARLES O., Chicago.
 1 specimen gold-silver ore — Platoro, Colorado (gift).
- BAILEY, E. S., Chicago.
 2 specimens radium ore — Wyoming (gift).
- BRIGHAM, ALEXANDER FAY, New York City.
 33 specimens gem and other minerals associated with the diamond — Jagersfontein, South Africa (gift).

CHALMERS, W. J., Chicago.

42 specimens crystals — various localities (gift).

26 specimens crystals — various localities (gift).

21 specimens crystals — various localities (gift).

COOPER, E. R., Rochester, New York.

1 specimen volcanic ash — Yukon Crossing, Alaska (gift).

FARGO, L. W., Chicago.

1 specimen titaniferous iron ore — Cook County, Minnesota (gift).

FIELD MUSEUM OF NATURAL HISTORY.

Collected by B. E. Dahlgren:

83 specimens fossils and ores — Huntsville, Alabama.

Collected by H. W. Nichols:

1 specimen Niagara Limestone — Clarendon Avenue, Chicago.

Purchases:

3 mineral specimens — Utah.

Type specimen of *Paolia superba* — Mazon Creek, Illinois.

FISHER, MRS. H. S., Chicago.

15 specimens minerals and fossils — various localities (gift).

GALLAGHER, J. F., Chicago.

1 specimen chalk, Scotia, Nebraska (gift).

GREAT NORTHERN RAILWAY COMPANY, Chicago.

1 painting of Rome Glacier — Montana (gift).

HAM, FLOYD, Twin Falls, Idaho.

1 specimen soda niter — Malheur County, Oregon (gift).

HARRIS, B. E., Chicago.

1 specimen quartzite breccia — Arkansas (gift).

HUBBS, CARL L., San Diego, California.

9 specimens ores and minerals — California (gift).

KANST, EDWIN A., Chicago.

1 specimen black earth, Chicago, (gift).

NICHOLS, CARRIE R., Waltham, Massachusetts.

7 specimens fossil shells — Canal near West Palm Beach, Florida (gift).

OSGOOD, S. W., Chicago.

2 specimens synthetic graphite — South Chicago (gift).

PATENT VULCANITE ROOFING COMPANY, Chicago.

5 specimens crushed rock for roofing — various localities (gift).

PAYSON, C. H., Watseka, Illinois.

1 specimen volcanic tuff — Pocatello, Idaho (gift).

PROKES, JOSEPH N., Jackson, Minnesota.

14 specimens calcareous tufa — Jackson, Minnesota (exchange).

SCHOLZ, CARL, Chicago.

Photograph of fossil tree — Alderson, Oklahoma (gift).

TUNNELL, G. G., Jr., Evanson, Illinois.

11 specimens minerals and rocks — California, Arizona and New Mexico (gift).

UNIVERSITY OF CHICAGO, Chicago.

Skull of Permian reptile — Brush Creek, Texas (exchange).

24 specimens of Permian reptiles — Texas (exchange).



FIGURE OF WOMAN FROM CENTRAL TIBET, IN FESTIVE ATTIRE.
COMPLETE WITH JEWELRY.

DEPARTMENT OF ZOÖLOGY.

ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA

33 Atherine and Cyprinoid fishes — various localities (exchange).

ALLEN, MRS. HARRY, Rockford, Illinois.

2 sponges — Florida (gift).

AMERICAN MUSEUM OF NATURAL HISTORY, New York City.

2 bees — New Jersey and Long Island (exchange).

BARNES, WILLIAM, Decatur, Illinois.

2950 moths — Canada, United States and Mexico (gift).

BLATCHLEY, W. S., Indianapolis, Indiana.

1 beetle — Dunedin, Florida (gift).

COALE, HENRY K., Highland Park, Illinois.

2 jays — Amami Oshima, Loo Choo Islands (gift).

COE COLLEGE, Cedar Rapids, Iowa.

375 fishes, amphibians and reptiles — British Honduras (exchange).

COVERT, A. B., Hannibal, Missouri.

1 silver-haired bat — South Haven, Michigan (gift).

FIELD MUSEUM OF NATURAL HISTORY.

Purchases:

2 odd skulls, 11 South American mammals with skulls — French Guiana, South America.

5 glacier bears — skins and skulls — Yakutat, Alaska.

5 mounted fishes — England.

5 small mammals — South America.

3 thick-billed parrots — Paradise, Arizona.

2 waterbugs — Rio Blanco at Orizaba, Mexico.

Transfer from Department of Anthropology:

1 crocodile skull — New Guinea.

STANLEY FIELD ORNITHOLOGY FUND.

1 passenger pigeon (gift).

FRIESSER, JULIUS, Chicago.

2 beetles — Chicago (gift).

GERHARD, WILLIAM J., Chicago.

1 tree frog — Illinois (gift).

GUERET, MRS. E. N., Chicago.

1 bug — Dawson County, Montana (gift).

GUNTHER, F. E., La Crosse, Wisconsin.

1 extra large sheephead — Lake Pepin (gift).

HUBBS, CARL L., Chicago.

7 Atherinoid fishes — southern and lower California (gift).

133 dragonflies, grasshoppers, moths, flies, bees, wasps and parasites — California (gift).

7 reptiles and amphibians — California (gift).

2 snakes — Pacific Beach, California (gift).

11 toads — Indiana (gift).

4 turtles — northern Indiana (gift).

15 water bugs — California (gift).

KEEDY, H. W., Chicago.

2 fresh-water fishes — Florida (gift).

- KWIAT, ALEXANDER, Chicago.
 1 cicada — Palos Park, Illinois (gift).
- LILJEBLAD, E., Chicago.
 13 ant-lions, bugs, beetles, and velvet-ants — northern Indiana and northern Illinois (gift).
 3 salamanders and lizards — Illinois (gift).
- NARJAL, H. W., Chicago.
 1 snake skin — San José, Costa Rica (gift).
- NOLAN, MRS. M. C., Chicago.
 54 mounted birds, 10 mounted mammals—Pennsylvania and Kansas (gift).
- ODELL, C. L., Chicago.
 1 dobson (male) — Geneva, Illinois (gift).
- PRAY, LEON L., Chicago.
 8 bird-lice — Illinois (gift).
 10 fishes — Michigan (gift).
 8 frogs and toads — Michigan (gift).
- RAMSDEN, CHARLES T., Guantanamo, Cuba.
 12 birds — Cuba (gift).
- SAN DIEGO SOCIETY OF NATURAL HISTORY, San Diego, California.
 4 fishes and salamanders — southern California (exchange).
- WALTERS, LEON L., Chicago.
 6 catfishes — Chicago Ridge, Illinois (gift).
- WEISS, HARRY B., New Brunswick, New Jersey.
 3 beetles — Summit and Riverton, New Jersey (gift).
- WILLIAMSON, E. B., Bluffton, Indiana.
 1 albino red squirrel — Bluffton, Indiana (gift).
- WOLCOTT, A. B., Chicago.
 20 sawflies — Chicago (gift).

SECTION OF PHOTOGRAPHY.

FIELD MUSEUM OF NATURAL HISTORY.

Made by Section:

1290 negatives and prints of Museum specimens.

THE LIBRARY.

BOOKS, PAMPHLETS, AND SERIALS

(ACCESSIONS ARE BY EXCHANGE UNLESS OTHERWISE DESIGNATED.)

AFRICA

Durban Museum	2
East Africa and Uganda Natural History Society, Nairobi	1
Geological Society, Johannesburg	2
Rhodesia Scientific Association, Bulawayo	1
Royal Society, Cape Town	1
South African Association for Advancement of Science, Cape Town	1
South African Museum, Cape Town	2

ARGENTINA

Academia de Ciencias, Cordoba	1
Facultad de Filosofia y Letras, Buenos Aires	1

AUSTRALIA

Austalian Museum, Sydney	I
Australian Ornithologists' Union, Melbourne	I
Botanic Gardens and Government Domains, Sydney	I
Department of Agriculture, Adelaide	I
Department of Agriculture, Sydney	I
Department of Fisheries, Sydney	2
Department of Mines, Sydney	4
Field Naturalists' Club, Melbourne	I
Forestry Commission, Sydney (gift)	2
Geological Survey, Perth	3
Government of the Commonwealth, Melbourne	3
Linnean Society of New South Wales, Sydney	I
National Herbarium, Melbourne	I
Public Library, Museum and Art Gallery, Adelaide	I
Public Library, Museums and National Gallery of Victoria, Melbourne	2
Queensland Department of Mines, Brisbane	4
Royal Society of New South Wales, Sydney	I
Royal Society of Queensland, Brisbane	2
Royal Society of Tasmania, Hobart	2
Royal Society of Victoria, Melbourne	I
South Australia Ornithological Society, Adelaide	I
Tasmania Department of Agriculture, Hobart	2
Technical Museum, Sydney	I
Victoria Department of Agriculture, Melbourne	2
Western Australia Geological Survey, Perth.	2

BRAZIL

Bibliotheca Nacional, Rio de Janeiro	I
Escola Superior de Agricultura e Medicina Veterinaria, Pinheiro	I
Instituto Agronomico de Estado, Sao Paulo	I
Instituto Archeologico e Geographico Pernambucano, Recife	I

BRITISH GUIANA

Royal Agricultural and Commercial Society, Demerara	I
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CANADA

British Columbia Bureau of Mines	I
Department of Agriculture, Ottawa	7
Department of Agriculture, Victoria	2
Department of Marine and Fisheries, Ottawa	I
Department of Mines, Ottawa	2
Department of Mines, Victoria	I
Department of the Interior, Geological Survey, Ottawa	8
Horticultural Societies of Ontario, Toronto	I
McGill University, Montreal	3
Minister of Education, Toronto	I
Naturaliste Canadien, Quebec	I
Numismatics and Antiquarian Society, Montreal	I
Ottawa Field Naturalists' Club, Ottawa	I
Provincial Museum, Victoria	I
Royal Canadian Institute, Toronto	I
Royal Society of Canada, Ottawa	I

CEYLON

Royal Botanic Garden, Peradeniya 2

CHILE

Biblioteca Nacional, Santiago de Chile 1

CHINA

Botanical and Forestry Department, Hong-Kong 1

Royal Asiatic Society, North China Branch, Shanghai 1

DENMARK

Naturhistorisk Forening, Copenhagen 2

Société Royale des Antiquités du Nord, Copenhagen 3

FIJI ISLANDS

Fijian Society, Suva, Fiji Islands (gift) 1

FRANCE

Académie des Sciences, Paris 2

L'Ecole Langues Orientales Vivantes, Paris 3

Muséum National d'Histoire Naturelle, Paris 1

La Nature, Paris 1

Société de Géographie, Paris 1

Société de Géographie, Toulouse 1

Société Nationale d'Agriculture, Sciences et Arts, Angers 1

Société Zoologique, Paris 1

GREAT BRITAIN

Anthropological Institute of Great Britain and Ireland, London 1

Ashmolean Natural History Society of Oxfordshire, Oxford 1

Belfast Natural History and Philosophical Society 1

Brighton and Hove Natural History and Philosophical Society, Brighton 1

Bristol Museum and Art Gallery 1

British Association for the Advancement of Science, London 1

British Museum (Natural History), London 5

Cambridge Philosophical Society 1

Cambridge University Library 1

Cardiff Naturalists' Society 1

Dove Marine Laboratory, Cullercoats, Northumberland 1

Dumfriesshire and Galloway Natural History and Antiquarian Society,
Dumfries 1

Fisheries Board, Edinburgh 1

Geographical Society, London 1

Great Britain Geological Survey, London 1

Imperial Bureau of Entomology, London 2

Imperial College of Science and Technology, London 1

Japan Society of London 2

Lancashire Sea Fisheries Laboratories, Liverpool 1

Linnean Society, London 3

Liverpool Biological Society 2

Manchester Literary and Philosophical Society 1

Manchester Museum 1

Marine Biological Association of the United Kingdom, Plymouth 2

National Museum of Wales, Cardiff 1

Royal Botanic Gardens, Edinburgh 2

Royal Botanic Gardens, Kew	2
Royal Colonial Institute, London	1
Royal Geographical Society, London	2
Royal Society, London	1
Royal Society of Arts, London	1
Royal Society of Edinburgh	2
Tring Zoological Museum	1
INDIA	
Anthropological Society, Bombay	2
Archæological Survey, Calcutta	4
Archæological Survey, Lahore	1
Botanical Survey, Calcutta	1
Department of Agriculture, Madras	1
Department of Agriculture, Pusa	2
Geological Survey, Calcutta	1
Government Museum, Madras	1
Hyderabad Archæological Society (gift)	3
National Indian Association, Calcutta (gift)	1
Royal Asiatic Society, Straits Branch, Singapore	3
Royal Botanic Gardens, Calcutta	1
Superintendent of Government Printing	2
ITALY	
Accademia Giornata di Scienze Naturali, Catania	1
Istituto Botanico Dell'Universita de Pavia	1
Istituto Geografico de Agostini, Novara	1
Societa Italiana di Scienze Naturali, Milan	1
Societa Romana di Antropologia, Rome	1
JAPAN	
Bureau of Productive Industry Formosa Government, Taihoku	1
Geological Survey, Tokyo	1
Imperial University of Tokyo, College of Agriculture	1
Imperial University of Tokyo, College of Science	2
Tohoku Imperial University, Sendai	1
Tokyo Botanical Society	1
JAVA	
Bataviaasch Genootschap van Kunsten en Wetenschappen, Batavia	2
Department of Agriculture, Buitenzorg	5
Department van Landbouw, Buitenzorg	3
Jardin Botanique, Buitenzorg	1
KOREA	
Government-General Chosen, Seoul	1
MEXICO	
Director General de Estadistica, Mexico	2
Instituto Geologico, Mexico	2
Sociedad Cientifica "Antonio Alzate," Mexico	1
Sociedad Mexicana de Geografia y Estadistica, Mexico	2
NETHERLANDS	
Bataafsch Genootschap der Proefonde r-vindelijke Wijsbegeerte, Rotterdam	1
K. Bibliotheek, Hague	1

K. Instituut voor de Taal, Land-en Volkenkunde van Nederlandsch Indie, 's Gravenhage	2
K. Nederlandsch Aardijkskundig Genootschap, Amsterdam	1
Rijks Ethnographisch Museum, Leiden	1
Rijks Museum van Natuurlijks Histoire, Leiden	2
NEW ZEALAND	
Auckland Institute and Museum, Wellington	2
Department of Agriculture, Wellington	1
Department of Mines, Wellington	2
Geological Survey, Wellington	4
New Zealand Institute, Wellington	2
NORWAY	
Bergens Museum	2
Physiografishe Forening, Christiania	2
Tromso Museum	2
PERU	
Cuerpo de Ingenieros de Minas, Lima	1
Sociedad Geografica, Lima	2
PORTUGAL	
Academia das Sciencias, Lisbon	3
Instituto D'Anatomie, Lisbon	2
Société Portugaise de Science Naturelle, Lisbon	
SPAIN	
Museo de Ciencias Naturales, Madrid	8
Sociedad Española de Historia Natural, Madrid	2
SWEDEN	
K. Biblioteket, Stockholm	2
Svenska Sällskapet för Antropologi och Geografi, Stockholm	1
SWITZERLAND	
Botanic Garden, Zürich	1
Musée d'Histoire Naturelle, Lausanne	1
Naturforschende Gesellschaft, Basel	1
Ostschweizerische Geograph.—Commerc. Gesellschaft, St. Gallen	1
Société Botanique de Genève, Geneva	1
Société de Physique et d' Histoire Naturelle, Geneva	2
Société des Sciences Naturelles, Fribourg	1
Société Neuchateloise de Géographie	2
Société Zoologique de Genève, Geneva	1
WEST INDIES	
Agricultural Experiment Station, Porto Rico	1
Biblioteca Nacional, Havana	1
Department of Agriculture, Kingston	1
Imperial Department of Agriculture, Barbadoes	1
Jamaica Institute, Kingston	1
Trinidad and Tobago Department of Agriculture, Port of Spain	2
Universidad de la Habana, Havana	2
Baker, R. T., Sydney, N. S. W.	2
Best, Elsdon, Wellington, New Zealand (gift)	1

Carpenter, G. H., Dublin, Ireland	I
Chodat, R., Geneva, Switzerland (gift)	I
Costantin, M. J., Paris, France (gift)	I
Debenedetti, Salvador, Buenos Aires, Brazil (gift)	I
Despoll, Giuseppe, Malta	8
Dunod, H., Paris, France	3
Gleerup, C. W. K., Lund, Sweden	I
Lambe, Lawrence, Ottawa, Canada (gift)	I
Larrea, C. M., Quito, Ecuador (gift)	I
Lehmann, Netsche R., Buenos Aires, Brazil	I
Maiden, J. H., Sydney, N. S. W.	I
Marshall, Sir John, Calcutta, India (gift)	I
Rosenburg, G. A., Copenhagen, Denmark (gift)	I
Steensby, H. P., Copenhagen, Denmark (gift)	I
ALABAMA	
Agricultural Experiment Station, Auburn	I
ARIZONA	
Agricultural Experiment Station, Tucson	2
CALIFORNIA	
Agricultural Experiment Station, Berkeley	I
California Academy of Sciences, San Francisco	2
Cooper Ornithological Club, Hollywood	I
Fish and Game Commission, San Francisco	I
Leland Stanford Junior University, Stanford University	2
Los Angeles County Museum of History, Science and Art	I
Pioneer Western Lumberman, Sacramento	I
Pomona College, Claremont	2
State Board of Forestry, Sacramento	I
State Mining Bureau, Sacramento	4
University of California, Berkeley	18
COLORADO	
Agricultural Experiment Station, Fort Collins	I
Bureau of Mines, Denver	I
Colorado College, Colorado Springs	I
Colorado Museum of Natural History, Denver	I
State Geological Survey, Boulder	3
CONNECTICUT	
Agricultural Experiment Station, New Haven	2
American Oriental Society, New Haven	I
Connecticut Academy of Arts and Sciences, New Haven	2
Hartford Public Library	2
Hartford Public Museum	I
Meriden Bird Club (gift)	2
Wesleyan University, New Haven	I
Yale University, New Haven	2
FLORIDA	
Florida Geological Survey, Tallahassee	2
GEORGIA	
Geological Survey, Atlanta	I

HAWAIIAN ISLANDS

Agricultural Experiment Station, Honolulu	2
Bernice Pauahi Bishop Museum, Honolulu	1
Board of Commissions of Agriculture and Forestry, Honolulu	1
Hawaiian Entomological Society, Honolulu	3
Honolulu Historical Society,	2

IDAHO

Mining Industry, Boise	1
University of Idaho, Moscow	1

ILLINOIS

Agricultural Experiment Station, Urbana	1
Art Institute of Chicago	1
Chicago Academy of Sciences	3
Chicago Historical Society	1
Chicago Library Club (gift)	1
Chicago Public Library	2
Engineering and Cement World, Chicago (gift)	1
Hardwood Record, Chicago (gift)	1
John Crerar Library, Chicago	3
Lake Forest College	1
Lewis Institute, Chicago	1
Newberry Library, Chicago	1
Northwestern University, Evanston	1
Open Court Publishing Company, Chicago	1
State Academy of Science, Springfield	1
State Board of Agriculture, Springfield	1
State Historical Library, Springfield	2
State Laboratory of Natural History, Urbana	1
Sweet, Wallach and Company, Chicago (gift)	1
University of Chicago	26
University of Illinois, Urbana	10

INDIANA

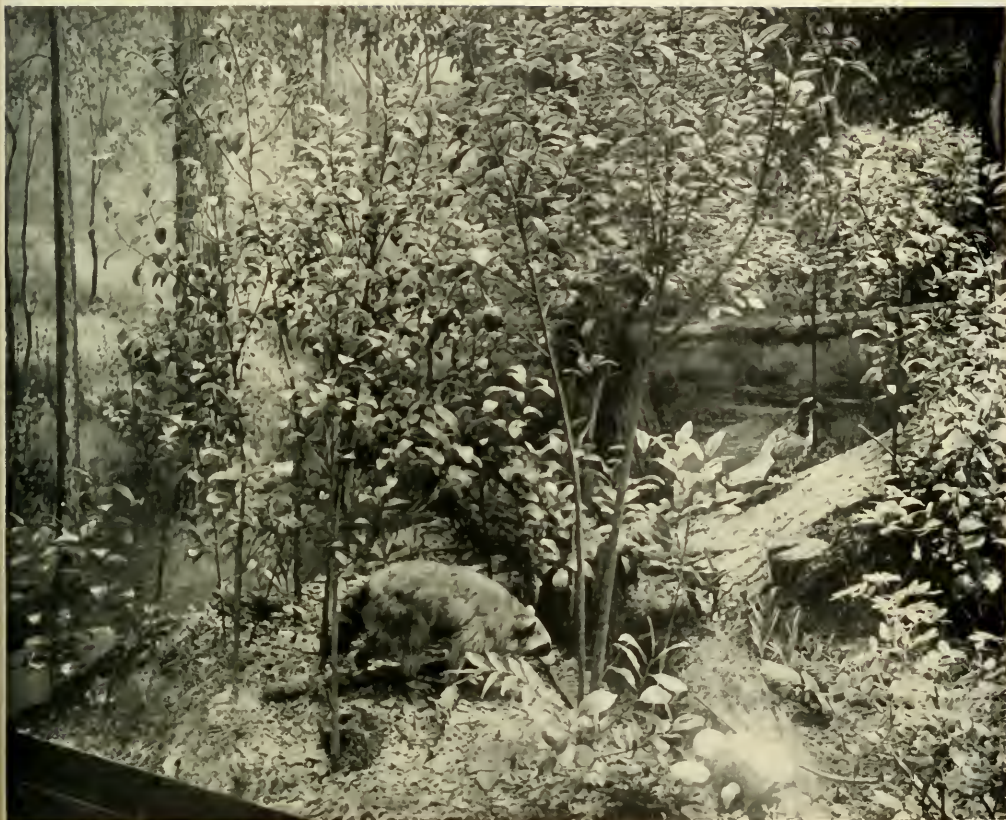
Department of Geology and Natural History, Indianapolis	1
Indiana Academy of Science, Indianapolis	1
Purdue University, Lafayette	12
State Entomologist, Indianapolis (gift)	2
Studebaker Corporation, South Bend (gift)	1
University of Notre Dame	1

IOWA

Academy of Sciences, Des Moines	1
Geological Survey, Des Moines	1
Iowa State College, Ames	6
Iowa State Horticultural Society, Des Moines	1
State Highway Commission, Des Moines	1
University of Iowa, Iowa City	2

KANSAS

Academy of Science, Topeka	2
Agricultural Experiment Station, Manhattan	2
State Board of Agriculture, Topeka	1



HABITAT GROUP
RUFFED GROUSE ("PARTRIDGE") *Bonasa umbellus* (LINN.)
A nesting pair disturbed by a Raccoon.

State Geological Survey, Lawrence	3
University of Kansas, Geological Survey, Lawrence	2

KENTUCKY

Agricultural Experiment Station, Lexington.	2
Kentucky Geological Survey, Lexington (gift)	2

LOUISIANA

Agricultural Experiment Station, Baton Rouge	2
Department of Conservation, New Orleans (gift)	2
State Museum, New Orleans	1

MAINE

Bowdoin College, Brunswick	2
State Horticulturalist, Waterville	1
State Library, Augusta	4

MARYLAND

Agricultural Experiment Station, College Park	2
Enoch Pratt Free Library, Baltimore	2
Geological Survey, Baltimore	3
Johns Hopkins University, Baltimore	2
Maryland Institute, Baltimore	1
State Board of Forestry, Baltimore	2

MASSACHUSETTS

Agricultural Experiment Station, Amherst	1
American Academy of Arts and Sciences, Boston	1
American Antiquarian Society, Boston	1
Amherst College	1
Archæological Institute of America, Boston	1
Boston Museum of Fine Arts	2
Boston Public Library	2
Clark University, Worcester	1
Essex Institute, Salem	2
Harvard Museum of Comparative Zoölogy, Cambridge	2
Harvard University, Gray Herbarium, Cambridge	2
Horticultural Society, Boston	2
New Bedford Free Public Library	2
Peabody Institute	1
Peabody Museum, Cambridge	1
Peabody Museum, Salem	2
Salem Public Library	2
Springfield City Library Association	1
Springfield Natural History Museum	1
Tufts College, Boston	1
Williams College, Williamstown	2
Worcester County Horticultural Society, Worcester	2
Worcester Free Public Library	1

MICHIGAN

Academy of Sciences, Ann Arbor	1
Agricultural Experiment Station, Agricultural College	3
Art and Museum Commissioners, Grand Rapids	1
Department of Parks and Boulevards, Detroit	1

Detroit Museum of Art	1
Game, Fish and Forest Commission, Lansing (gift)	1
Geological and Biological Survey, Lansing	2
Grand Rapids Public Library	2
Michigan College of Mines, Houghton	1
National Educational Association of the United States, Ann Arbor	1
Parke Davis and Company, Detroit (gift)	1
State Board of Agriculture, Lansing	1
State Board of Library Commissions, Lansing	1
State Library, Lansing	1
University of Michigan, Ann Arbor	2

MINNESOTA

Academy of Sciences, Minneapolis	1
Agricultural Experiment Station, St. Paul	2
Minneapolis Society of Fine Arts	1
University of Minnesota, Minneapolis	4

MISSISSIPPI

Agricultural Experiment Station, Agricultural College	
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MISSOURI

Agricultural Experiment Station, Columbia	1
Bureau of Geology and Mines, Jefferson City	2
City Art Museum, St. Louis	1
Missouri Botanical Garden, St. Louis	1
St. Louis Academy of Sciences	1
St. Louis Natural History Museum Association (gift)	1
St. Louis Public Library	2
St. Louis University	1
University of Missouri, Columbia	2
Washington University, St. Louis	2

NEBRASKA

Agricultural Experiment Station, Lincoln	1
Game and Fish Commission, Lincoln (gift)	1
Public Library, Omaha	1
University of Nebraska, Lincoln	2

NEVADA

Agricultural Experiment Station, Carson City	2
State University, Reno	2

NEW HAMPSHIRE

Meriden Bird Club (gift)	1
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NEW JERSEY

Department of Conservation and Development, Trenton	2
Geological Survey, Trenton	1
Horticultural Society, Trenton	1
New Jersey Mosquito Extermination Association, Trenton (gift)	2
Newark Museum Association	2
Princeton University	1
Rutgers College, New Brunswick	1
State Agricultural Experiment Station, Trenton	1
State Museum, Trenton	2

NEW YORK

Agricultural Experiment Station, Geneva	3
American Geographical Society, New York City	3
American Hellenic Society, New York City (gift)	1
American Institute of Mining Engineers, New York City	2
American Museum of Natural History, New York City	20
Brooklyn Botanic Garden	3
Brooklyn Institute of Arts and Sciences	5
Carnegie Foundation for the Advancement of Teaching (gift)	1
Columbia University, New York City	1
Conservation Commission, Albany (gift)	3
Cornell University, Ithaca	29
Forest and Stream Publishing Company, New York City	2
Metropolitan Museum of Art, New York City	3
New York Academy of Sciences, New York City	1
New York Botanical Garden, New York City	1
New York Historical Society, New York City	2
Pratt Institute Free Library, Brooklyn	2
Public Library, New York City	1
Rochester Academy of Sciences	1
State College of Forestry, Syracuse	1
State Library, Albany	1
State Museum, Albany	8
Staten Island Association of Arts and Sciences, New York City	2
Stone Publishing Company, New York City	2
Syracuse University	1
Zoological Society, New York City	2

NORTH CAROLINA

Elisha Mitchell Scientific Society, Chapel Hill	3
Geological and Economic Survey, Raleigh	1

OHIO

Agricultural Experiment Station, Wooster	2
Cincinnati Museum Association	1
Cleveland Art Museum	1
Cleveland Public Library	2
Geological Survey, Columbus	3
Lloyd Library, Cincinnati	1
Marietta College	1
Oberlin College	1
State Archæological and Historical Society, Columbus.	1
State University, Columbus	8
University of Cincinnati	2
Wilson Ornithological Club, Oberlin	1

OKLAHOMA

Geological Survey, Norman	5
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OREGON

State Forester, Salem	2
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PENNSYLVANIA

American Entomological Society, Philadelphia	4
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American Journal of Pharmacy, Philadelphia	I
American Philosophical Society, Philadelphia	I
Association of Engineering Societies, Philadelphia	I
Bryn Mawr College	I
Carnegie Institute, Pittsburgh	2
Carnegie Library, Pittsburgh	2
Carnegie Museum, Pittsburgh	2
Engineers' Society of Western Pennsylvania, Pittsburgh	I
Franklin Institute, Philadelphia	2
Pennsylvania Museum, Philadelphia	I
Pennsylvania Museum and School of Industrial Art, Philadelphia	I
Philadelphia Academy of Natural Sciences	I
Philadelphia Commercial Museum	I
State Department of Agriculture, Harrisburg	I
Sullivant Moss Society, Pittsburgh	I
University of Pennsylvania, Philadelphia	2
Wagner Free Institute of Science, Philadelphia	I
PHILIPPINE ISLANDS	
Bureau of Education, Manila	2
Department of Agriculture, Manila	I
Department of Interior, Bureau of Forestry, Manila	I
Department of Interior, Bureau of Science, Manila	8
Department of Public Instruction, Manila	2
RHODE ISLAND	
Roger Williams Park Museum, Providence	I
SOUTH CAROLINA	
Charleston Museum	I
SOUTH DAKOTA	
Agricultural Experiment Station, Brookings.	2
Geological Survey, Vermillion	2
TENNESSEE	
Department of Game and Fish, Nashville (gift)	I
State Geological Survey, Nashville	2
TEXAS	
Scientific Society, San Antonio	I
UTAH	
Agricultural Experiment Station, Logan	I
VERMONT	
State Forester, Burlington	I
VIRGINIA	
State Library, Richmond	I
WASHINGTON	
State Geological Survey, Olympia	I
State Library, Seattle	I
State University, Seattle	4
WASHINGTON, D. C.	
American Academy in Rome	I
American Mining Congress	I

Carnegie Endowment for International Peace (gift)	
National Academy of Sciences	9
National Education Association (gift)	2
National Geographic Society	2
National Zoological Park	1
Pan-American Union	7
United States Government	541

WEST VIRGINIA

Agricultural Experiment Station, Morgantown	2
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WISCONSIN

Academy of Sciences, Madison	1
Agricultural Experiment Station, Madison	2
Archæological Society, Milwaukee	1
Beloit College	2
Geological and Natural History Survey, Madison	13
Natural History Society, Madison	1
State Historical Society, Madison	1
State Horticultural Society, Madison	2
University of Wisconsin, Madison	7

WYOMING

Agricultural Experiment Station, Laramie	1
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Ayer, Edward E., (gift)	3
Barnes, William, Decatur, Illinois	1
Beckwith, Florence, Rochester, New York (gift)	3
Burkholder, Walter H., Ithaca, New York (gift)	4
Casey, Thomas L., Washington, D. C. (gift)	2
Chalmers, William J., Chicago (gift)	1
Cockerell, T. D. A., Boulder, Colorado	14
Cole, Fay-Cooper, Chicago	1
Cook, Melville T., New Brunswick, New Jersey	3
Evans, Herbert H., Norfolk, Virginia (gift)	1
Farwell, Oliver A., Detroit, Michigan	2
Fernald, M. L., Cambridge, Massachusetts	2
Ford, W. E., New Haven, Connecticut (gift)	4
Freer, Charles L., Detroit, Michigan (gift)	1
Gerhard, W. J., Chicago	16
Hall, Ivan C., Berkeley, California (gift)	6
Holland, W. J., Pittsburgh, Pennsylvania (gift)	1
Hubbs, Carl L., Chicago	94
Kendall, W. C., Washington, D. C.	1
Knotts, A. F., Gary, Indiana (gift)	1
Laufer, Berthold, Chicago	9
Laurvik, J. Nilsen, San Francisco, California (gift)	1
Liljeblad, Emil, Chicago	1
McCrea, William S., Chicago (gift)	2
Mason, J. Alden, Chicago	2
Massey, L. M., Ithaca, New York	6
Merrill, Elmer D., Manila, Philippine Islands	58
Millspaugh, C. F., Chicago	30

Moore, Clarence S., Philadelphia	I
Morse, Edward S., Salem, Massachusetts	I
Osgood, W. H., Chicago	42
Owen, C. L., Chicago	2
Paysor, W. A., Philadelphia	I
Penrose, R. A. F., Jr., Philadelphia	I
Randall, T. A. and Company, Indianapolis, Indiana	I
Redfield, Casper L., Chicago (gift)	2
Sargent, C. S., Jamaica Plain, Massachusetts	I
Sawyer, W. H., Jr., Lewiston, Maine (gift)	I
Schaff, Wilfred H., Philadelphia (gift)	I
Starr, Frederick, Chicago	2
Weir, James R., Missoula, Montana (gift)	33
Whitehouse, F. C., Red Deer, Alta, Canada (gift)	I



A TRUMPET-VINE REPRODUCED IN GLASS AND WAX.

A characteristic plant of the *Bignonia* Family. This reproduction is natural size and five feet high.

ARTICLES OF INCORPORATION.

STATE OF ILLINOIS.

DEPARTMENT OF STATE.

WILLIAM H. HINRICHSEN, *Secretary of State.*

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETING:

Whereas, a Certificate duly signed and acknowledged having been filed in the office of the Secretary of State, on the 16th day of September, A. D. 1893, for the organization of the COLUMBIAN MUSEUM OF CHICAGO, under and in accordance with the provisions of "An Act Concerning Corporations," approved April 18, 1872, and in force July 1, 1872, and all acts amendatory thereof, a copy of which certificate is hereto attached.

Now, therefore, I, William H. Hinrichsen, Secretary of State of the State of Illinois, by virtue of the powers and duties vested in me by law, do hereby certify that the said COLUMBIAN MUSEUM OF CHICAGO is a legally organized Corporation under the laws of this State.

In Testimony Whereof, I hereto set my hand and cause to be affixed the Great Seal of State. Done at the City of Springfield, this 16th day of September, in the year of our Lord one thousand eight hundred and ninety-three, and of the Independence of the United States the one hundred and eighteenth.

W. H. HINRICHSEN,
Secretary of State.

[SEAL.]

TO HON. WILLIAM H. HINRICHSEN,

SECRETARY OF STATE:

SIR:

We, the undersigned citizens of the United States, propose to form a corporation under an act of the General Assembly of the State of Illinois, entitled "An Act Concerning Corporations," approved April 18, 1872, and all acts amendatory thereof; and that for the purposes of such organization we hereby state as follows, to-wit:

1. The name of such corporation is the "COLUMBIAN MUSEUM OF CHICAGO."

2. The object for which it is formed is for the accumulation and dissemination of knowledge, and the preservation and exhibition of objects illustrating Art, Archæology, Science and History.

3. The management of the aforesaid museum shall be vested in a Board of FIFTEEN (15) TRUSTEES, five of whom are to be elected every year.

4. The following named persons are hereby selected as the Trustees for the first year of its corporate existence:

Ed. E. Ayer, Charles B. Farwell, George E. Adams, George R. Davis, Charles L. Hutchinson, Daniel H. Burnham, John A. Roche, M. C. Bullock, Emil G. Hirsch,

James W. Ellsworth, Allison V. Armour, O. F. Aldis, Edwin Walker, John C. Black and Frank W. Gunsaulus.

5. The location of the Museum is in the City of Chicago, County of Cook, and State of Illinois.

(Signed),

George E. Adams, C. B. Farwell, Sidney C. Eastman, F. W. Putnam, Robert McMurdy, Andrew Peterson, L. J. Gage, Charles L. Hutchinson, Ebenezer Buckingham, Andrew McNally, Edward E. Ayer, John M. Clark, Herman H. Kohlsaas, George Schneider, Henry H. Getty, William R. Harper, Franklin H. Head, E. G. Keith, J. Irving Pearce, Azel F. Hatch, Henry Wade Rogers, Thomas B. Bryan, L. Z. Leiter, A. C. Bartlett, A. A. Sprague, A. C. McClurg, James W. Scott, Geo. F. Bissell, John R. Walsh, Chas. Fitzsimmons, John A. Roche, E. B. McCagg, Owen F. Aldis, Ferdinand W. Peck, James H. Dole, Joseph Stockton, Edward B. Butler, John McConnell, R. A. Waller, H. C. Chatfield-Taylor, A. Crawford, Wm. Sooy Smith, P. S. Peterson, John C. Black, Jno. J. Mitchell, C. F. Gunther, George R. Davis, Stephen A. Forbes, Robert W. Patterson, Jr., M. C. Bullock, Edwin Walker, George M. Pullman, William E. Curtis, James W. Ellsworth, William E. Hale, Wm. T. Baker, Martin A. Ryerson, Huntington W. Jackson, N. B. Ream, Norman Williams, Melville E. Stone, Bryan Lathrop, Eliphalet W. Blatchford, Philip D. Armour.

STATE OF ILLINOIS }
 COOK COUNTY } ss.

I, G. R. MITCHELL, a NOTARY PUBLIC in and for said County, do hereby certify that the foregoing petitioners personally appeared before me and acknowledged severally that they signed the foregoing petition as their free and voluntary act for the uses and purposes therein set forth.

Given under my hand and notarial seal this 14th day of September, 1893.

G. R. MITCHELL,

[SEAL.]

NOTARY PUBLIC, COOK COUNTY, ILL.

CHANGE OF NAME.

Pursuant to a resolution passed at a meeting of the corporate members held the 25th day of June, 1894, the name of the COLUMBIAN MUSEUM was changed to FIELD COLUMBIAN MUSEUM. A certificate to this effect was filed June 26, 1894, in the office of the Secretary of State for Illinois.

CHANGE OF NAME.

Pursuant to a resolution passed at a meeting of the corporate members held the 8th day of November, 1905, the name of the FIELD COLUMBIAN MUSEUM was changed to FIELD MUSEUM OF NATURAL HISTORY. A certificate to this effect was filed November 10, 1905, in the office of the Secretary of State for Illinois.

AMENDED BY-LAWS.

(JUNE 12, 1916.)

ARTICLE I.

MEMBERS.

SECTION 1. Members shall be of five classes, Annual Members, Corporate Members, Life Members, Patrons and Honorary Members.

SEC. 2. Annual Members shall consist of such persons as are selected from time to time by the Board of Trustees at any of its meetings, and who shall pay an annual fee of ten dollars (\$10.00), payable within thirty days after notice of election, and within thirty days after each recurring annual date. The failure of any person to make such initiatory payment and such annual payments within said time shall, at the option of the Board of Trustees, be sufficient grounds for the forfeiture of an annual membership.

This said annual membership shall entitle the member to:

First.— Free admittance for the member and family, to the Museum on any day.

Second.— Ten tickets every year, admitting the bearer to the Museum on pay days.

Third.— A copy of all publications of the Museum when requested.

Fourth.— Invitations to all special exhibits, receptions, lectures, or other functions which may be given at the Museum.

SEC. 3. The Corporate Members shall consist of the persons named in the articles of incorporation, and of such other persons as shall be chosen from time to time by the Board of Trustees at any of its meetings, upon the recommendation of the Executive Committee; provided, that such persons named in the articles of incorporation shall, within ninety days from the adoption of these By-Laws, and persons hereafter chosen as Corporate Members shall, within ninety days of their election, pay into the treasury the sum of twenty dollars (\$20.00) or more. The failure of any person to make such payment within said time, shall, at the option of the Board of Trustees, be ground for forfeiture of his corporate membership. Corporate Members becoming Life Members, Patrons or Honorary Members shall be exempt from dues. Annual meetings of said Corporate Members shall be held at the same place and on the same day that the annual meeting of the Board of Trustees is held.

SEC. 4. Any person paying into the treasury the sum of five hundred dollars (\$500.00), at any one time, shall, upon the unanimous vote of the Board, become a Life Member. Life Members shall be exempt from all dues.

SEC. 5. Patrons shall be chosen by the Board upon recommendation of the Executive Committee from among persons who have rendered eminent service to

the Museum. They shall be exempt from all dues, and, by virtue of their election as Patrons, shall also be Corporate Members.

SEC. 6. Honorary Members shall be chosen by the Board from among persons who have rendered eminent service to science, and only upon unanimous nomination of the Executive Committee. They shall be exempt from all dues.

ARTICLE II.

BOARD OF TRUSTEES.

SECTION 1. The Board of Trustees shall consist of fifteen members. The respective members of the Board now in office, and those who shall hereafter be elected, shall hold office during life. Vacancies occurring in the Board shall be filled at a regular meeting of the Board, upon the nomination of the Executive Committee made at a preceding regular meeting, by a majority vote of the members of the Board present.

SEC. 2. Regular meetings of the Board shall be held on the second Monday of each month. Special meetings may be called at any time by the President, and shall be called by the Secretary upon the written request of three Trustees. Five Trustees shall constitute a quorum, except for the election of officers or the adoption of the Annual Budget, when seven Trustees shall be required, but meetings may be adjourned by any less number from day to day, or to a day fixed, previous to the next regular meeting.

SEC. 3. Reasonable written notice, designating the time and place of holding meetings, shall be given by the Secretary.

ARTICLE III.

HONORARY TRUSTEES

SECTION 1. As a mark of respect, and in appreciation of services performed for the Institution, those Trustees who by reason of inability, on account of change of residence, or for other cause or from indisposition to serve longer in such capacity shall resign their place upon the Board, may be elected, by a majority of those present at any regular meeting of the Board, an Honorary Trustee for life. Such Honorary Trustee will receive notice of all meetings of the Board of Trustees, whether regular or special, and will be expected to be present at all such meetings and participate in the deliberations thereof, but an Honorary Trustee shall not have the right to vote.

ARTICLE IV.

OFFICERS.

SECTION 1. The officers shall be a President, a First Vice-President, a Second Vice-President, a Secretary, an Assistant Secretary and a Treasurer. They shall be chosen by ballot by the Board of Trustees, a majority of those present and voting being necessary to elect. The President, the First Vice-President, and the Second Vice-President shall be chosen from among the members of the Board of Trustees. The meeting for the election of officers shall be held on the second Monday of January of each year, and shall be called the Annual Meeting.

SEC. 2. The officers shall hold office for one year, or until their successors are elected and qualified, but any officer may be removed at any regular meeting of the

Board of Trustees by a vote of two-thirds of all the members of the Board. Vacancies in any office may be filled by the Board at any meeting.

SEC. 3. The officers shall perform such duties as ordinarily appertain to their respective offices, and such as shall be prescribed by the By-Laws, or designated from time to time by the Board of Trustees.

ARTICLE V.

THE TREASURER.

SECTION 1. The Treasurer shall be custodian of the funds of the Corporation, except as hereinafter provided. He shall make disbursements only upon warrants drawn by the Director and countersigned by the President. In the absence or inability of the Director, warrants may be signed by the Chairman of the Finance Committee, and in the absence or inability of the President, may be countersigned by one of the Vice-Presidents. But no warrants shall be issued, except in conformity with a regularly prepared voucher, giving the name of the payee and stating the occasion for the expenditure, and verified and approved as hereinafter prescribed. It shall be no part of the duties of the Treasurer to see that the warrants have been issued in conformity with such vouchers.

SEC. 2. The securities and muniments of title belonging to the corporation shall be placed in the custody of some Trust Company of Chicago to be designated by the Board of Trustees, which Trust Company shall collect the income and principal of said securities as the same become due, and pay same to the Treasurer, except as hereinafter provided. Said Trust Company shall allow access to and deliver any or all securities or muniments of title to the joint order of the following officers, namely: The President or one of the Vice-Presidents, jointly with the Chairman, or one of the Vice-Chairmen, of the Finance Committee of the Museum.

SEC. 3. The Treasurer shall give bond in such amount, and with such sureties, as shall be approved by the Board of Trustees.

SEC. 4. All vouchers executed for the payment of liabilities incurred in the administration of the Museum, shall be verified by the Auditor, and approved for payment by the Director, and the Chairman of the Administration Committee. All vouchers executed for expenditures for the construction or reconstruction of the Museum building, or buildings, shall be verified by the Auditor and approved for payment by the Chairman of the Building Committee. All vouchers executed in connection with the investments of the Corporation, or, in any way having to do with the endowment funds of the Corporation, shall be verified by the Auditor and approved for payment by the Chairman of the Finance Committee.

SEC. 5. The Harris Trust and Savings Bank of Chicago shall be Custodian of "The N. W. Harris Public School Extension of Field Museum" fund. The Bank shall make disbursements only upon warrants drawn by the Director and countersigned by the President. In the absence or inability of the Director, warrants may be signed by the Chairman of the Finance Committee, and in the absence or inability of the President, may be countersigned by one of the Vice-Presidents. But no warrant shall be issued, except in conformity with a regularly prepared voucher, giving the name of the payee and stating the occasion for the expenditure, and verified and approved by the Auditor, the Director and Chairman of the Administration Committee. It shall be no part of the duties of the said Custodian to see that the warrants have been issued in conformity with such vouchers.

ARTICLE VI.

THE DIRECTOR.

SECTION 1. The Board of Trustees shall elect a Director of the Museum, who shall remain in office until his successor shall be elected. He shall have immediate charge and supervision of the Museum, and shall control the operations of the institution, subject to the authority of the Board of Trustees and its Committees. The Director shall be the official medium of communication between the Board, or its Committees, and the scientific staff and maintenance force.

SEC. 2. There shall be four scientific departments of the Museum — Anthropology, Botany, Geology and Zoology, each under the charge of a Curator, subject to the authority of the Director. The Curators shall be appointed by the Board upon the recommendation of the Director, and shall serve during the pleasure of the Board. Subordinate staff officers in the scientific departments shall be appointed and removed by the Director upon the recommendation of the Curators of the respective Departments. The Director shall have authority to employ and remove all other employees of the Museum.

SEC. 3. The Director shall make report to the Board at each regular meeting, recounting the operations of the Museum for the previous month. At the Annual Meeting, the Director shall make an Annual Report, reviewing the work of the Museum for the previous year, which Annual Report shall be published in pamphlet form for the information of the Trustees and Members, and for free distribution in such number as the board may direct.

ARTICLE VII.

AUDITOR.

SECTION 1. The Board shall appoint an Auditor, who shall hold his office during the pleasure of the Board. He shall keep proper books of account, setting forth the financial condition and transactions of the Corporation, and of the Museum, and report thereon at each regular meeting, and at such other times as may be required by the Board. He shall certify to the correctness of all vouchers for the expenditure of the money of the corporation.

ARTICLE VIII.

COMMITTEES.

SECTION 1. There shall be six Committees as follows: Finance, Building, Auditing, Pension, Administration and Executive.

SEC. 2. The Finance, Auditing and Pension Committees shall each consist of three members, and the Building and Administration Committees shall each consist of five members. All members of these five Committees shall be elected by ballot by the Board at the Annual Meeting, and shall hold office for one year, and until their successors are elected and qualified. In electing the members of these Committees, the Board shall designate the Chairman and Vice-Chairman by the order in which the members are named in the respective Committee; the first member named shall be Chairman, the second named the Vice-Chairman, and the third named, Second Vice-Chairman, succession to the Chairmanship being in this order in the event of the absence or disability of the Chairman.

SEC. 3. The Executive Committee shall consist of the President of the Board, the Chairman of the Finance Committee, the Chairman of the Building Committee,

the Chairman of the Administration Committee, the Chairman of the Auditing Committee, the Chairman of the Pension Committee, and two other members of the Board to be elected by ballot at the Annual Meeting.

SEC. 4. Four members shall constitute a quorum of the Executive Committee; three members shall constitute a quorum of the Administration Committee, and in all other standing Committees, two members shall constitute a quorum. In the event that, owing to the absence or inability of members, a quorum of the regularly elected members cannot be present at any meeting of any Committee, then the Chairman thereof, or his successor, as herein provided, may summon any member of the Board of Trustees to act in place of the absentee.

SEC. 5. The Finance Committee shall have supervision of investing the endowment and other permanent funds of the Corporation, and the care of such real estate as may become its property. It shall have authority to invest, sell, and re-invest funds, subject to the approval of the Board.

SEC. 6. The Building Committee shall have supervision of the construction, reconstruction, and extension of any and all buildings used for Museum purposes.

SEC. 7. The Executive Committee shall be called together from time to time as the Chairman may consider necessary, or as he may be requested to do by three members of the Committee, to act upon such matters affecting the administration of the Museum as cannot await consideration at the Regular Monthly Meetings of the Board of Trustees. It shall, before the beginning of each fiscal year, prepare and submit to the Board an itemized Budget, setting forth the probable receipts from all sources for the ensuing year, and make recommendations as to the expenditures which should be made for routine maintenance and fixed charges. Upon the adoption of the Budget by the Board, the respective Committees shall be considered as authorized to make the expenditures detailed therein. No increase in the expenditures under any items of the Budget shall be made, except by authority of the Board of Trustees, but the Executive Committee shall have authority, in cases of emergency, to expend a further total sum not exceeding two thousand dollars in any one month.

SEC. 8. The Administration Committee shall have general supervision of the affairs of the Museum. The Committee shall hold one meeting each month with the Director at the Museum within a week preceding each Monthly Meeting of the Board of Trustees.

SEC. 9. The Auditing Committee shall have supervision over all accounting and bookkeeping, and full control of the financial records. It shall cause the same, once each year, or oftener, to be examined by an expert individual or firm, and shall transmit the report of such expert individual or firm to the Board at the next ensuing regular meeting after such examination shall have taken place.

SEC. 10. The Pension Committee shall determine by such means and processes as shall be established by the Board of Trustees to whom and in what amount the Pension Fund shall be distributed. These determinations or findings shall be subject to the approval of the Board of Trustees.

SEC. 11. The Chairman of each Committee shall report the acts and proceedings thereof at the next ensuing regular meeting of the Board.

SEC. 12. The President shall be ex-officio a member of all Committees and Chairman of the Executive Committee. Vacancies occurring in any Committee may be filled by ballot at any regular meeting of the Board.

ARTICLE IX.

NOMINATING COMMITTEE.

SECTION 1. At the November meeting of the Board, each year a Nominating Committee of three shall be chosen by lot. Said Committee shall make nominations for membership of the Finance Committee, the Building Committee, the Administration Committee, the Auditing Committee, and the Pension Committee, and for two members of the Executive Committee, from among the Trustees, to be submitted at the ensuing December meeting and voted upon at the following Annual Meeting in January.

ARTICLE X.

SECTION 1. Whenever the word "Museum" is employed in the By-Laws of the Corporation, it shall be taken to mean the building in which the Museum as an Institution is located and operated, the material exhibited, the material in study collections, or in storage, furniture, fixtures, cases, tools, records, books, and all appurtenances of the Institution, and the workings, researches, installations, expenditures, field work, laboratories, library, publications, lecture courses, and all scientific and maintenance activities.

SEC. 2. These By-Laws may be amended at any regular meeting of the Board of Trustees by a two-thirds vote of all the members present, provided the amendment shall have been proposed at a preceding regular meeting.

HONORARY MEMBERS.

EDWARD E. AYER	CHARLES B. CORY
MRS. TIMOTHY B. BLACKSTONE	HARLOW N. HIGINBOTHAM
	STANLEY McCORMICK

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EDWARD B. BUTLER	CHARLES H. MARKHAM
ALBERT M. COLLINS	JOHN S. MILLER
LEE GARNETT DAY	JOHN BARTON PAYNE
ERNEST R. GRAHAM	HOMER E. SARGENT
FRANK W. GUNSAULUS	FREDERICK J. V. SKIFF
CHARLES L. HUTCHINSON	WILLARD A. SMITH
VERNON SHAW KENNEDY	

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ARMOUR, ALLISON V.
AYER, EDWARD E.

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BLAIR, WATSON F.
BUTLER, EDWARD B.

CHALMERS, W. J.
CHATFIELD-TAYLOR, H. C.
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EASTMAN, SIDNEY C.
ELLSWORTH, JAMES W.

FIELD, MARSHALL
FIELD, STANLEY

GAGE, LYMAN J.
GETTY, HENRY H.
GRAHAM, ERNEST R.
GUNSAULUS, FRANK W.
GUNTHER, C. F.

HIGINBOTHAM, H. N.
HUTCHINSON, CHARLES L.

JONES, ARTHUR B.

KEEP, CHAUNCEY
KENNEDY, VERNON SHAW
KOHLSAAT, HERMAN H.

McCORMICK, CYRUS H.
MARKHAM, CHARLES H.
MANIERRE, GEORGE
MILLER, JOHN S.
MITCHELL, JOHN J.

PAYNE, JOHN BARTON
PECK, FERD W.
PORTER, GEORGE F.

RYERSON, MARTIN A.

SARGENT, HOMER E.
SKIFF, FREDERICK J. V.
SMITH, WILLARD A.
SPRAGUE, A. A., 2ND
STONE, MELVILLE E.

WRIGLEY, WILLIAM, JR.

DECEASED, 1918.

CLARK, JOHN M.

LIFE MEMBERS.

ALDIS, OWEN F.
ALLEN, BENJAMIN

BAKER, MISS ISABELLE
BANKS, ALEXANDER F.
BARRELL, FINLEY
BARRETT, MRS. A. D.
BARRETT, ROBERT L.
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DAWES, CHARLES G.
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McLENNAN, D. R.	RUSSELL, EDWARD P.
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MASON, WILLIAM S.	RYERSON, MARTIN A.
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MUNROE, CHARLES A.	SHEDD, JOHN G.
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NEWELL, A. B.	SMITH, ORSON
	SPOOR, JOHN A.
ORR, ROBERT M.	SPRAGUE, A. A., 2 ND
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REAM, MRS. CAROLINE P.	
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REYNOLDS, GEORGE M.	WILSON, WALTER H.

DECEASED, 1918.

STILLWELL, HOMER A.
THORNE, GEORGE R.

ANNUAL MEMBERS.

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ADAMS, MILWARD
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WALKER, JAMES R.

WALKER, WILLIAM B.

WALLER, EDWARD C.

WHITEHEAD, W. M.

WILSON, MRS. E. C.

WILSON, M. H.

DECEASED.

HARRIS, GEORGE B.

HOPKINS, JOHN P.

KIMBALL, MRS. MARK

LAY, A. TRACY

WHITE, A. STAMFORD

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HENRY HERING'S SCULPTURE FOR FIELD MUSEUM OF NATURAL HISTORY IN CHICAGO

By CHARLES OVER CORNELIUS

Conceived in the mind of a public-spirited citizen, and made possible of realization by his generosity, the Field Museum of Natural History in Chicago stands as a memorial to Marshall Field, its founder, and constitutes one of the chief architectural glories of the city. This great museum is destined to house extensive collections associated with the natural sciences and will function as an immense educational concordance. Easy of access from all parts of the city, overlooking the great open space of Grant Park to the north, and visible in its white majesty from far out upon the nearby lake, its site is unrivaled as a dignified and appropriate setting. The design has called forth a sustained architectural study with all that this implies, and the architects, Graham, Anderson, Probst and White, have given to the country a masterpiece in monumental building of a distinction and dignity commensurate with its purpose and origin.

The monumental sculptures created in conjunction with such a building form an essential element in its design. Their position, while not necessarily structural, is in a vital spot of the organism, esthetically considered, and the individual works themselves thus assume a responsibility for the success of the whole work altogether out of proportion to their size, since in them is the final focusing of the attention of the spectator.

The larger part of the exterior sculptural decoration of the building has been concentrated about the central motif of the north façade — the great Ionic portico with its flanking bays. In these two bays caryatid porches rest upon the basement course and above are horizontal panels of low relief. Against the attic of the portico are eight figures of colossal size, which complete the sculptural decoration here. On the south façade the caryatid porches are repeated and above the same horizontal panels similar to those facing the north. The interior sculpture consists of four figures surmounting engaged columns at either end of the central hall. This, then, summarizes the decorative sculpture — the caryatids and the four relief panels, the eight attic and the four interior figures.

For the sculptural embellishment the architects commissioned one

sculptor to execute the whole of this decoration — perhaps the second time on record that so extensive a task has been entrusted to the hands of one American sculptor. Henry Hering has utilized the opportunity presented him to create a group of architectural sculptures which is unsurpassed in America today. Throughout the work he has kept consciously before him the purposes for which each piece was designed, both as regards its subject and its placing upon the building, with the result that he has achieved a superlative consistency in the whole work, at the same time infusing into each figure the utmost individuality and distinction.

In the treatment of the caryatid figures there is observable a greater conventionality and a less definite expression of personality than in any others of the group. Here an actual structural problem had to be met and a nice transition from the strong foundation course was desirable. There are two types of caryatids which are to be duplicated, and while they are very similar in mass and movement, in detail they are absolutely individual. The inspiration is frankly Ionian and their dignity is as unquestionable as is their structural quality.

Above each caryatid porch the horizontal panel in relief represents one of the four main departments of the Museum — Anthropology, Zoölogy, Botany and Geology. The treatment here is very decorative, and by the use of one flying figure in each panel the same scale as that adopted in the other figures has been preserved while admitting the introduction of a definitely horizontal sense into the whole panel, contrasting effectively with the repeated verticals of the other figures and of the surrounding architecture. Interesting color is given by the wings, the drapery treatment and the floating ribbon which bears the name of the department symbolized in the figure. The length of the panel has also allowed of the introduction of vertical bands of exquisite decoration, each different in detail, though similar in general tone. The iconography of the four panels is exceptionally pleasing and the choice of symbols for each has brought into play the originality and discrimination of the sculptor.

The choice of subject for the attic figures exemplifies the generalization appropriate to the decoration of such a building. The four central figures above the columns represent the elements: Fire, Earth, Air and Water; the four flanking figures typify the four points of the compass: North, South, East and West. With this choice of subject comes the necessity of giving to the figures, each so general in its conception, definite and essential qualities and certain attributes which will differentiate each from the other and at the same time preserve the unity of the scheme. Of the attributes given to the figures their selection has

been so apt and their display so nice that no discussion need be entered into to add to their clarity.

The subtlety of so large a group fairly escapes expression in words. A broad balance has been obtained for the whole by reversing the poses of the two end figures and the similarity in the poses of the four centre-most figures. The light and shade have been studied for their effect in diffused light, and calculation had to be made for the position sixty-five feet above the spectator. In the placing of the figures in relation to the surrounding space, as in fact throughout most of the architecture of the building, the Greek rhythm of 1:2 has been observed.

While in the sculptor's treatment of the group there is this rhythm, this subtle balance and calculation of light and shade, there is withal a very correct uniformity. The decoration about the heads has a certain general similarity in its suggestion of a nimbus, but how infinitely varied in its detail and individual in its application! In all the figures the law of frontality is strictly observed; a knee may be bent or the head inclined, but the frontal line remains straight. The dress, although partaking more of the quality of costume than of drapery, shows in its treatment a reasoned use of the latter tendency with the Dorian chiton as a point of departure. The architectonic quality is also observable here in the insistent verticals of the folds with their suggested evolution from a columnar form. The details of costume are infinitely varied, and upon repeated examination the figures reveal great fertility of invention and richness of detail.

Much of the finest characterization has been reserved for the heads, in which the varied treatment of the eyes and mouth, the most expressive parts of the face, epitomizes the calmness or passion, the mysticism or nobility associated with each generality which the marble strives to present. The sculpturesque form in which the hair is cast in the figures of the "Four Points of the Compass" is particularly fine, and this interesting conventionality serves to give strength to the neck, a point which may also be remarked with reference to the caryatid figures.

The four interior figures are placed in the great central hall of the museum. This immense room, three hundred feet long and lighted from above, is entered from either end through a large arch. Each of the arches is flanked by tall engaged columns, with entablature decoratively used, and upon each stands a symbolic figure. The symbolism of these figures makes a subjective application of the building's use and suggests the various activities whose inspiration will lie within its walls; Natural Science and the Dissemination of Knowledge flanking one archway, Record and Research the other.

These figures appear first at a great distance and are placed where

they will be seen under a comparatively steady light from above. Their position is of no structural importance and their purpose is a purely decorative one. All of which facts contribute to the difference in treatment from the strictly architectural figures of the attic. The composition here is more varied and the feeling more personal.

The whole group is characterized by the eminent dignity and restraint which run throughout all of Mr. Herings' work — a dignity unfettered by academic formulæ nor yet disturbed by a factitious realism. In the sane mind of the trained sculptor these two extremes of classicism and realism have been fused into an expressive whole under the spell of his own individual approach. In this particular problem there was opportunity for a variety of treatment into which has been breathed much of the spirit of ancient Greece.

There are many who will concur in the opinion that the art of sculpture has reached and always will reach the broadest expression of its purpose when conceived and carried out with relation to architecture which it may be designed to enhance. Of the greatest sculpture which has come down to us from the past, by far the larger part is permeated by qualities suggested, if not imposed, by the architectural design of which it formed an essential part. When the art began to be employed upon works not destined as absolute units in an architectural scheme, it is yet the presence of definite architectonic qualities which contribute largely to the high essence of the creation. The presence of such qualities may not in itself be of predominant importance, but with their removal comes an immediate tendency toward a less dignified conception, a realism, natural perchance, and by reason of its very naturalness a thing to be controlled and disciplined.

The time is not yet ripe when we may judge the relative position of the architectural sculpture of today, and particularly that of America, where traditions in art are most conspicuous by their absence, and where such various traditions as have been carried over into the new world from the old are being simultaneously followed in the works of various individuals. American sculpture has sprung from the heads and hands of a few scattered individuals almost in its present growth, for what is a century and a half in the development of an art from the first dawn of its heralding in a new land? The largest opportunity for the development of such American sculpture must lie in the category of monumental work for public or semi-public possession.

In such work there must be a greater generalization, since its impression is made upon a myriad different minds and must in each call forth some answering response, and it is just such an opportunity as this which is presented in the Field Museum.

In his appreciation of this opportunity, Mr. Hering has created a distinguished group of sculptures of an inspiration sustained not only in the broad, general conception of the work, but throughout the infinite variety of the detail, a group which can only be recognized as one of the most important contributions to American sculpture.



CARYATID—FIELD MUSEUM OF NATURAL HISTORY,
CHICAGO.

Henry Hering, Sculptor.



CARYATID—FIELD MUSEUM OF NATURAL HISTORY,
CHICAGO.

Henry Hering, Sculptor.



ANTHROPOLOGY—LOW RELIEF PANEL FOR FIELD MUSEUM OF NATURAL HISTORY, CHICAGO.
Henry Hering, Sculptor.



BOTANY—LOW RELIEF PANEL FOR FIELD MUSEUM OF NATURAL HISTORY, CHICAGO.
Henry Hering, Sculptor.



GEOLOGY—LOW RELIEF PANEL FOR FIELD MUSEUM OF NATURAL HISTORY, CHICAGO.

Henry Hering, Sculptor.



ZOOLOGY—LOW RELIEF PANEL FOR FIELD MUSEUM OF NATURAL HISTORY, CHICAGO.
Henry Hering, Sculptor.



FIRE—ATTIC FIGURE FOR FIELD MUSEUM OF NATURAL HISTORY, CHICAGO.

Henry Hering, Sculptor.



EARTH—ATTIC FIGURE FOR FIELD MUSEUM OF NATURAL HISTORY, CHICAGO.

Henry Hering, Sculptor.



AIR—ATTIC FIGURE FOR FIELD MUSEUM OF NATURAL HISTORY, CHICAGO.

Henry Hering, Sculptor.



WATER—ATTIC FIGURE FOR FIELD MUSEUM OF NATURAL HISTORY, CHICAGO.

Henry Hering, Sculptor.



NORTH--ATTIC FIGURE FOR FIELD MUSEUM OF NATURAL HISTORY, CHICAGO.

Henry Hering, Sculptor.



SOUTH-ATTIC FIGURE FOR FIELD MUSEUM OF NATURAL HISTORY, CHICAGO.

Henry Hering, Sculptor.





EAST-ATTIC FIGURE FOR FIELD MUSEUM OF NATURAL HISTORY, CHICAGO.

Henry Hering, Sculptor.



WEST-ATTIC FIGURE FOR FIELD MUSEUM OF NATURAL HISTORY, CHICAGO.

Henry Hering, Sculptor.



SCIENCE FIGURE IN CENTRAL HALL OF FIELD MUSEUM OF
NATURAL HISTORY, CHICAGO.

Henry Hering, Sculptor.



DISSEMINATION OF KNOWLEDGE-- FIGURE IN CENTRAL
HALL OF FIELD MUSEUM OF NATURAL HISTORY, CHICAGO.
Henry Hering, Sculptor.



RESEARCH—FIGURE IN CENTRAL HALL OF FIELD
MUSEUM OF NATURAL HISTORY, CHICAGO.

Henry Hering, Sculptor.



RECORD—FIGURE IN CENTRAL HALL OF FIELD MUSEUM
OF NATURAL HISTORY, CHICAGO.
Henry Hering, Sculptor.



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