POPULAR OFFICIAL GUIDE
TO THE
New York Zoological Park
AS FAR AS COMPLETED.
BY
William T. Hornaday
Director and General Curator

WITH MAPS, PLANS AND ILLUSTRATIONS

New York Zoological Society
REVISED TO JUNE 1, 1904

ONLY AUTHORIZED GUIDE
Price, 25 Cents

SECOND GIRAFFE EDITION
NEW YORK ZOOLOGICAL PARK.

Only the finished buildings, walks, and roads are shown.

3. Ducks' Aviary.
4. Flying Cage.
5. Aquatic Birds' House.
7. Primates House.
8. Lion House.
10. Wolf Dens.
11. Fox Dens.
13. Aquatic Mammals' Pond.
15. Burrowing Rodents.
17. Ostrich House.
20. Sea Lion Pool, No. 1.
21. Mountain Sheep Hill.
22. Antelope House.
23. Prong Horned Antelope Range.
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G. M. Beerbower, C. H.
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POPULAR OFFICIAL GUIDE

TO THE

New York Zoological Park

AS FAR AS COMPLETED.

BY

WILLIAM T. HORNADAY

Director and General Curator

WITH MAPS, PLANS, AND ILLUSTRATIONS

EIGHTH EDITION—JUNE 1, 1906

New York Zoological Society

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NEW YORK ZOOLOGICAL SOCIETY
Preface

TO THE EIGHTH EDITION.

The development of the New York Zoological Park marks another great step toward the education of the people of the City of New York. It brings the beauties and wonders of living Nature within reach of hundreds and thousands who are unable to travel. Like its predecessors in this field of popular education, the Park is maintained by the City, but its collections of animals and many of its buildings are due to the generosity of citizens of New York. We look to the continued and increasing support of all classes of people for whose education and amusement the Park is designed, rather than for the exclusive interests of science.

Although the Park is only half way toward completion, the Zoological Society believes that visitors will welcome a popular and reliable guide to what has already been accomplished. Three years ago we began active work, and ceased to speak publicly of our plans for the future. This handbook describes and pictures only what has actually been accomplished up to the day of going to press.

We bespeak for the Director and his colleagues on the Zoological Park staff, as well as for the architects, indulgence for such shortcomings as are inseparable from such a difficult undertaking as this, during its first years. As rapidly as possible the incomplete parts of the Park will be taken in hand and brought to a finish. It has been no trifling matter to provide plans and surveys, building materials and workmen for thirty-five animal buildings and other installations, proceeding simultaneously with the construction of miles of walks, roads, sewers and water-lines; to finish ponds and entrances, trim the forests, establish a nursery, grade and plant miles of walk-borders, and build retaining
walls; to select a staff of assistants, collect animals, write labels, disburse $400,000 in small sums, without loss or dispute, and finally receive annually over 500,000 visitors, and keep the Park in presentable condition.

That all the above has actually been accomplished in three years' time, without costly mistakes, or losses on account of changes in plans, and with no friction whatever, is certainly a cause for congratulation. We have enjoyed the constant and capable co-operation of the Park Department for the Borough of the Bronx and its engineers, as well as the generous support of the Mayor and other City authorities.

Executive Committee
of the Zoological Society.

June 1, 1906.
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JUNE 1, 1906.

Final plan of the Zoological Park approved by Park Board, November 22, 1897.
Zoological Society assumed control of grounds, July 1, 1898.
First building begun, August 11, 1898.
Park formally opened to the public, November 9, 1899.
Animal buildings completed to June 1, 1906

Groups of Dens, Aviaries, and other installations for animals

- Animal ranges completed: 23
- Wire fences erected: 13 miles
- Wrought-iron fences erected: 6,210 feet
- Walks constructed: 27,723 "
- Water lines laid: 13,910 "
- Sewers constructed: 26,420 "
- Service road and motor road built: 5,850 "
- Ponds constructed: 16

LIVE ANIMALS IN THE COLLECTIONS ON JANUARY 1, 1906.

- Mammals: 177 species, 625 specimens.
- Birds: 355 " 1,555 "
- Reptiles: 125 " 687 "

Total: 657 " 2,867 "
New York Zoological Society.

Ex-officio Managers:
Hon. GEORGE B. McCLELLAN, Mayor.
Hon. MOSES HERRMAN, President Department of Parks.

President:
Hon. LEVI P. MORTON.

Executive Committee:
CHARLES T. BARNEY, Chairman.
MADISON GRANT, Secretary. Office, 11 Wall Street.

J ohn S. BARNES, WILLIAM WHITE NILES,
Philip Schuyler, HENRY F. OSBORN.
Samuel Thorne, Hon. LEVI P. MORTON, ex-officio
Percy R. Pyne, Treasurer, 52 Wall Street.
John L. Cadwalader, Counsel.

Park Commissioner, Borough of the Bronx:
Hon. GEORGE M. WALGROVE.

Officers of the Zoological Park:
WILLIAM T. HORNADAY,
Director and General Curator.

H. R. Mitchell, Chief Clerk and Disbursing Officer.
RAYMOND L. DITMARS, Curator of Reptiles.
C. William Beebe, Curator of Birds.
H. W. Merkel, Chief Forester and Constructor.
GEORGE M. BEERBOwer, Civil Engineer.
ELWIN R. SANBORN, Photographer and Assistant Editor.

Medical Staff:
HARLOW BROOKS, M.D., Pathologist.
W. REID BLAIR, D.V.S., Veterinarian

Architects and Engineer:
HEINS & LA FARGE, Architects.
JAMES L. GREENLEAF, Landscape Architect.
H. DeB. Parsons, Consulting Engineer.
Gifts to the Zoological Park.

Excepting four of the large structures, the animal buildings, aviaries, dens and cages, shelter houses, and other installations have been constructed, and the main collections of animals have been purchased, with the funds of the Zoological Society contributed by the following persons:

Benefactor.

William Rockefeller.

Founders.

Baker, George F.,
Barnes, John S.,
Barney, Charles T.,
Berwind, Edward J.,
Cadwalader, John L.,
Carnegie, Andrew,
Dieterich, Charles F.,
*Dodge, William E.,
*Goelet, Robert,
Gould, Miss Helen Miller,
Gould, George J.,
*Huntington, C. P.,
Morgan, J. Pierpont,
Morton, Levi P.,
*Ottendorfer, Oswald.

Payne, Col. Oliver H.,
Pyne, Percy R.,
Rockefeller, John D.,
Schmerhorn, F. Augustus
Schiff, Jacob H.,
Sloane, William D.,
Taylor, Henry A. C.,
Thompson, Mrs. Frederick Ferris,
Thorne, Samuel,
Trevor, Mrs. John B.,
*Vanderbilt, Cornelius
Vanderbilt, William K.,
*Whitney, William C.,
Wood, Mrs. Antoinette Eno.

Associate Founders.

*Babcock, Samuel D.,
*Carter, James C.,
Chisholm, Hugh J.,
Crocker, George,
Jesup, Morris K.,
Osborn, Henry Fairfield,
Robinson, Nelson,
* Deceased.

Schuyler, Philip,
Stewart, Lispexand,
Stokes, Miss Caroline Phelps,
Sturgis, Mrs. Frank K.,
Tiffany & Co.,
Vanderbilt, Cornelius.

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Patrons.

*Arnold, Hicks,
Auchincloss, Mrs. Hugh D.
Blair, C. Ledyard,
Bliss, Cornelius N.,
*Bliss, George T.,
Brewster, Robert S.,
Clark, George C.,
Clark, Mrs. George C.,
*Constable, Frederick A.,
*Cook, Henry H.,
Dodge, Cleveland H.,
Ehret, George,
*Flower, Roswell P.,
Ford, James B.,
Ford, J. Howard,
Harkness, Charles W.,
Havemeyer, Henry O.,
Havemeyer, William F.,
*Hewitt, Abram S.,
*Hoffman, Very Rev. E. A.,
Iselin, Adrian,
James, D. Willis,
James, Norman,
Jennings, Miss A. B.,
Kennedy, John S.,
Lewis, Mrs. George,
Mayer, Dr. Alfred G.,
Morris, A. Newbold,
Morris, Mrs. A. Newbold
Morris, Miss Eva Van Cortlandt,
Morris, Newbold,
Osborn, William C.,
*Osborn, Mrs. William H.,
Poor, Henry W.,
*Pyne, Mrs. Percy R.,
Ryan, Thomas F.,
*Schermerhorn, William C.,
Schley, Grant B.,
Seligman, Isaac N.,
*Stickney, Joseph,
Stickney, Mrs. Joseph,
Taylor, James B., Jr.,
Thorne, Edwin
Thorne, Francis B.,
Thorne, Henry S.,
Thorne, Joel W.,
Thorne, Landon K.,
Thorne, Miss Phebe Anna,
Thorne, Samuel, Jr.,
Thorne, S. Brinckerhoff,
Thorne, Victor C.,
Thorne, William,
Tjader, Mrs. Margaret T.,
Twombly, H. McKay,
Von Post, Herman C.,
*Webb, William H.,
*Wolff, A.

The plans, specifications, surveys, and other preliminary expenses incurred for the Zoological Park, to the extent of $17,000, have been paid by the Annual Members and Life Members of the Society.

Individual gifts of animals are acknowledged on the labels, and in the Annual Reports of the Society.

*Deceased.
GENERAL STATUS
OF THE ZOOLOGICAL PARK.

Origin.—The New York Zoological Park originated with the New York Zoological Society, a scientific body incorporated in 1895, under a special charter granted by the Legislature of the State of New York. The declared objects of the Society are three in number—“A public Zoological Park; the preservation of our native animals; the promotion of zoology.” At present the Society consists of 1 Benefactor, 22 Founders, 12 Associate Founders, 46 Patrons, 168 Life Members, 1,248 Annual Members and 15 Corresponding Members on May 15, 1904.

Ex-Governor Levi P. Morton is the President of the Society. The affairs of the Society are managed by a Board of Managers of thirty-six persons, which meets three times each year. The planning and general development of the Zoological Park, as well as the general business of the Society, is in the hands of an Executive Committee of eight persons, of which Mr. Charles T. Barney is Chairman. Mr. Madison Grant is Secretary of the Society, and his office is at No. 11 Wall Street. The remaining members of the Executive Committee are the following: Henry F. Osborn, John S. Barnes, Philip Schuyler, Madison Grant, W. W. Niles and Samuel Thorne. Mr. William T. Hornaday is the Director and general Curator of the Zoological Park, and the offices of the Zoological Park staff are at present located in the Service Building. The address is 183d Street and the Southern Boulevard. The Society assumed control of the grounds on July 1, 1898, and began the first excavation, for the Bird House, on August 11th. The Park Department began work, on the Aquatic Mammals’ Pond, on August 29, 1898.

Sources of Income.—The funds devoted to the development of the Zoological Park have been derived from the following sources:
1. From the Zoological Society, obtained by subscriptions from private citizens—funds for plans, for the erection of buildings, aviaries, dens and other accommodations for animals; and for the purchase of animals.
2. From the City of New York—by vote of the Board of Estimate and Apportionment—funds for the construction of walks, roads, sewers and drainage, water supply, public comfort buildings, entrances, grading, excavating of large ponds and lakes, annual maintenance, and also for animal buildings.

Up to January 1, 1904, the Zoological Society had expended, of its own funds, for plans, construction and live animals, $342,826, which had been derived from its special subscription fund, and from the annual dues and fees of its members.

**Privileges.**—Because of the fact that the Zoological Society has undertaken to furnish all the animals for the Zoological Park, the City of New York has agreed that all the revenue-producing privileges of the Park shall be controlled by the Society. *All net profits* derived from the restaurants, boats, automobiles, riding animals, the sale of photographs, books, etc., and all admission fees, are to be accounted for to the City, and expended by the Society in the purchase of animals for the Park. It is well that all visitors should know, that *all net profits realized in the Park go directly toward the increase of the animal collections.*

In due course of time the Society will maintain a supply of boats for hire, motor carriages to carry visitors through the Park, stopping at various stations to see the collections, and riding animals of various kinds for the amusement of the children.

**Location.**—The Zoological Park is the geographical center of that portion of Greater New York known as the Borough of the Bronx. From east to west it is half-way between the Hudson River and Long Island Sound, and from north to south it is midway between the mouth of the Harlem River and Mount Vernon. From the City Hall to the Reptile House the distance is eleven miles. The northwest entrance is about half a mile from Fordham station on the Harlem Railway.

The area of the Park is 261 acres, divided as follows:

- Land area west of the Boston Road: 150 acres.
- Land area east of the Boston Road: 77 acres.
- Bronx Lake: 25 acres.
- Lake Agassiz: 5½ acres.
- Aquatic Mammals' Pond, Cope Lake and Beaver Pond: 31½ acres.
- Total area: 261 acres.
SKETCH MAP SHOWING LOCATION OF ZOOLOGICAL PARK.
MEANS OF ACCESS.

Via the Third Avenue Elevated.—At present the nearest street railway west of the Park is the Third Avenue line. The Third Avenue Elevated Railway has been extended to Bedford Park, and visitors coming to the Zoological Park should alight at Fordham Station, from which the northwest entrance is half a mile distant, due eastward, on Pelham Avenue.

Via the Sixth, Eighth, and Ninth Avenue Elevated.—The most expeditious way to reach the Zoological Park from the West Side is by elevated cars to 125th Street, thence by the 125th Street line to the Third Avenue Elevated.

Via the Harlem Railroad.—A very convenient way—and also the quickest way—to reach the Park from lower New York is to take the Harlem railroad from the Grand Central station to Fordham station (twenty-five cents for the round trip), from whence a carriage may be taken to the Park, at the very reasonable fare of twenty-five cents for each person.

At present Harlem trains leave the Grand Central station for Fordham at the following hours, on week days: Morning, 8:35, 9:35, 10:35; afternoon, 12:06, 1:35, 2:35, 3:34, 4:35. Return trains leave Fordham, afternoon, 1:20, 2:30, 3:31, 4:30, 5:34, 6:10, 7:01.


The running time between Fordham and Forty-second Street is about twenty-five minutes.

Although present facilities for transportation to the Park are very inadequate, the public may rest assured that ere long this condition will be greatly improved.

The completion, by January 1, 1904, of the West Farms branch of the Rapid Transit system will render the Park accessible, in quick time, for a fare of five cents from City Hall Square to the West Farms entrance.

Via Trolley Lines to West Farms.—At present the means of access to the Zoological Park leave much to be desired. The only street railway lines which run near the Park are those which converge at West Farms. They are the following:

The Third Avenue and Boston Road line from 129th Street.
The Southern Boulevard line.
The Tremont Avenue and Westchester line, and
NEW YORK ZOOLOGICAL PARK.

The Williamsbridge and Mt. Vernon line.

Visitors to the Park over any of these lines should alight at the West Farms junction, from whence a walk of four blocks up the Boston Road leads to the southeast corner of the Buffalo Range.

Routes for Automobiles or Carriages.—
Via Central Park, Lenox Avenue, Macomb's Dam Bridge and Jerome or Washington Avenues to Pelham Avenue.

ADMISSION.

Free Admission.—On all holidays, and on Sunday, Tuesday, Wednesday, Friday, and Saturday, the Zoological Park is open free to the public.

Pay Admission.—On every Monday and Thursday, save when either of these days falls on a holiday, all members of the Zoological Society who exhibit their membership tickets, and all other persons holding tickets from the Society, will be admitted free. All other persons seeking admission will be admitted on payment of twenty-five cents for each adult, and fifteen cents for each child under twelve years of age. Tickets are sold only at the entrance gates.

Holidays on Pay Days.—Whenever a legal holiday falls on a Monday or Thursday, admission to the Park will be free on that day.

Hours for Opening and Closing.—From May 1st to November 1st the gates will be opened at 9 A.M. daily, and closed half an hour before sunset. From November 1st to

SKETCH MAP SHOWING VICINITY OF PARK.
May 1st the gates will open at 10 A. M. A warning will be sounded throughout the Park fifteen minutes before the gates are closed.

**Entrances, Walks, etc.**—At present only the portion of the Zoological Park situated west of the Boston Road has been enclosed. Access to this area is provided by four entrances, one situated at each corner, save that the one nearest to West Farms is situated on the Boston Road, at the northeast corner of the Buffalo Range. From three of these entrances—the exception being that at the Boston Road Bridge—broad walks lead into the Park and through it, reaching all the collections of animals now installed.

Regarding the walks, visitors are asked to bear in mind that a great amount of construction work remains to be done, and if they find occasionally that walks have been crossed and mutilated by the wheels of wagons loaded with building materials, they are asked to be patient, and consider each inconvenience as something unavoidable under present conditions. It is almost unnecessary to say that the present system of walks is to be greatly extended.

During the very extensive grading and building operations in Baird Court, and pending the construction of another entrance walk, the northeast entrance, at the Boston Road Bridge, will be kept closed.

**Carriage Roads.**—The only wagon road which enters the portion of the Park now occupied by animals is the Service Road, of Telford macadam, which enters from the Southern Boulevard, half-way between 183d and 184th Streets, and runs half a mile eastward, to the Store House, Reptile House, Bear Dens, and Rocking Stone Restaurant.

_This road is for business purposes only_, and is not open for the vehicles of visitors. It is utterly impossible to admit carriages to the centre of the Park, save those of officers entering on business, and _visitors must not ask for exceptions to this very necessary rule_.

In due course of development, a very fine public carriage road and concourse will be constructed from Pelham Avenue Bridge to the upper end of Baird Court and the Lakeside Restaurant, giving easy access to the most important group of buildings. This will be open to carriages, daily.

The Boston Road, which runs through the Park from south to north, near the western bank of the Bronx Lake, is open at all hours. It has recently—and for the first time—been finely improved by the Park Department for the Borough of the Bronx, and _a drive through it affords a fine view of the eastern side of_
the Buffalo Range, and the finest portion of the heavy forest of the Zoological Park.

As a matter of course, the ranges of the buffalo, antelope, deer, moose, and elk, are in full view from the Kingsbridge Road and Southern Boulevard, and the Zoological Society has planned that the view from those avenues shall be left open sufficiently that the herds may be seen to good advantage.

In a comparatively short time the remaining section of Telford road will be constructed, thereby enabling the Society to carry out its plan to run automobile carriages through the Park to convey visitors to the various collections.

The Rocking Stone Restaurant, No. 45, or "Public Comfort Building No. 1," has been designed to serve all the purposes that its name implies. It contains dining-rooms in which full meals may be obtained, lunch-rooms wherein choice food will be served at popular prices, and in the basement, toilet-rooms will be found.

The Service Building.—Near the Reptile House, and at the geographical center of the enclosed grounds, is situated a building which contains the Bureau of Administration of the Zoological Park. Here will be found the offices of the Director, Chief Clerk and several other Park officers, the workshops and storerooms.

Children lost in the Park, and property lost or found, should be reported without delay at the Chief Clerk’s office in this building. The telephone call of the Zoological Park is 146 Tremont.

Wheeled Chairs.—By persons desiring them, wheeled chairs can always be obtained at the entrances, by applying to gatekeepers, or at the office of the Chief Clerk, in the Service Building. The cost is 25 cents per hour; with an attendant, 50 cents per hour.
PHYSICAL ASPECT OF THE GROUNDS.

The extreme length of the Park from north to south is 4,950 feet, or 330 feet less than one mile; and its extreme width is 3,120 feet, or three-fifths of a mile. Roughly estimated, one-third of the land area is covered by heavy forest, one-third by open forest, and the remaining third consists of open meadows and glades. The highest point of land in the Park is the crest of Rocking Stone Hill, the elevation of which is 94.8 feet above sea level.

Topography.—Speaking broadly, the Zoological Park is composed of granite ridges running from north to south. In many places their crests have been denuded of earth by the great glacier which once pushed its edge as far south as New York City. In the valleys lying between these glacier-scraped ridges, great quantities of sandy, micaceous soil have been deposited; but in one spot—the Aquatic Mammals' Pond—what was once a green, glacial lake fifteen feet deep, presently became a vast rock-walled silo filled with vegetable matter, which, only one year ago, was a trembling bog of peat. Everywhere in the Park glacial bowlders of rough granite or smoothly rounded trap rock, varying in size from a cobble-stone to the thirty-ton Rocking Stone, have been dropped just where the warm southern sun freed them from the ice. The Park contains thousands of them, many of which have been removed from walks and building sites only with great labor.

In three of the four principal valleys of the Park, bogs have been converted into ponds, and in the largest and deepest of all, lie Bronx Lake and Lake Agassiz. The bed-rock underlyng or cropping out in the Park exhibits pink granite, gray granite, rotten gneiss, and quartz in bewildering variety. Occasionally in trench-digging a ledge is encountered, which yields good building stone for rough work, but the majority is so full of mica as to be worthless.

The water-levels in the various portions of the Park are as follows:

<table>
<thead>
<tr>
<th>Surface</th>
<th>Above Sea Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface of Bronx Lake</td>
<td>20.40 feet</td>
</tr>
<tr>
<td>Surface of Lake Agassiz</td>
<td>31.70 &quot;</td>
</tr>
<tr>
<td>Surface of Cope Lake and Duck Ponds</td>
<td>47.00</td>
</tr>
<tr>
<td>Surface of Aquatic Mammals' Pond</td>
<td>65.00</td>
</tr>
<tr>
<td>Surface of Beaver Pond</td>
<td>44.00</td>
</tr>
</tbody>
</table>
The floor levels of some of the important buildings are as follows:

<table>
<thead>
<tr>
<th>Building</th>
<th>Above Sea Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Of the Antelope House</td>
<td>88 feet</td>
</tr>
<tr>
<td>Of the Reptile House</td>
<td>78 &quot;</td>
</tr>
<tr>
<td>Of the Lion House</td>
<td>64 &quot;</td>
</tr>
<tr>
<td>Of the Aquatic Birds’ House</td>
<td>57 &quot;</td>
</tr>
</tbody>
</table>

Soil.—The soil varies from rich black muck in the valleys, to light and very dry soil, full of mica and sand, on the ridges and meadows. Where not packed hard, the latter is very porous, and the heaviest rainfall is quickly absorbed, or carried away on the surface. As a result, the valleys are always moist and rich in grass, and the slopes and ridges are always dry and warm.

Streams and Ponds.—The Zoological Park contains about 34 acres of still water, of which Bronx Lake comprises 25 acres, Lake Agassiz 5½ acres, Cope Lake, the Aquatic Mammals’ Pond, and Beaver Pond together, about 3½ acres. The two larger lakes are fed by the Bronx River, which drains a valley about 12 miles long. Even in the driest seasons the volume of water carried down by the Bronx River is sufficient to keep the lakes well filled, and the water is by no means so impure as many persons have been led to believe. The areas of still water available for animal collections are very generous for an institution like this, and are highly prized.

The Waterfall.—At the lower end of Lake Agassiz, and about 300 feet above the Boston Road Bridge, is a natural waterfall nearly 12 feet in height, where the Bronx River falls over a rugged ledge of pink granite. In times of high water the foaming flood that thunders over the rocks makes an imposing spectacle; and it constitutes a most unusual feature to be found in a city park. During the year 1901, an improvement was made which added very greatly to the beauty of this feature by extending the rock ledge about 200 feet farther, to the rocky side of Wilson’s Hill, thereby greatly increasing the water area of Lake Agassiz, and at the same time forming a beautiful island.

Forests.—The crowning glory of the Zoological Park is the magnificent forest growth which covers, thickly or thinly, about two-thirds of its land area. It consists chiefly of white, scarlet and burr oaks, chestnut, tulip, sweet gum, hickory, beech, sassafras, maple, wild cherry, hornbeam, dogwood, tupelo, white pine, hemlock, and cedar; but there are at least thirty other species of trees and shrubs. Thanks to the wise foresight and
broad views of David and Philip Lydig, who for nearly eighty years were the sole owners of nearly the whole of the Zoological Park site, the virgin forest was not cut down for firewood or lumber, but was carefully preserved for posterity. As the legal custodian of this splendid domain of Nature, the Zoological Society is as rapidly as possible going over the entire forest, to arrest decay and death, and take all needed measures for the preservation of the trees. It is safe to say that nowhere else within fifty miles of New York can there be found any more beautiful forests than those in the central and eastern portions of the Park, which, let it be borne in mind, are to be kept open for visitors to wander through at all hours, save those of darkness.

The Rocking Stone, a colossal cube of pinkish granite, poised on one of its angles, on a smooth pedestal of rock, is the Zoological Park's most interesting souvenir of the glacial epoch. Across the bare face of the rocky hill, in which lies the Crocodile Pool, there are several glacial scratches pointing directly toward the famous boulder; and who will say it had no part in making one of them?

The Rocking Stone stands on a smooth table of granite on the southern shoulder of the hill overlooking the Buffalo Range. Its extreme height is 7 feet 6 inches; breadth, 10 feet 1 inch; thickness, 8 feet 1 inch, and its weight, as roughly calculated, is 30 tons. A pressure of about 50 lbs. exerted on the most northern angle of the stone causes its apex to swing north and south about two inches.
THE PRIMATES' HOUSE, No. 10.

The Primates are the four-handed animals belonging to the zoological order called by that name, which includes the apes, both great and small, the baboons, monkeys and lemurs. The word 'monkey' is by no means sufficiently comprehensive to embrace all these forms. Were it otherwise, this building would be called, officially, the Monkey House.

The Primates are the creatures which stand nearest to man in the zoological scale, and in interest to all classes of humanity they stand above all others. There is no intelligent person, civilized or savage, to whom the humanlikeness of apes and monkeys does not appeal. On the other hand, some of the baboons are in feature and temper so thoroughly beast-like, their diabolism is almost as fascinating as the man-like character of the great apes. The variety of forms in the Order Primates, and the wide differences between the various groups, imperatively demand for the proper representation of this Order, a large collection.
The Primates' House was erected in 1901, at a cost of $65,000, and opened to the public on December 22d, of that year. It is 162 feet in length, 74 feet in width, contains 16 large interior cages, 22 small cages, and 11 exterior cages, two of which are of great size. The points of special excellence in this building are as follows: An abundance of room for the animals, an abundance of sunlight, perfect ventilation, an extensive series of open-air cages, freedom of communication between outside and inside cages; floors and walls impervious to moisture and disease germs, and the absence of iron bars from all cages save three.

CHIMPANZEE.

During the months of mild weather, all the inmates of the large interior cages will occupy, at will, corresponding cages in the outdoor series. It is also intended that certain hardy species of baboons, and the red-faced monkey, of Japan, shall be provided with comfortable sleeping quarters and live outdoors, every
NEW YORK ZOOLOGICAL PARK.

winter. It is believed that they can do this, not only with comfort, but with great physical benefit.

For general convenience, and the promotion of a universal understanding of the Primates, we propose to set them forth in four groups, a subdivision strictly according to Nature, readily comprehended, and easily remembered. They are as follows, with typical examples of each:

I. Anthropoid Apes.

Chimpanzee .................. *Anthropopithecus calvus* ........ of Africa.
Orang-Utan .................. *Simia satyrus* ............. " Borneo.
Gray Gibbon .................. *Hylobates leuciscus* ....... " "

II. Old World Monkeys and Baboons.

Mona Monkey .................. *Cercopithecus mona* .......... " Africa.
White-Collared Mangabey ....... *Cercopithecus collaris* ....... " "
Rhesus Monkey .................. " rhesus .......... " India.
Entellus Monkey ............... " entellus .......... " "
Hamadryas .................. " hamadryas .......... " Arabia.
Mandrill .................. " mormon .......... " W. Africa.

III. New World Monkeys.

White-Throated Sapajou ....... *Cebus hynoleucus* .......... " S. America.
Red-Faced Spider Monkey ...... *Atelis paniscus* .......... " " "
White-Headed Saki ............... *Pithecia leucophaea* .......... " " "
Yarkee: Short-Tailed Monkey ...... *Brachyrinus calva* .......... " " "
Squirrel Monkey ............... *Chrysothrix sciurea* .......... " " "
Common Marmoset .............. *Hapale jaccus* .......... " " "
Douroucoli .................. *Nyctipithecus trivirgatus* .......... " " "

IV. Lemurs and Lemuroids.

Ring-Tailed Lemur ............. *Lemur catta* .......... " Madagascar.
Indri .................. *Indri brevicaudata* .......... " India.
Slow Lemur .................. *Nycticebus tardigradus* .......... " India.

All the above-named species except 4, and also 20 others, were living in the Primates' House on the day it was opened to the public. So far as the available supply of captive primates will permit, these typical species will constantly be kept on exhibition, together with many others equally interesting. In this
small volume it is possible to notice only the most important forms.

The Gorilla, (Gorilla savagei), of equatorial West Africa, is the largest and ugliest of the great apes, walks erect, and literally as well as zoologically, stands next to man. Its brain, however, is less man-like than that of the chimpanzee and orang-utan. It is very rarely seen in captivity. The only specimen which up to 1901 had reached America alive, lived but five days after its arrival. Despite the fact that these creatures seldom live in captivity longer than a few months, they are always being sought by zoological gardens. The agents of the New York Zoological Society are constantly on the watch for an opportunity to procure and send hither a good specimen of this wonderful creature; and whenever one arrives, all persons interested are advised to see it immediately,—before it dies of sullenness, lack of exercise, and indigestion.

The Orang-Utan is intellectually superior to the gorilla, and is equalled only by the chimpanzee. Unfortunately, as a rule none of the great apes are long-lived in captivity, and in zoological gardens they come and go. For this reason, it is seldom that an adult specimen, 4 feet in height, and weighing 150 pounds, is seen in captivity. Amongst other apes, the orang-utan is readily recognized by its brown skin, red hair and small ears.

In disposition this creature is naturally docile and affectionate. It is fond of the society of human beings, takes to training with wonderful readiness and success, and young specimens can easily be taught to wear clothes, sit at table, and eat with spoon and fork. In the summer of 1901, the daily open-air exhibition of “Rajah” dining at 4 o’clock on an elevated platform in front of the Reptile House, will long be remembered by the crowds of visitors who saw him. Such exhibitions are entirely germane to the educational purposes of a zoological garden or park, for they illustrate the mentality of animals, and their wonderful likeness to man, far more forcibly than the best printed statements.

The north hall of the Primates’ House is specially intended for the anthropoid apes, and it is not likely that any lengthy periods will elapse during which it contains neither orang-utans nor chimpanzees.

The Chimpanzee, (Anthropopithecus calvus), of equatorial Africa from the West Coast to the central lake region, is much more rare in captivity than the orang-utan. Both structurally and mentally this animal is very much like the orang-utan, and for keenness of intellect and susceptibility to training, it is second to none of the animals lower than man. A chim-
The Gibbon, shows off to poor advantage in a cage, but in the tree-tops it is a wonderful creature. It is like a long-armed skeleton clothed with skin and hair, animated by the spirit of an Ariel. In its home in the jungles of Borneo and southeastern Asia, it dwells in hilly forests, and never descends to the earth. When attacked, it flies down-hill, if possible, and it seems actually to fly through the tree-tops. It boldly flings itself forward through space, grasps with its hands the first available branch, swings underneath, feet foremost, and after another flight presently catches with its feet, thus actually making revolutions as it goes. Its progress is so swift and so silent that successful pursuit is impossible to any enemy not provided with wings.

This animal is naturally very timid, but does not hesitate to expose itself to mortal danger when its young are in distress. In captivity gibbons are shy and nervous, and take life very seriously.

The Baboons have been specially designed by Nature for life upon the ground, surrounded by dangerous enemies. But for their big canine teeth, their fierce tempers and bull-dog courage, backed by a strong combination of strength and agility, the lions, leopards, hyænas and jackals of Africa would have exterminated them all, ages ago. They were not formed to become hand-organ beasts of burden, nor even companions of man, but rather to fight off their enemies, and bluff even the king of beasts when occasion requires. In captivity, their strength and ferocity always inspires respect, and sometimes genuine terror. At all times they require to be treated as dangerous animals.

Of the seven fine species of baboons on exhibition in the Primates' House, the full-grown Geladas are the most interesting, and wonderful. They seem like animals not of this earth, and remind the visitor of one of the great beasts of the visions of St. John the Divine. The home of this species is in the mountains of southern Abyssinia, and the fine specimen exhibited was purchased in Moscow, Russia! The long, shaggy hair, lion-like appearance, the peculiar red markings on the breast, and the indescribable grimaces instantly fix the attention of every visitor.

The Hamadryas Baboon, with long side whiskers and cape of long hair, is one of the handsomest animals of this group. Its explosive, ear-racking cry is almost as startling to visitors as a cannon-shot.
The Golden Baboon has the liveliest disposition and the best temper possessed by any baboon. Young specimens are full of good-natured mischief, and are much given to hectoring their cage-mates. The brilliantly-colored face and ribbed muzzle of the adult Mandrill—bright scarlet and bluish purple—render this animal specially noteworthy.

The Group of Old World Monkeys contains several species worthy of special remark. There are several which have tails so very short and insignificant they seem to be tailless, and several of them are called "apes." They are not true anthropoids (man-like apes), however, and it is a confusing error to designate any of them as "apes." The species referred to are the following:

The Black "Ape," of the Celebes, exceedingly like a true baboon.

The Magot, or Barbary "Ape," of North Africa and Gibraltar, which is a true macaque.

The Japanese Red-Faced Monkey, another macaque, with a brilliant red face, and long, thick hair, which enables him to live out of doors all winter, in perfect comfort, even in this Zoological Park.

The Pig-Tailed Monkey, several species of which are found in Burmah and other portions of southeastern Asia.

All the above are on exhibition in the Primates’ House, and the outdoor cages.

The Rhesus Monkey, of India, is one of the sacred species, and ages of immunity from molestation, or even wholesome discipline, have made this animal aggressive and domineering in temper.

The Bonneted Macaque is the best-tempered monkey of all the monkey species found in the East Indies, and it is by far the best to keep as a pet.

The Entellus Monkey, of India, is also a sacred species, and its natural seriousness of manner, and dignified bearing quite befit the direct descendents of the original Hunuman, or monkey deity of the Hindoos, who helped to build Adam’s bridge.

Of the many African monkeys, some of the most showy (such as the Guerzas and Colobs) are so difficult to procure they can not be set forth as permanent residents in the Primates’ House. The following species, however, may be classed with reliables:

The White-Collared Mangabey and Sooty Mangabey are both so lively, so good-natured, and so free from the fighting habit, they are prime favorites with everybody.
The Mona Monkey is handsome and easily kept, and an excellent representative of the great African genus Cerco-pithecus.

The Black Spider Monkey.

The Green Monkey and the Vervet are lively but quarrelsome, and at times become dangerous. The Patas, or Red Monkey, is very sedate, and makes a good cagemate for the mona.

The New World Monkeys, even at their best, never make a strong showing in a vivarium. The trouble is that many of the most interesting species are so delicate it is impossible to keep them alive in captivity. Fame awaits the man who can discover a bill of fare on which Howling Monkeys, Sakis
and Yarkees can live in captivity to adolescence, and repay their cost and care. Their digestive organs are delicate, and are subject to derangement from causes so slight they can not be reckoned with.

The Sapajous are the hardiest, the most intelligent and in some respects the most interesting of the New World monkeys. They all possess the prehensile (or grasping) tail, which is not found on any Old World monkey, and the use made of it is a constant source of wonder. Monkeys of this species are quite common in captivity, and their wrinkled brows and serious countenances give them an appearance of being burdened with cares,—which most captive monkeys certainly are! These are the unfortunate creatures which so often come to grief on hand-organs.

The Black Spider Monkey and the Gray Spider Monkey represent a genus of animals quite as attenuated in form as the gibbons. Their slender bodies, exceedingly long and slender legs and tail,—the latter strongly prehensile, and better than a fifth arm and hand,—give them when in the tree-tops an appearance truly spider-like. They are agile climbers, but not rapid runners, and having no means of defense are very timid. Their stomachs are so simple they seem to lack some element or function that is necessary to the life of the animal in captivity. Notwithstanding the fact that "Jess," of Bath, New York, in defiance of all laws and precedents, lived thirteen years in a cold climate, the great majority of spider monkeys die before they reach full maturity, and nearly always of stomach troubles. Fortunately, however, there are exceptions to this rule.

The Squirrel Monkey, often called a "Marmoset," is a pretty little olive-yellow monkey, almost as delicate as the true Marmosets, and the Pinche. These diminutive creatures are so delicate they require the greatest care and tenderness, and thrive better in moderately small cages than in large ones. True marmosets are the smallest of American primates, being next in size to the Tarsier, of Borneo, smallest of all quadrumanes.

The Lemurs and Lemuroids.—A lemur is a monkey-like animal belonging to the lowest group of primates, but in some respects is so little like a typical monkey that the relationship is not always apparent. There are about 30 species, and all save a very few are found on the island of Madagascar. They are gentle-spirited, harmless and inoffensive animals, and not being persecuted by their human neighbors, as all American wild animals are, they are quite numerous.

Nearly all of the lemurs have long tails, long and fine hair, large eyes and pointed muzzles. Many of them are strikingly
coiled in various shades of black, white and gray. All lemurs are supposed to be of nocturnal habit, and in fact they really are; but the 22 fine specimens (representing 8 species) in the large jungle cage of the Primates’ House, are quite as lively and interesting in the daytime as most of the monkeys. So far from manifesting a disposition to retire to dark corners, they love to lie in the sunshine.

The Ruffed Lemur, or Black-and-White Lemur, (Lemur varius), is the handsomest member of this entire group. Its fur is very long, silky, and alternately pure white and jet black. The Ring-Tailed Lemur has a very long, pointed tail, ornamented with about 25 alternating rings of brown and gray, which it carries very gracefully. This species is of a more lively disposition than most others. The curious Indri has not up to this time come into the collection, but it is expected in the near future. When it arrives it can at once be recognized by the entire absence of a tail, except a mere stump, and by its large hands and feet.

The Lemuroids, or lemur-like primates, are now represented by a Galago, which looks very much like a kinkajou, and the Slow Lemur of India. The Aye-Aye, lowest of all primates, is yet one of the species desired, but not possessed.
THE LION HOUSE, No. 11.

As a spectacle of captive animal life, there is none more inspiring than a spacious, well-lighted and finely-appointed lion house, filled with a collection of the world’s grandest and handsomest wild beasts. To build an ideal lion house, and fill it with a first-class collection of large felines, are matters involving no little time and much money; but the sight,—for millions of visitors,—of lions, tigers, jaguars, pumas, leopards, cheetahs, black leopards, snow leopards and clouded leopards, all under one roof, surely is worth what it costs.

The Lion House of the Zoological Park was completed, excepting a few minor details, early in the year 1903, and was formally opened to the public in February. It is 244 feet long, 115 feet wide, including the outdoor cages, and its cost when completed will be $150,000. The materials of the building are of the same kinds as those used in the Reptile House and Primates’ House, but the animal sculptures, all by Mr. Eli Harvey, are more abundant and conspicuous than on any other structure erected heretofore. The building contains 13 indoor cages, and 9 outdoor cages, and between the two there is free communication. The sizes of the various cages are as follows:

Interior cages: Largest, 14 feet wide, 22 feet deep; smallest, 13 feet wide, 14 feet high.

Exterior cages: 2 end cages, 40 x 44 feet, 17 feet high; central cage, 40 feet square, 14 feet high; smallest, 13 feet wide, 12 feet deep, 13 feet high.

Excepting for the single fact of having interior and exterior cages, the Lion House of the Zoological Park is—like the Primates’ House—an entirely original development. Its most important new features are as follows:

All cage service, the introducing and withdrawal of animals, is conducted from the rear, by means of a track underneath the sleeping dens, and an elevating platform car.

The communication between indoor and outdoor cages is direct and continuous.
Instead of upright iron bars, all the cage fronts are of hard-steel wire netting, in rectangular pattern, attached to wrought iron frames. This is considered by the Zoological Society a great improvement upon the heavy bar-work hitherto in universal use for cage fronts in lion houses.

The space above the sleeping dens has been developed as a sun-lit balcony, whereon the animals will be very conspicuous, even to large crowds of visitors.

Jungle-green tiling, impervious to moisture and dirt, is used as a back-ground for the animals.

The Lion is an animal of perpetual interest, but like every other noteworthy wild animal, its haunts are constantly being claimed by civilization, and its members are rapidly decreasing. It is not a difficult matter to exterminate or drive out from a given territory any large and conspicuous quadruped, and at the present rate of settlement and industrial development in Africa, it may easily come to pass that by the end of the present century, the king of beasts will be without a home, outside of zoological collections.

Like everything great, the lion has his share of critics and detractors. A few writers have asserted that because he does not stalk through his native forests with head proudly erect, like a drum-major on parade, he is mean-spirited and cowardly. But the beast of noble countenance believes in the survival of the fittest, and both by inheritance and observation he knows that a lion who needlessly exposes himself in the field captures the smallest amount of game, and attracts the greatest number of steel-tipped bullets.

Although lions vary greatly in their color, and in the length of the mane, it is conceded by naturalists that only one species exists. In the same district and under precisely similar conditions are found short-maned and long-maned individuals, and all shades of color from tawny yellow to dark brown. The present geographic range of the species is from Southern Rhodesia to Persia and Northwestern India, but in northern Egypt there is a large extent of territory which is lionless.

By reason of his heavy mane and massive countenance, supported by the grandest roar that issues from throat of beast, the lion appears to be a larger animal than he really is. It is yet an unsettled question whether it exceeds the tiger in length, height or weight, and it is certainly true that in point of size these two species are very evenly matched.

In captivity, the lion is reasonably contented, and under good conditions breeds readily, and lives a goodly number of years.
The Tiger will be found upon the earth long after the lion has disappeared. He is a far better hider, a more skillful hunter, less given to taking foolish risks, and he does not advertise his presence and invite his enemies by the bombastic roaring in which the lion delights to indulge. The tiger is an animal of serious mind, and he attends strictly to business. A lion will stalk out into the open, in broad day, but the tiger sticks closely to cover until the friendly darkness renders it safe to roam abroad.

Despite the density of the population of India, and the omnipresence of sahibs with rifles of large caliber, the tiger still inhabits all India from Cape Comorin to the Himalayas, the Malay Peninsula, Sumatra, Burmah, Siam, and certain portions of China up to the region of snows. Strange to say, the finest of all tigers are found in Corea and Manchuria, where they grow very large, and develop hair that is long and thick. Corean and Siberian tigers are much sought after by zoological gardens, partly on account of their size, and also because they are so hardy they are able to live out doors all winter in the temperate zone. The tiger is not found in Africa, nor in any country westward of India.

The maximum length attained by this animal, head, body and tail is 10 feet 2 inches. A very large specimen killed by Mr. Hornaday measured 9 feet 8½ inches in length, stood 3 feet 7 inches high at the shoulders, and weighed, on the scales, 495 pounds. In India, tigers are classed according to their habits, as “game-killers,” “cattle-lifters,” or “man-eaters.” Fortunately, in comparison with the total number of these animals, the latter are few and far between.

Of yellow-coated felines, The Jaguar, (Felis onca), is next in size to the tiger. In South America, it is almost universally called “El Tigre” (pronounced Te‘gre), which is Spanish for tiger. Comparatively few Americans are aware that this superb animal belongs in the fauna of the United States, but such is the fact. The northern limit of its distribution is found in southern Texas, where it still exists in small numbers. In South America it extends to Patagonia.

The jaguar is a stocky, heavily-built animal, with a massive head and powerful fore-arm. It is a good climber, and many wonderful stories of its strength have been told and printed. Amongst leopards of all kinds it can always be identified by the great size of the black rosettes on its body, as well as by its heavy build.

The splendid male specimen, named “Senor Lopez,” in honor of the President of Paraguay, was the first to arrive for the new
Lion House. It was captured in August, 1901, in the wilds of central Paraguay, expressly for us, through the efforts of Mr. William Mill Butler, of Philadelphia, and by him presented to the Zoological Park. After a long journey in small river craft, in a flimsy wooden cage that several times came near collapsing, the animal reached Asuncion, was taken to Liverpool by Mr. Butler, and finally reached New York.

The Leopard, (*Felis pardus*), is fourth in size from the lion, and is distinguished from the jaguar by the smaller size of its spots and rosettes, its relatively smaller head, and lighter build. It inhabits both Asia and Africa, from Japan to Cape Colony. While the species is regarded as the same throughout that vast extent of territory, it is undoubtedly true that the leopards of Africa have smaller spots and more intense coloring than those of Asia. The maximum size for this species is a total length of 8 feet, which is attained only by a very large animal, with a long tail.

Naturally, the leopard preys upon smaller animals than those most sought by the lion and tiger. It prefers small antelopes, and young animals generally, goats and sheep. When pursued, it is very skillful in hiding, and will shelter in brushy cover until fairly beaten out.

The Black Leopard is the most ill-tempered of all feline animals—perpetually snarling and growling, and seeking to do some one an injury. Old World naturalists regard it as of the same species as the common leopard (*Felis pardus*), despite the fact that it is found only in southeastern Asia, and both in appearance and disposition is totally different from the typical *pardus*. With but few exceptions, the world’s supply of black leopards comes from Singapore.

The Cheetah, or Hunting Leopard, (*Cynælurus jubatus*), is marked by its long legs, slender body, small head, small spots, and claws that are only partially retractile. It is regarded as a connecting link between the cats and dogs (*i.e.*, *Felidae* and *Canidae*). It is distributed very irregularly through portions of Africa and southern Asia, and is by no means a common animal like the leopard and tiger.

In central India, this animal is trained to hunt the sasin antelope, a form of sport indulged in chiefly by native rajahs. The cheetah takes kindly to captivity, and permits handling to an extent quite unknown with other large felines. Its keepers place the animal upon an open cart, blindfold it, and then drive to within 200 yards of a herd of antelope. At the point of nearest possible approach, the hood is removed, and the animal is set free. Leaping to the ground, the cheetah stalks the herd of
antelope as closely as possible, then makes a sudden rush forward, and endeavors to seize a victim. If successful, the animal is pulled down and killed. If not, the cheetah sullenly retires, and again places itself in the hands of its friends.

The Puma, or Mountain Lion, \((Felis concolor)\), is the most widely-known feline animal in North America. At present it is at home in Florida, Montana, Wyoming, Colorado, Texas, and all the states westward thereof. Southward it inhabits Mexico and Central America, and ranges through South America quite down to southern Patagonia. It attains its maximum size (8 feet in length, weight 225 pounds) in Colorado where it appears to be more numerous than in any other state. In Routt County it is hunted very successfully with dogs. When pursued, it is compelled to take refuge in a low tree, in which it can be photographed or shot without danger.

Despite the numerous thrilling stories that have been written and published about the dangerous doings of this animal, it is by no means really dangerous to man. No puma holding an option on a safe line of retreat ever stops to fight a man.

The puma was formed for agility rather than strength. It swims well, and it is the most agile climber of all the large felines. The head of this animal is particularly beautiful, and its temper in captivity is entirely satisfactory. The first specimen of this species to enter the Zoological Park came from Peru, as a gift from Mr. Joseph P. Grace, and during the years 1901 and 1902, it lived out doors, constantly, in the Lynx House (No. 63), where its health was excellent.
The arrangement of this section begins with the Mule Deer, near the Northwest Entrance, follows the hoofed animals along the western and southern sides of the Park, and ends with the Buffaloes, near the Southeast Entrance.
The western and southern sides of the Park consist almost wholly of open fields and woods; pastures for buffalo, deer, antelope, and other hardy hoofed animals of large size. These are termed "ranges." Each range is surrounded by a high fence of hard steel wire, so strong that no animal can break through it, and yet so light as to be at a little distance actually invisible, thus avoiding the disfigurement of the Park.

**Warning.**—Visitors must never stand close beside a fence, because its elasticity between posts might enable a charging animal to strike any person so standing, and inflict a serious injury, even though the fence is not in the least affected by the blow.

Each range is provided with a shelter house for its occupants, and also one or more macadamized yards, called "corrals," into which the herds are driven whenever the ground in the ranges is so soft from excessive rains that the turf is liable to be seriously damaged by their hoofs.

### THE MULE DEER RANGE, No. 43.

**The Mule Deer, (Odocoileus hemionus).**—This fine animal is universally known throughout the Rocky Mountain region, which constitutes its home, as the "black-tailed deer." Because of its very large ears, and the absence of a black tail, it is known to naturalists as the mule deer. Inasmuch as its tail is not black, the above more common name properly applies to *Odocoileus columbianus*, the true black-tailed deer of the Pacific coast. In Manitoba this animal is called the "jumping deer," because when running at a gallop, it makes a series of stiff-legged jumps, or "bucks," of great length.

To anyone who sees this gait for the first time it is quite astonishing. I shall not soon forget my surprise when I first saw a heavily-antlered buck of this species dash out of a clump of stunted cedars, and go flying down the crest of a bare ridge in the bad lands of central Montana. He bounded past my position, in full view for a quarter of a mile, and I saw him to excellent advantage. He did not gallop, as do other deer, reaching out with his fore-feet, but for each leap he sprang into the air with stiffened legs, and went bounding forward as if the ground were an India-rubber cushion that threw him upward and forward every time he touched it with his feet. In reality his knees did bend a trifle just as his feet touched, to lift his body upward again, while his strong hind legs thrust him forward.

The mule deer is larger than the Virginia deer, and more strongly built. The weight of full-grown bucks ranges from 250
AMERICAN HOOFED ANIMALS.

**DEER FAMILY, or Cervidae.**
(Conspicuous types only. The North America Cervidae require a thorough revision.)
- Elk or Wapiti: *Cervus canadensis.*
- Mule Deer: *Odocoileus hemionus.*
- Columbian Black-Tailed Deer: *Odocoileus columbianus.*
- Virginia Deer: *Odocoileus virginianus.*
- Moose: *Alces americanus.*
- Woodland Caribou: *Rangifer caribou.*
- Barren Ground Caribou: *Rangifer arcticus.*

**ANTELOPE FAMILY, or Antilocapridae**
- Prong-Horned Antelope: *Antilocapra americana.*

**CATTLE AND SHEEP FAMILY, or Bovidae**
- Buffalo: American Bison: *Bison americanus.*
- Musk-Ox: *Ovibos moschatus.*
- Rocky Mountain Sheep: *Ovis montana.*
- Nelson’s Mountain Sheep: *Ovis nelsoni.*
- Stone’s ("Black") Mountain Sheep: *Ovis stonei.*
- Dall’s ("White") Mountain Sheep: *Ovis dalli.*
- Mountain or "White" Goat: *Oreamnus montanus.*

**PECCARY FAMILY, or Dicotylidae**
- Collared Peccary: *Dicotyles angulatus.*
- White-Lipped Peccary: *Dicotyles labiatus.*

**TAPIR FAMILY, or Tapiridae**
- Baird’s Tapir: *Tapirus bairdii.*
- Dow’s Tapir: *Tapirus dowi.*
to 300 pounds, and specimens have been known to reach 325 pounds. The antlers of the mule deer are larger and handsomer than those of the Virginia deer, and are much better poised on the head. Instead of dropping forward, they partake more of the set of an elk's antlers, and many a "tenderfoot" hunter has mistaken a heavily-antlered mule deer for an elk. The antlers of a mule deer are easily distinguished from those of the Virginia species by the two Y-shaped prongs on each antler. It will be remembered that instead of these, the Virginia deer antler bears three straight, perpendicular spikes.

The mule deer makes its home in the rugged ravines and bad lands so common along the creeks and rivers of the Rocky Mountain region, extending well eastward into the plains. Of late years it has been driven out of the most accessible of its former haunts, and forced to take shelter in the rugged fastnesses of the foothills and mountains. West of the Rocky Mountains it was formerly found along the whole Pacific slope, from Cape St. Lucas to British Columbia, although in northern California it is almost replaced by the next species.

THE AXIS DEER RANGE, No. 57.

The Axis Deer, (Axis axis), is the handsomest of all the tropical deer. Indeed, it may even be said to be the only species of the tropics possessing both form and pelage which are alike pleasing to the eye. In contrast with the many beautiful and splendidly colored antelopes of Africa, the deer of the tropics, all round the world, are poorly provided with those characters which make a handsome animal. With the sole exception of the axis deer, nearly all the other deer of the East Indies have thin, coarse, dull-colored hair, their antlers are small, and seldom have more than four points. This is equally true of the deer of Mexico, Central and South America. Even our own Virginia deer, so lusty and fine in the North, becomes in Florida and Texas so dwarfed that it has now been cut off entirely, and called another species.

Considering the severe plainness of all the other deer in the tropics, it is a little strange that the coat of the axis should be the most beautiful possessed by any deer. But it is quite true; and apart from the majesty of the elk, there is no more beautiful sight in cervine life than the picture offered by a herd of axis deer feeding in a sunlit glade surrounded by forest.

This species adapts itself to out-door life in the temperate zone with surprising readiness, not even second in that respect to the eland. As a matter of course the axis can not with-
stand the fierce blizzards of midwinter, as do the elk and other northern deer; but a reasonable degree of care in providing it with a dry barn, and shelter from cold winds, enables it to live even as far north as Northern Germany with perfect comfort. From what has been observed up to date, I believe it will presently be established that specimens acclimatized in the temperate zone always develop hair with a much darker ground color than the clean, bright tan-colored coat, so universal and so striking in the bamboo forests of southern India, where the axis is at home.

THE VIRGINIA DEER RANGE, No. 42.

The Virginia Deer, \textit{(Odocoileus virginianus)}, is the species most widely known throughout the United States, partly by reason of the fact that it was the first species with which the early settlers of America became acquainted, partly because of its wide distribution, and also its persistence in holding its own. In various localities this animal is known under various names,
such as "white-tailed deer," "flag-tailed deer," and "fan-tailed deer." Although not at all in need of it, quite recently it has received still another name, American deer. Whether this species deserves to be permanently separated into several, remains to be seen. Already the small deer of Florida, and also of New Mexico and the Southwest, have been described as separate species; and if size is to be accepted as a factor in the differentiation of species, the diminutive proportions of the proposed southern species are quite sufficient to establish their separate identity.

The Virginia deer of Virginia and the northern United States is a fine animal—large, strong-limbed, heavily-antlered and hardy. Between it and the deer of Florida the difference is as great as that between a setter dog and a mastiff. Thanks to the fact that this species is a born skulker, and lives only in thick brush and timber, it still holds its own throughout the forest regions of the South generally, Pennsylvania, the Adirondacks, Maine, Michigan, Minnesota, the Dakotas, Montana, and Colorado. In the west it is often found inhabiting brushy ravines and "bad lands."

This species breeds readily in confinement, and when protected in any large tract of brush or timber, increases rapidly. During the months of September, October, and November, the bucks are dangerous and untrustworthy. The peculiar formation of the antlers—three strong, spear-like points thrust straight upward from the beam—makes them dangerous weapons; and when an ill-tempered buck lowers his chin and drives straight forward with eight sharp spears of solid bone, and nearly three hundred pounds of weight to back them, he may well be considered a dangerous animal. He is to be feared less than the elk only because he is smaller.

**THE RED DEER RANGE, No. 41.**

The European Red Deer, (*Cervus elaphus*), is an understudy of the American elk, which it much resembles in form and in habits. Next to the elk it is the finest living deer, and for many generations has held its own against the dangers of in-breeding. In the parks and forest preserves of Great Britain and Europe, it exists abundantly, but only as private property, subject to the guns of the owner and his friends. This species has been successfully crossed with the American elk.

The entire herd of red deer is the gift of Mr. William Rockefeller. The original stock contained two bucks and four does, procured by the consent of the Czar of Russia from one of the
imperial parks. Russian red deer are very robust and hardy, and are believed to represent the highest development of this species. In addition to the above, five specimens derived from English stock were received from Mr. Rockefeller's herd at Greenwich, Connecticut.

YOUNG FEMALE WOODLAND CARIBOU.

THE CARIBOU RANGE, No. 40.

The Woodland Caribou, (Rangifer caribou).—The first hoofed animal to arrive at the Zoological Park was a young female of this species, which was procured in Champlain County,
Canada, and forwarded to the Society by one of our members, Mr. George S. Huntington. The range of this species is midway between the Aquatic Birds' House and the Elk Range. These animals are kept in a small enclosure because a large range containing an abundance of green grass is fatal to them.

The wild range of the woodland caribou extends from Newfoundland, Nova Scotia, and Maine, with many wide gaps, to the head waters of the Yukon River, in southern Alaska. The following localities are worthy of special mention: northern Quebec and Ontario; James Bay; the northern end of Lake Winnipeg (occasionally); Lake of Woods, Minnesota; Oregon near Mount Hood; northern Idaho; northwestern Montana, and the mountains of British Columbia.

Quite recently, three new species of caribou have been added to our fauna, one from the Alaskan Peninsula (Rangifer granti), one from the Kenai Peninsula (Rangifer stonei), and one from the Cassiar Mountains (Rangifer osborni).

The woodland caribou attains nearly twice the bodily bulk of its more northern congener, the Barren-Ground caribou. In a state of nature it lives on browse, reindeer moss, tree moss, and lichens, and it loves ice-covered lakes and ponds as much as any boy. Its loose-jointed and wide-spread ing hoofs and enormously developed "dew-claws" have been specially designed by Nature to enable this animal to run freely, as if on snow-shoes, over snow which to any small hoofed deer would be quite impassable.

The female woodland caribou is provided with small antlers, which, like those of the male, are shed and renewed annually.

THE FALLOW DEER RANGE, No. 43.

Taking all things into consideration—form, antlers and color, and eliminating all marks of degeneration—the fallow deer is one of the handsomest of living deer. The range of this herd will be found about half way between the Aquatic Birds' House and the Elk Range, and adjoining the caribou's enclosure.

The Fallow Deer, (Dama vulgaris), is the type of a distinct group of deer which are distinguished by the possession of antlers widely palmated throughout the upper half of the beam. In some old fallow bucks the antlers are quite moose-like, and give this small deer an imposing appearance far out of proportion to its actual size. The weight of a large buck in prime condition generally is between 180 and 200 pounds, and its shoulder height is between 36 and 40 inches. The
largest antlers recorded by Mr. J. G. Millais, in his beautiful work on "The British Deer," measured 29½ inches in length, 28½ inches spread, width of palmation 8 inches, and the number of points 14. The extinct Irish elk, with the most colossal antlers ever carried by a cervine animal, was a near relative of the two living species of fallow deer.

Although a native of northern Africa and the north shore of the Mediterranean, the fallow deer was acclimatized in England and northern Europe so long ago that the exact date records of the event have disappeared, and the species is now at home in very many European forests and game preserves. The deer parks of England possess many fine herds, but they also exhibit one unfortunate result of long breeding in a semi-domesticated state—departure from the original type.

The typical fallow deer is in winter very dark brown, with light brown legs and under parts, and in summer light red with white spots—quite like the axis. From this standard, the variations run from pure white to the color of the wild type.

The fine herd in the Zoological Park is the gift of Mr. William Rockefeller. Six of its original members came from the donor's herd at Greenwich, Conn., and six were purchased from one of the imperial parks of Russia, by consent of the Czar, and represent the most hardy stock obtainable.

THE ELK RANGE, No. 38.

The American Elk, or Wapiti, (Cervus canadensis). Of all the numerous members of the deer family, this animal is second in size to the moose only; and in the autumn when its pelage is bright and luxuriant, its sides well rounded, its massive antlers clean and held conspicuously aloft, the elk may justly be called the king of the Cervidae. It is well that in the Yellowstone Park we have an unfailing supply of elk, which bids fair to perpetuate this handsome species for another century.

The first three specimens received at the Zoological Park were a fine bull, cow, and calf, presented by the Park Department for the Borough of Brooklyn, through Hon. John M. Brower, Commissioner, and Mr. John De Wolf, Landscape Architect. These were closely followed by a herd of six fine specimens, three males and three females, which were presented and delivered at the range by Mr. George J. Gould, and represent the choicest animals from his herd at Furlough Lodge, in the Catskills.

Our Elk Range might well stand for a mountain park, in which is set, jewel-like, a natural lakelet of real value. In Oc-
tober, when the splendid groves of beech, oak, and maple along the eastern ridge put on all the glorious tints of autumn, and the big thicket of sumacs, ash, and haw on the northern hill fairly blaze with scarlet—then are the elk also at their best. There is no finer picture in animate nature than a herd of elk in October, with such a setting of greensward, tree-trunk, and foliage. The Zoological Society proposes to devote considerable attention to the photography of its live animals, and already has secured results of permanent value. The illustrations shown herewith may be considered a suggestion of some of the possibilities to be developed.

The maximum shoulder height of the elk is five feet four inches, or thereabouts, and the heaviest weight noted thus far is nine hundred and twenty-seven pounds.

The calves are born from May to July, and are spotted during the first six months. During the first year the antlers are merely two straight spikes, called "dag antlers." As in all members of the deer family, the antlers are shed every year—which to many persons is almost beyond belief. Any person who visits a zoological garden in midsummer will see that the old antlers have dropped off bodily, just below the burr, and that new antlers, covered with hair, soft, full of blood, and with club-like "points," have sprung up like mushrooms in place of the old ones. In supplying the great drain on the system necessary to support this remarkable growth, the elk grows thin, and the fear of hurting his tender young antlers makes him quite timid and inoffensive. He is no longer the tyrant of the herd, and a constant menace to his keepers.

At this point it is not amiss to call attention to the differences between horns and antlers.

A horn is a hollow sheath, growing over a bony core, and, except in the case of the prong-horned antelope, is never shed. Horns are worn by both sexes of all bison, buffaloes, cattle, antelope, sheep, and goats.

An antler is of solid bone throughout, growing from the skull; it is shed every year close to the skull, and quickly renewed. Usually antlers have several branches. They are worn by nearly all male members of the deer family—moose, elk, caribou, deer, etc., and also by the female caribou. The prongs on an antler are no index of the wearer's age. Some of the finest and most massive elk antlers have only twelve or fourteen points. During August and September the hairy covering, or "velvet," of new antlers is rubbed off against trees and bushes. This period is quickly followed by the mating season, during which
the neck of the bull becomes unusually large, and often the animal becomes dangerous.

Although the elk is essentially a timber-loving animal, it also wandered far into the plains bordering the Rocky Mountains on the east—until driven from them by man. The ideal home of this animal is the timbered foothills of our western mountains, up to 8,000 feet. Although once found from Virginia to Oregon, and from northern Manitoba to the Gulf of Mexico, it is now numerous only in and adjacent to the Yellowstone Park, in Central Colorado, where it is well protected, and in western Manitoba. The number of elk in the National Park is variously estimated at from 30,000 head to a much larger number.

In a wild state, the elk feeds on grasses, weeds, and the leaves and twigs of various trees and shrubs. Of all American deer, it is the most easy to acclimate and breed in captivity. Large herds are now being maintained and bred in numerous private game preserves in New Hampshire, New York, Minnesota, Massachusetts, and elsewhere.

THE PRONG-HORNED ANTELOPE RANGE, No. 37.

The Prong-Horned Antelope, (Antilocapra americana), is an animal in which Americans should now take special interest. Beyond all possibility of doubt, it will be our next large species to become extinct, and if we may judge by the rate at which the bands have been disappearing during the last fifteen years, ten years more will, in all probability, witness the extermination of the last individuals now struggling to exist outside of rigidly protected areas. It is largely because of this fact that the Zoological Society has made a special effort to procure at the very earliest opportunity a number of these animals, and install them in the Antelope Range. It is the intention of the Society to make liberal provision for the study of this species while it is yet possible to obtain living specimens, for fifty years hence our graceful and zoologically interesting prong-horn will be as extinct as the dodo.

Forty years ago this animal inhabited practically the whole of the great pasture region which stretches eastward from the Rocky Mountains to the western borders of Iowa and Missouri. Northward its range extended far into Manitoba; southward it went far beyond the Rio Grande, and it also ranged southwestward through Colorado and Nevada to southern California. Its chosen home was the treeless plains, where the rich buffalo grass
PRONG-HORNED ANTELOPE HERD IN 1902.
and bunch grass afforded abundant food, but it also frequented the beautiful mountain parks of Wyoming and Colorado. It even lived contentedly in the deserts of the southwest, where its voluntary presence, coupled with the absence of water, constituted a conundrum which has puzzled the brain of many a desert traveller.

Although the prong-horn is keen-sighted, wary, and at all times an exceptionally timid and nervous animal, it is no match for man and long-range rifles. Its skin is of no value, but its flesh is delicious at all times, even in midsummer, when most other wild meat is out of flavor. The general settlement of the great pasture region sealed the doom of all the large game animals which once stocked it abundantly. Whenever a cowboy wanted an extra choice roast, or range-riding became too monotonous for him to endure, he killed an antelope. Whenever an eastern tenderfoot wanted to "shoot something," he was taken out on the range and turned loose, to hunt antelope. The difficulty involved was only barely sufficient to insure a proper degree of interest and excitement. Almost any man with a modern rifle can kill an antelope.

To-day, all observers agree that in all regions wherein the antelope are not rigidly protected, they are going fast. Those in the Yellowstone Park are protected against man only to be devoured by the wolves which infest the Park. Coyotes have been seen to run down and kill antelope within sight of the town of Gardiner. So far as can be ascertained, Colorado is the only state which really is protecting its antelope, and because of this fact the last prong-horn will die in that state. Professor Osborn reports that in July and August, 1899, he saw hundreds of antelope in Garfield County. In 1898, Mr. Carl Rungius, the animal painter, reported an abundance of them in Uintah County, Wyoming, but this year he saw with astonishment and dismay that the herds have disappeared as if the earth had opened and engulfed them all.

For a century the prong-horn has been, next to the buffalo, the chief object of interest on our western plains. Their graceful forms and fleet movements have for long relieved the landscapes of the treeless country from utter barrenness, from the lifelessness which to every overland traveller presently becomes unbearably monotonous. It is not pleasant to think of the thousands of square miles of "divides," "coulees," "bad lands" and plains absolutely devoid of antelopes, and tenanted only by coyotes and gray wolves.

Structurally, the prong-horn is so peculiar it has been found necessary to create for it a special zoological family, called
Antilocapridae, of which it is the sole member. This is due to the following causes: (1) This is the only living mammal possessing hollow horns (growing over a bony core) which sheds them annually; (2) it is the only animal possessing a hollow horn which bears a prong, or bifurcation; (3) it has no "dew claws," as other ruminant animals have; (4) the horn is placed directly above the eye; (5) the long hair of the body and neck is tubular; and (6) that on the rump is erectile.

In size the prong-horn is the smallest ruminant animal inhabiting North America north of Mexico, unless it becomes necessary to place below it the small deer of Texas. It is nimble-footed and graceful at all times, save when it runs with its head carried low, like a running sheep. The doe brings forth two kids at a birth, usually in May or June, and during the summer months the bands are quite broken up. The winter coat is shed—in great handfuls—during late spring and early summer, and the new coat of short, gray hair makes the prong-horn look strange and unnatural. By October, however, his new coat is at its brightest, he is fat and vigorous, and in every way at his best. As winter approaches (November) the antelope assemble until great herds are formed, sometimes a hundred and fifty animals being found together.

Unfortunately, the prong-horned antelope is not a hardy animal. The kids are very difficult to rear; they are at all times easily hurt by accident, and even in a state of nature this species suffers more severely in winter than any other North American ruminant. Often the herds drift helplessly before the blizzards, with numerous deaths from freezing and starvation, and in spring the survivors come out thin and weak.

During the years 1900 and 1901, stringent laws absolutely prohibiting the killing of antelope for a long term of years, have been enacted by New Mexico, Arizona, California, Nevada, Utah, Montana, North Dakota and South Dakota. Only in Wyoming, Idaho and Texas is this species unprotected, but it is hoped that these states also will soon enact protective legislation.
MOUNTAIN SHEEP HILL, No. 29.

The wild sheep and goats of the world form an exceedingly interesting group of animals, and with the exception of bears, none are more satisfactory to keep. In form they are odd and picturesque, in physique they are hardy, and in temper and mentality they are everything that could be desired. All the year round, deer are either nervous or dangerous, and difficult to handle. Of course there are exceptions. Wild sheep, goats and ibex appreciate man’s interest in them, and even when not fond of attention, they act sensibly when it is necessary to handle them.

The Zoological Park collection of wild sheep and goats is destined to become in the near future one of the most interesting features of the Park. Already it contains several rare species, and others will be added as rapidly as new enclosures and shelters can be furnished.

Mountain Sheep Hill is the first high ridge west of the Rocking Stone, and its northern end is very near the Bear Dens and Reptile House. It consists of a ridge of pink granite 500 feet long and 25 feet high, its southern end fully exposed, but the northern end well shaded by oaks and cedars. For grazing animals that love to climb, and pose on the sky line, the slopes of bare rock, set in patches of hard, green turf, are almost ideal. In the eastern face of the ridge, rock excavations have been made, and five roomy caves have been constructed in such a manner that they are cool in summer, warm in winter, and dry at all times. On June 1, 1902, the six wire enclosures on Mountain Sheep Hill contained the following species:

- Musk-Ox.  
- California Mountain Sheep.  
- Mouflon.  
- Chamois.  
- Spanish Ibex.  
- Himalayan Tahr.  
- Aoudad.

The Musk-Ox, *Ovibos moschatus*, presented to the Society by Hon. William C. Whitney, is, with but two exceptions, the rarest and most noteworthy animal thus far acquired by the Zoological Park. It is the first living specimen of its species to reach civilization in America, and thus far only two
others have reached Europe. The Society is indeed fortunate in securing thus early in its history a fine, healthy specimen of this very rare and zoologically interesting species. It will be found in the most northerly enclosure of Mountain Sheep Hill, where it has been placed by reason of its requirements, and not because the animal is considered a "Musk-Sheep."

The musk-ox is an animal of very strange form, inhabiting a small portion of the Arctic regions north of latitude 64°, from the Barren Grounds north of Great Bear Lake to northern Greenland. At Fort Conger (Latitude 81°, 40'), its flesh was a godsend to General Greely, and later on to Lieut. Peary, also. Structurally, this animal stands in a genus of its own (Ovibos), midway between the cattle and the sheep, but it is unqualifiedly a misnomer to call it a "musk-sheep." Its name "musk-ox" is due to the ox-like legs, hoofs and horns of the animal, and to a fancied odor of musk which proves to have been wholly imaginative. Our specimen is entirely free from musky odor, and Mr. C. J. Jones, who has killed many adult specimens of this species, both male and female, asserts most positively that they were equally free from it.

An adult male musk-ox stands 4 ft. 5 in. high at the shoulders, is 6 ft. 7 in. in total length, and weighs "about 1200 pounds." Our specimen is a female, named "Olive," is now two years old, stands 3 ft. 2 in. high at the shoulders, and is 4 ft. 10 in. in total length. Her entire body is covered by a dense mass of fine, light brown hair, of a woolly nature, overlaid by a thatch of very long, straight hair specially designed to shed rain. Clearly, a musk-ox knows nothing of cold save by hearsay!

This specimen was caught in March, 1901, directly north of Great Bear Lake, and about 30 miles from the shore of the Arctic Ocean, by a party of Eskimo hunters sent out by Captain H. H. Bodfish, from the whaling steamer, Beluga, which was then wintering near Cape Bathurst. She was born in the spring of 1900, and on arrival at the Park on March 17, 1902, was about 25 months old. At home she fed upon the Arctic willow and bunch grass, but as soon as the Beluga reached Teller City, Port Clarence, where civilized hay was procurable, she promptly abandoned her diet of native grass and dry willow twigs. In captivity her food is very much the same as that of the wild sheep and goats. She eats heartily of food that pleases her fancy, but when offered something she does not fancy, she sometimes becomes quite angry, and chases her keepers out of her enclosure.

In temper she is docile, but stubborn. Her cry is a deep-bass, bull-like roar, totally unlike the cry of any sheep. At two years of age her horns are 9 inches long, widely separated at the base,
and except that they curve downward, more than is usual in young cattle, are yet truly bovine in their appearance. The space between their bases is filled with a broad band of light-gray hair, quite like the leading specific character of the newly-described species of musk-ox from northern Greenland, Ovibos wardi. If this specimen lives her rightful number of years, her horns will grow at the base until they meet in what is now the center of the forehead, and the tips will drop far downward.

The California Mountain Sheep, (Ovis nelsoni), is here seen in captivity for the first time in the history of that species. The efforts that have been made in Philadelphia, Washington and Chicago to acclimatize the big horn of the Rocky Mountains have proven the extreme difficulty involved in keeping specimens of that species anywhere in the Mississippi Valley, or on the Atlantic Coast. The changes of atmosphere and temperature seem more violent than American mountain sheep are fitted by nature to endure, and thus far all specimens tried have died within a comparatively few months.

During the course of a hunting trip in the central mountain range of the peninsula of Lower California, in the winter of 1902, Mr. William H. Harriman, of New York, heard of the existence of a male mountain sheep, nearly a year old, on a ranch about 100 miles from San Quentin. The little creature was sought out, purchased, taken to San Quentin, shipped to San Diego, rested there, and finally shipped to New York. It was again rested en route at Wichita, Kansas, and finally, after this long series of journeys in close confinement, it reached New York. Although physically sound, it was then thin in flesh, and weak; but it has gained strength with reasonable rapidity, and on May 1 was placed in its permanent home on Mountain Sheep Hill. As a companion and "running mate" it has an Angora goat kid of its own age, with which it was reared.

This mountain sheep is the first American Ovis received at the Park. It shows quite markedly the peculiar salmon-tinted color characteristic of Ovis nelsoni, and if it can survive in this climate to reach maturity, its development will be watched with great interest.

The Mouflon, (Ovis musimon), or Wild Sheep of Sardinia, is represented by a fine pair of specimens presented by Maurice Egerton, Esq., of London, and a young male born in the Park on April 14. The female of the adult pair was captured when a lamb, only two years ago, in the mountains of Sardinia, by Mr. Egerton. The ram of this species is handsomely colored, and this specimen is noted for his friendliness, and his fondness for admiration.
The Aoudad, or Barbary Wild Sheep, \((Ovis\ tragelaphus)\), comes from the hot, dry mountains of northern Africa, and it endures the cold, wet climate of New York in a manner sufficient to put to shame our American mountain sheep, goat and other western ruminants. The male aoudad of our herd is a very fine specimen of its kind. He is as fond of admiration as any peacock, and often poses in striking attitudes on the highest point of his rocks. The first lamb was born on March 19, 1902.

The Himalayan Tahr, \((Hemitragus jemlaicus)\), is really a wild goat, of very odd and picturesque aspect, native to the higher ranges of the Himalayas of northern India. Its horns are short and thick, and its body is covered with long, purplish-brown hair which is much blown about by the wind. It dwells amongst the most dangerous crags and precipices.

The Spanish Ibex, or Tuhr, \((Capra pyranica hispanica)\), is a handsome creature, and all three of its representatives seem to enjoy their rocky home in the Park as greatly as if it were situated in their native Pyrenees, in southern Spain.

The Rocky Mountain Goat, \((Oreamnus montanus)\), is not yet an inhabitant of the Park, but we have reason to believe that at no very distant day it will be. Like the gorilla and musk-ox, visitors are advised to see this species as soon as possible after specimens arrive, for outside of their mountain homes they are short lived.

THE BUFFALO RANGE, No. 36.

Stretching from the site of the large Antelope House (No. 30) to the Boston Road, and from the Rocking Stone to the southern boundary, lies an open expanse of rolling meadow land, of about twenty acres in total area. It is almost surrounded by shade-trees. Its easterly edge is a low-lying strip of rich meadow, which lies under the shelter of the rocky, tree-covered ridge that forms the natural retaining wall of the higher plateau toward the west.

This is the Buffalo Range. It is the first enclosure seen on the left as the visitor enters the Park from West Farms by way of the Boston Road. In spring the low meadow which lies along the Boston Road is cut off from the main range by means of a concealed fence running through the trees along the high ridge, and two movable sections in the open portion of the line. This is the breeding range, for the special use of the cows and young
SARDINIAN MOUFLON.

HIMALAYAN Tahr.
calves, from May to August, when the two ranges are thrown into one.

On the north side of the main range, near the Rocking Stone (No. 45), are the four corrals, and the buffalo house. The latter is a rustic hillside barn, eighty feet in length, with a semicircular front, affording shelter and feed storage for twenty-five buffaloes. The main corral contains a bathing pool, and its central portion has been left unpaved. The flat roof of the buffalo house is open to the public from the main walk, and has been specially designed as a convenient lookout over the main range and corrals.

The American Bison, or Buffalo, (B. americanus), is the largest and the best known of all North American hoofed animals. What was once the universal herd, which occupied the whole pasture region of the West, was cut in twain in 1867, by the building of the first transcontinental railway. The great "southern herd," of several millions of animals, was destroyed by skin hunters during the years 1871, 1872, 1873, and 1874, and the practical extinction of the northern herd was accomplished between 1880 and 1884.

At present there are but three herds of wild buffaloes in existence. The largest band, now containing by estimate only about eighty individuals, inhabits a wide stretch of barren and inhospitable territory southwest of Great Slave Lake. About twenty head remain in the Yellowstone Park, more than ninetenths of the original herd having been slaughtered by poachers since 1890; but the remainder surely will go the same way ere long. A third bunch—if not recently exterminated—is said to inhabit Lost Park, Colorado, and to be protected by the State and the people. There are about eight hundred buffaloes alive in captivity, chiefly in large private game preserves.

Usually buffalo calves are born in May, June, and July. Full maturity is not reached until the end of the seventh year, when the horns of the male—at first a straight spike—have attained their full semicircular curve. Like all thick-haired animals of the temperate zone, the buffalo sheds its coat in spring, and does not regain full pelage until October or November.

The buffalo breeds in confinement about as readily as domestic cattle. In appearance, it is the most imposing of all bovine animals, and with two exceptions it is also the largest. In captivity its disposition is mild, though inclined to stubbornness. Occasionally, however, an old bull becomes so vicious that it is necessary to seclude him from the herd, and treat him as a dangerous animal.
THE AVIARIES.

THE DUCKS' AVIARY, No. 3.

There are no birds which take more kindly to captivity, or which better repay their keep and their keepers, than the ducks, geese, swans and pelicans. The only drawback to the maintenance of large collections of these birds in this latitude is the annual struggle with our arctic winter. On account of the fierce winter storms to which we must pay tribute, many species of swimming birds require to be taken out of their aviary, and housed in sheltered buildings, with moderate warmth. For this reason the pelicans, tree ducks of all species, and all species from the tropics, must necessarily be absent in winter from their aviary.

For the accommodation of a large, systematic collection of swimming birds, an aviary two hundred and fifty feet long by one hundred and forty-three in width has been constructed in the north end of Birds' Valley. To secure as much space as possible, the entire width of the open valley has been taken into the enclosure.

The Ducks' Aviary consists of a pond containing three islands, two of which are subdivided by low fences of wire netting into twelve separate enclosures. In the central portion of the South Island stand two rustic shelter houses, each of which furnishes shelter for the occupants of four yards. The North Island is devoted to a mixed collection of large water fowl—pelicans, swans, geese, ducks, and other species.

The aviary has been so planned and constructed that each enclosure is provided with a section of the pond (three feet in
depth), grass banks, gravel banks, sanded runways, shrubbery, earth, and a dry, rat-proof shelter house. The boundary fence has been provided with a rat-guard on the outside, over which, it is believed, neither rat nor weasel can pass.

**The White Pelican,** (*Pelecanus erythrorhynchos*), is one of the largest birds of North America, and by reason of his size, his pure white plumage, his enormously long amber-colored

![THE DUCKS' AVIARY.](image)

bill and gular pouch, he is one of the most showy birds in the aviary. As consumers of fish they stand preeminent amongst birds, and their only rivals here are the sea lions. The specimens exhibited were collected for the Society in southern Texas.

**The Brown Pelican,** (*Pelecanus fuscus*), when adult, is a handsome and showy bird, and one which not only is easily reconciled to life in a comfortable aviary, but positively enjoys it. The twelve specimens in the aviary on the opening day were collected for the Society in Florida, in May, 1899, and all are quite tame. When their daily allowance of fish appears they crowd around their keeper, and with wide open pouches earnestly solicit contributions.

**The Tadorna Duck** or "**Sheld-Drake**" (*Tadorna cornuta*), of Europe and temperate Asia, is another hand-
some species. Its body-color is pure white, its head is glossy green, its outer scapulars and primaries black, its bill is red, the feet and legs pink, and for a duck it stands rather high on its legs. It has a very wide range, extending quite across Europe and middle Asia to Japan. This duck breeds in sandy regions, where it has the strange habit of living in burrows which it digs in the sand, quite like the puffin.

The Mallard Duck, (Anas boschas), is one of our finest swimming birds, the joy of the sportsman who finds it in its haunts, the delight of the epicure who finds it on the bill of fare. Sluggish indeed must be the blood which does not beat faster at the sight of a flock of wild mallards, free in Nature, and ready to leap into the air and away at the slightest alarm. Excepting the wood duck, this is the handsomest duck in North America, and also one of the finest for the table. Its range covers practically the whole of the western continent down to Panama, and even extends to the Azores, North Africa, and northern India. The drakes are readily recognized by the splendid iridescent green of the head.

The Green-Winged Teal, (Anas carolinensis), and Blue-Winged Teal, (Anas discors), are very delicate birds, and therefore rather difficult to maintain in captivity. A flock of each will be found opposite the northeast corner of the Flying Cage.

The Pintail Duck, (Dafila acuta), is specially commended to the notice of visitors because of its great beauty, both in color and form. Its colors form an exquisite harmony of soft brown and gray tones which fairly rival the more gaudy color-pattern of the wood duck. This species is yet found occasionally along the Atlantic Coast, but like all other edible birds, its numbers are rapidly diminishing. This species will be found on Cope Lake and the Aquatic Mammals’ Pond, as well as in the south end of the Ducks’ Aviary.

The Mandarin Duck, (Aix galericulata), is the Chinese counterpart of our beautiful Wood or Summer Duck, (Aix sponsa). Of all living ducks, the males of these two species are the most gorgeously colored and plumed, and they are also of elegant form. Although both species are much sought after, the number of available specimens continues to be limited to a comparatively small number.

The Canvas-Back, (Aythya vallisneria), and the Red-Head, (A. americana), two prime favorites with the sportsman and epicure, are exhibited in the south end of the Ducks’ Aviary. Of the latter, a good-sized flock is shown. Canvas-backs, however, are difficult to capture unhurt and still
more difficult to breed in captivity, and for these reasons the number exhibited always is very small.

The White-Fronted Goose, \((\textit{Anser albi\textit{frons}})\), is worthy of special notice because it is one of the handsomest of the 13 species of North American geese. It will be found in the western side of the Ducks' Aviary.

The Canada Goose, \((\textit{Branta canadensis})\), is one of the species shown on the North Island. Once common throughout many regions of the United States, continual persecution by sportsmen and market hunters has so generally reduced its numbers, that it is now of comparatively rare occurrence. Without the long V-shaped flocks of wild geese, honking north in spring and south in autumn, the prairies of the west do not seem like the same country.

This exceeding rarity makes the arrival of nine superb specimens on November 8, 1900, to the Aquatic Mammals' Pond, a most novel treat. Seven of the birds, including a fine gander, through the artifices of a trap, have been induced to remain with us, and have taken up a peaceful abode on the little lake with the six of a like kind presented by Mr. A. B. Frost.

The Trumpeter Swan, \((\textit{Olor buccinator})\), being the largest bird in the aviary, and also snowy white, is therefore the most conspicuous. Fine specimens are shown on the North Island, living contentedly with other species. These specimens were captured in Idaho, when young enough to take kindly to captivity.

The Black Swan, \((\textit{Cygnus atratus})\), of south Australia and Tasmania, is as glossy black, excepting its primaries, as other swans are white. It is a large and handsome bird, and much sought by all persons who form collections of water fowl.

The Coscarooba Swan, \((\textit{Coscarooba candida})\), is a fair connecting link between the swans and the ducks, partaking about equally of the characters of each. In size and color it is very much like our snow goose \((\textit{Chen hyperborea})\), but it is peculiar in possessing very long legs of a bright pink color, by which it is quickly recognized. Its bill, also, is pink, and the tips of its primaries are black. The coscarooba swan is a native of southern South America, and a few years ago specimens were so rare in captivity that a pair sold for $300.

THE FLYING CAGE, No. 4.

This mammoth bird-cage is one of the wonders of the Zoological Park. It represents an attempt to do for certain large and showy water birds, precisely what has been done for the hoofed
animals, the beaver, otter, and other species—give them a section of Nature's own domain. In this they can fly to and fro, build nests and rear their young in real freedom.

Near the lower end of Birds' Valley, as a sort of climax for the Ducks' Aviary when seen from the north, rises a lofty, web-like structure, in the form of a huge, gothic arch. It is 55 feet in height, 72 feet wide, and 152 feet long. The whole structure consists of a series of steel-pipe arches and purlins, the former eight feet apart, over which wire-netting has been tightly stretched.

The wire-netting seems peculiarly open. It is of the kind known as chain-netting, which offers the least possible obstruction to the eye. This cage is so large that a very respectable block of houses, three stories high and of ample dimensions, could stand within it without touching the wire. It completely encloses three forest trees of very considerable size, two hickories and an oak; and it contains a pool of water a hundred feet long, and shrubbery in abundance.

The idea of a very large cage for herons and egrets is not new, for there are in existence three other flying cages, somewhat smaller than this. The first was erected in the Rotterdam Zoological Garden about eight years ago by its Director, the late Dr. A. Von Bemmelin, whose experiment proved very successful. The other two are at London and in the Paris Jardin d'Acclimatation.

The Flying Cage is the summer home of a mixed flock of such large and showy water birds as are most inclined to fly about within it, and afford students and the public an opportunity to study their movements and attitudes. Save for such allowances as must be made for accidents and epidemics, this enclosure will contain the following noteworthy species, along with others of less importance:

The American Flamingo, (Phoenicopterus ruber), is a perfect connecting link between the herons and ducks, and resembles the former in the great length of its legs, and the latter with a duck-like bill, and webbed feet. When the plumage of this species is perfect, it is of a beautiful scarlet color throughout, excepting the primaries, which are black. In captivity, the color fades somewhat. This bird is found in the Bahama Islands and Cuba, but in Florida, where once it was fairly numerous, it no longer exists. Fortunately, this remarkable bird takes kindly to captivity, and the Zoological Park is never without a good-sized flock. Their strange form, showy colors and droll attitudes render them unusually interesting to visitors.
With the birds of the above species are shown a few specimens of the **European Flamingo**, (*P. roseus*), which is almost white. The only parts which show the characteristic scarlet of this genus, are the wing coverts, which are pale red, or pink.

The **Wood Ibis**, (*Tantalus loculator*).—The Park opened with four fine, large birds of this species, from Florida, where they breed, in very greatly reduced numbers, on the headwaters of the St. Johns. This bird is a very satisfactory member of avian society. Although amply large to lord it over the other birds of the cage, he quarrels with none, but peacefully goes his way, feeling with the point of his beak along the sandy bottom of the pool for something edible, or standing in quiet meditation on the bank. This is the largest of our ibises, and is quite a handsome bird. Although not so fond of using its wings as are the herons and egrets, the wood ibis is for many reasons a very welcome tenant.

The **Scarlet Ibis**, (*Guara rubra*), is for its size the most showy bird in existence, not even excepting the birds of paradise. Excepting the black primaries every feather on the adult bird in perfect plumage is of a brilliant Chinese vermillion color, visible in nature for a long distance. The immature birds are mottled and patched with white. This species once came as far north as southern Florida, but now it is found only from Cuba southward. They frequent the mud banks at the various mouths of the Orinoco, and not long since were quite abundant on the coast of British Guiana.

The **Glossy Ibis**, (*Plegadis autumnalis*), is a rare bird in captivity, and it is uncertain whether it will be possible to maintain this species perpetually in the Flying Cage and Aquatic Birds’ House, but an effort in that direction is being made.
The two specimens shown on November 8, 1899, were collected for the Society in the marshes on the headwaters of the St. Johns River in the spring of that year.

The White Stork, \((Ciconia alba)\), is as large as our wood ibis, which it strongly resembles in form and habits. This bird is literally the household bird of Germany, and its place in the family has now become of more importance than its place in nature. Throughout Holland, Germany, and very nearly the whole of eastern and central Europe the white stork is so prized and protected by the people that it has attained a state of semi-domestication. Nesting places are prepared for it, usually near or even upon human habitations, and it enjoys an immunity from molestation quite like that of the adjutant bird in India.

The Great Blue Heron, \((Ardea herodias)\), is frequently called the "blue crane"; but the latter name is a misnomer. It properly belongs to our sandhill crane \((Grus canadensis)\). Just why so large a number of people should be so persistent in this error is a psychological problem; but the fact remains that people will not say "heron."

This great blue heron is the largest and most noteworthy bird of our northern marshes. Thanks to the fact that it bears no desirable "plumes," and its flesh is not edible, it has been permitted to live. When not molested, it becomes quite trustful, and when wading along a shore, fishing for minnows, it affords for the field-glass or the camera a very interesting subject. In summer these birds are quite numerous in the marshes along the Shrewsbury River between Sandy Hook and Long Branch, and an unfailing source of interest to excursionists. It is sincerely to be hoped that the evil eye of Dame Fashion will not fall upon this bird, and cause its extermination.

The Little Blue Heron, \((Ardea caerulea)\).—The immature birds of this species are snowy white, and so closely resemble snowy herons of the same age, that only one well acquainted with both can distinguish between them. They are, however, easily distinguished by the fact that the snowy heron has black legs, and a black bill, whereas the legs and bill of the little blue heron are pale yellow. This species is still common in some parts of its Florida home, but one of the specimens exhibited was captured at Prince's Bay, Staten Island.

The Louisiana Heron, \((Ardea tricolor ruficollis)\), once very numerous in Florida, is still found there, but in greatly reduced numbers. It ranges from Central America and the West Indies northward to the Gulf States, and occasionally to Long Island. The general coloring is dark blue, but a promi-
dent distinguishing character is the chestnut brown on the sides of the neck.

The Yellow-Crowned Night Heron, (*Nycticorax violaceus*), as its name indicates, has a crown of pale colored feathers, with two or three white occipital plumes. It breeds from southern Illinois to South America. Occasionally one strays as far north as Massachusetts. It is rather a solitary species, and usually is found singly, or in pairs, along the borders of wooded streams. The specimens exhibited were col-
lected for the Society in the most inaccessible portion of the headwaters of the St. Johns River, Florida.

The Snowy Heron, or Snowy Egret, \((Ardea candidissima)\), when fully adult, is the most beautiful white bird in all the avian world. Its form is the embodiment of symmetry and grace, its plumage is immaculate, and the filmy "plumes" on its head and back are like spun glass. Its black legs and bill merely serve to intensify the whiteness of its feathers. The vanity of woman has been the curse of the snowy egret. Its plumes are finest during the breeding season, and it was then that the hunters sought them, slaughtering the old birds in the rookeries by thousands (when they were abundant), and leaving the nestlings to die of starvation. If all women could know the price in blood and suffering which is paid for the accursed "aigrettes" of fashion, surely but few could find any pleasure in wearing them. It is strange that civilized woman—the tender-hearted, the philanthropic, and the ever-compassionate—should prove to be the evil genius of the world's most beautiful birds.

In the United States the snowy egret now exists only by accident, and the "plume hunters" are pursuing this and the following species in Central and South America, to their most remote haunts, sometimes even at the risk of their lives. Fashion has decreed that the egrets must go.

The American Egret, or Great White Egret \((Ardea egretta)\), is when adult, one of our largest birds with pure white plumage. Much to the misfortune of this species, it possesses about fifty "aigrette" plumes which droop in graceful curves from the middle of its back far beyond the tail and wing tips. For these beautiful feathers this bird has been pursued by plume hunters to the point of total extermination. The Society exhibits several specimens.

THE AQUATIC BIRDS' HOUSE, No. 5.

This building is the result of an attempt to solve an old problem in a new way—the care of large migratory water birds in the most uneven winter climate on earth. In comparison with the care in winter of flamingoes, large herons, egrets, ibises, and the like, the housing of perching birds, birds of prey and the parrots, is almost child’s play. But the wealth of fine water birds in North America alone, and the interest attaching to them, seem to justify the labor and expense that have been involved in this building and its appointments,
The Small Flying Cage.—The dimensions of the building are 63x50 feet. Its whole central area is occupied by a large cage 16 feet wide, 38 feet long, and 16 feet high, filled with a choice mixed collection of flamingoes, brown pelicans, swans, egrets, storks, ibises, and ducks. The bottom of the cage contains a spacious pool of running water, surrounded by banks of sand and gravel.

Along the side walls of the building are two rows of cages, seven on each side, which contain groups of birds that are closely related to each other. Usually, each cage is filled with birds of the same group. These cages also contain running water, and an abundance of gravel. In the center of the series along the eastern wall is

The Diving Birds’ Tank.—This is a huge aquarium tank 9 feet long, 5 feet wide, and 4 feet deep, with plates of glass one inch in thickness on the front and both ends. It is filled with clear water, in which the movements of diving birds under water may be studied in detail. This exhibition calls special attention to the darters, penguins, puffins, auks and other birds that have been fitted by nature for life and activity under water, and by which even the wingless species procure an abundant supply of food. A penguin under water is a sight to be remembered. This feature was copied from the London Zoological Garden.

In order to suggest the haunts of the water birds inhabiting the Aquatic Birds’ House, to give distance, and to eliminate the dead walls which never seem so sadly out of place as behind cages filled with living creatures, the walls behind the side cages of the interior have been very artistically decorated, in oil colors, by Mr. Robert Blum. The entire western wall is occupied by a tropical landscape representing a scene on the edge of the Florida everglades, while the eastern cages have for a background a northern marsh scene, highly suggestive of the marshes along the Shrewsbury River, New Jersey, with the Navesink Highlands in the distance. The artistic effect of these landscape backgrounds is very pleasing. What was at first an experiment is now a pronounced success, and this idea will be introduced in other animal buildings of the Zoological Park.

Inasmuch as the water birds shown in this building are the same species that have been described in the section devoted to the Flying Cage, it is unnecessary to repeat descriptions here.

The Exterior Cages.—Although the ten large cages on the exterior of the Bird House belong to the Aquatic Birds, until the great Eagles’ and Vultures’ Aviary has been erected
they must be occupied by the birds of prey. The following are a few of the most conspicuous species:

**Bald Eagle, (Haliøetus leucocephalus).**—The appearance of the adult bald eagle, our National emblem, with its conspicuous white head and tail, is familiar to all; but the immature birds, as shown by several of the specimens, lack the white in their plumage. These birds are found usually near water, and their food is chiefly fish. These they sometimes catch for themselves, but if ospreys are found in the vicinity, they are watched by the eagles, and often robbed of their hard-earned prey.

Recently many scores of these splendid birds have been killed, as a result of fashion's latest whim—calling for long quill feathers for women's hats.

**Black Vulture, (Catharista atrata).**—These ill-favored but very useful birds are quite abundant, and even semi-domesticated, in some of our southern cities. This is due to the protection accorded them, because of their valuable services as scavengers. They are said to devour every particle of exposed organic refuse, and in a warm climate these services are of more value than we in the north can realize. The bare head enables the bird to feed without danger of soiling its feathers.

**The Red-Tailed Hawk, (Buteo borealis).**—The hen liawk, or chicken hawk, is one of our commonest birds of prey. It hardly merits its common name, as its favorite food is mice and other small mammals. This is the hawk seen, in the fall of the year, going south in flocks, sometimes of one hundred or more. Its distinguishing mark is its rich, rufous tail, and its four-notched outer wing feathers. The hats of our lady friends afford abundant opportunities for the study of these feathers.

**The Snowy Owl, (Nyctea nyctea),** of the Arctic regions, migrating in winter to the Northern United States, sometimes remains for several seasons in succession so far north that no specimens are obtainable. During 1899, 1900, and the first half of 1901, not one specimen could be procured, but in the late autumn of 1901 a southward migration began. On June 1, 1902, the Park exhibited eight fine specimens, one of which was almost pure white.

**The Great Horned Owl, (Bubo virginianus).**—These nocturnal birds of prey inhabit heavily wooded regions, feeding on mice, and poultry when it is obtainable. The bright yellow iris, the conspicuous feather horns, and the apparently pivoted neck are curious features of these birds. Their reputation for wisdom is only founded on their external appearance, for in reality they are rather dull birds.
The Barred Owl, (*Syrnium nebulosum*).—This owl is more diurnal than its nearest relatives, and its almost black eyes seem well able to endure the sunshine. Its deep, penetrating call, “whőö-ő-ő, whőö-ő-ő,” is one of the most weird and striking cries of the bird world. Another peculiarity, common to all owls, but more noticeable in this less nocturnal species, is the absolutely noiseless flight. The soft, downy feathers of the owl permit it to wing its way through the air with as little noise as a falling leaf.

The Screech Owl, (*Mégascôps asió*).—This little horned owl is our commonest species, and frequents the neighborhood of dwellings and orchards. Being nocturnal it is more common than is generally supposed, and its curious cry is the cause most frequently leading to its discovery. Its two phases of plumage, red and gray, occur independently of sex, age, or season. Its food consists of mice and insects.

The Florida Burrowing Owl, (*Speótýta cuniculária floridána*).—The habits of the Florida burrowing owl differ somewhat from those of its western congener. There being no prairie-dogs in Florida, these birds make all their excavations for themselves. These are about six feet in depth, and at the end the round, white eggs are laid, usually six in number. The anomalous habits of these birds and their curious little gnome-like faces make them interesting inmates of a zoological garden.

**THE WILD TURKEYS’ ENCLOSURE, No. 62.**

At the northern end of Squirrel Ridge, where the Alligator Walk intersects the Rodents’ Walk, an ideal quarter of an acre, of oak and hickory trees, underbrush, and bare rock, has been dedicated to the king of game birds.

The Wild Turkey, (*Meleagris gallopavo*), is a bird of magnificent size and presence, and the splendid metallic luster of his plumage—a mixture of burnished bronze, copper, lapis lazuli, and fire opal iridescence—backed up by a great bulk of savory flesh, all combine to make this the finest game bird on earth. It was once fairly abundant throughout the eastern United States, and still is found in Pennsylvania, southern Ohio, Virginia, and other Southern States as far west as Texas. Three other species of *Meleagris* are now recognized—one in Florida, one in southern Texas and northeastern Mexico, and the fourth in Mexico, extending to western Texas and Arizona.
The fine flock exhibited in the Zoological Park was presented to the Society by the late Mr. A. Edward Pond.

RED FOXES.

THE DENS OF THE CARNIVOROUS ANIMALS.

THE WOLF DENS, No. 15.

At the northeastern corner of the Elk Range there is a huge, bare granite rock, two hundred feet long, shaped precisely like the hump of a bull buffalo. The high end of the hump is toward the north, and its crest is about fifteen feet above the ground on its eastern side. A fringe of small trees and bushes grows along its western side. On the east side, well sheltered by the rock itself from the cold west wind of winter, and also shaded by several fine trees which most opportunely grow close beside the ledge, the Wolf Dens and Fox Dens are situated.

In regard to the iron work, these dens are merely an under-study of the Bear Dens. The dimensions of each den of the series is 16 by 48 feet, and the height of the bars to the top of the overhang, is 9 feet 6 inches. The sleeping dens are of simple construction, all save one being of wood, trimmed with bark-covered slabs. At present the Wolf Dens are divided into four compartments.

The Gray Wolf, (Canis nubilis), is known by as many names as it has color phases. In the North, where it is white, it is called the “white wolf,” while in Florida it becomes the “black wolf.” In British Columbia, and around Great Slave Lake, both white and black wolves abound, as well as the standard gray, but on the Barren Grounds the white phase predominates. In Texas a “red wolf” is found, but apparently the red phase is of somewhat rare occurrence, and is never found in the North.
In the West this animal has recently come into prominence in a way that is striking terror to the hearts of ranchmen and others who have stock to lose. While all kinds of desirable game animals are decreasing at an alarming rate, the gray wolf not only holds its own, but is multiplying rapidly. The destruction by it of calves, colts, and sheep has become so great that nearly every western State has placed on the head of this bold marauder a bounty varying from $2 to $10. In some States this law has been in force for several years, but with no sensible diminution in the number of wolves.

The gray wolves which live in touch with civilization are by no means such bold and dangerous animals as they formerly were. In the early days, when wolves were numerous and firearms few and primitive, the gray wolf undoubtedly was a dangerous animal. But the breech-loading rifle has changed all that. Excepting for his stock-killing propensities, the gray wolf is now a skulking creature. In the United States this animal possesses the courage of a coyote, but in the Barren Grounds it is still fierce and dangerous. Mr. C. J. Jones, who in 1897-98 made a journey to the Barren Grounds after musk-ox calves, fought off fierce bands of these creatures for several days in succession. All of his dogs that were bitten by wolves died of hydrophobia, and Mr. Jones believes that hydrophobia is nature's means of restricting the wolf population of the Arctic regions. However much the wolf may skulk and flee when the way is open, when brought to bay he knows how to fight. One snap of his powerful jaws and shear-like teeth is enough to disable almost any dog, and send it howling to the rear. It is no wonder that western dogs of experience are shy of approaching a gray wolf within snapping distance.

Excepting the localities from which it has been driven out by civilization, the gray wolf ranges over the whole North American continent from central Mexico to 83° 24' N.

The Coyote, or Prairie Wolf, (Canis latrans), is a personal acquaintance of nearly every trans-continental traveler. To those who have camped on the "the plains," he is quite like an old friend; and the high-pitched, staccato cry—half howl and half bark—with which he announces the dawn, is associated with memories of vast stretches of open country, magnificent distances, sage brush and freedom. Because of his fondness for barking, Thomas Say, the naturalist who first described this species, christened it Canis latrans, which means barking wolf.

This animal averages about one-third smaller than the gray wolf, and while the finest male specimens are, in the autumn, really handsome animals, at other times the majority are of very
ordinary appearance. At no time, however, even in the dark, is a coyote a courageous animal. So far as man is concerned, a band of a thousand coyotes would be as easily put to flight as one; but in hanging upon the ragged edges of civilization, and living by his wits, the coyote is audacity itself. By inheritance, and also by personal experience, this animal knows to a rod how far it is safe to trust a man with a gun. If the hunter has left his gun behind him, the coyote knows it at once, and boldly flaunts himself within stone's throw of his enemy.

Usually captive coyotes are nervous and suspicious, but to this rule an interesting young specimen received by the Society from Warren, Minnesota, is a notable exception. It is as sociable and affectionate as any puppy, and very fond of attention.

The coyote varies in color quite markedly, exhibiting the gray, brown and black phases. Formerly it was supposed that one species comprehended all, but Dr. Merriam's series of specimens from all parts of the West and Southwest have led him to separate these animals into eleven species.

THE FOX DENS, No. 15A.

Of the many species of foxes found in North America, three species stand forth as the types of prominent groups, and it is very desirable that all three should be well known.

The Red Fox, (Vulpes fulvus), is the representative of the group which contains also the cross fox and black fox of the Northwest. In spite of dogs, traps, guns, spades and poison, this cunning creature persists in living in close touch with the poultry yards of civilized man. His perfect familiarity with old-fashioned dangers enables him to avoid them all, and no sooner does a new danger menace him, than he promptly invents a way to escape it. The manner in which the red fox lives with civilization without being exterminated really is surprising, and speaks volumes for the astuteness of this animal.

The geographical range of the red fox is very wide. From North Carolina and Tennessee, it extends northward through the whole northeastern United States, gradually bearing westward to Montana, and northward almost to the Arctic Ocean. It is the commonest species in Alaska, where it is found practically everywhere.

The typical red fox, and its two sub-species, the Cross Fox (Vulpes fulvus decussatus), and the Black Fox, (V. f. argenteatus)—the latter many times miscalled the "Silver Fox"—vary in all possible gradations of color from bright red to pure black. Often it is difficult to decide where one species leaves off and another begins. The cross fox stands midway
between the red and black, with some of the yellow color of the former on the sides of the neck and behind the foreleg, while the remainder of the general color is grizzled gray-brown laid across his shoulders in a more or less distinct cross. The black fox varies in color from very dark iron-gray to dark brown or black, with a slight wash of white-tipped hairs over the head, body and tail. The tip of the tail is always white, which is the only constant color mark about him.

Two fine red foxes from the Catskills, shown in the Fox Dens, show a very interesting color peculiarity which is rarely observed in this species. Each specimen has one hind leg and foot snowy white.

The Gray Fox, \( (Urocyon virginianus) \), is the fox of the South, even though it does range northward well into the territory of the red fox. This species is distinctly smaller and more lightly built than the red, its hair is not so luxuriant. it is more shy and retiring, and its colors change very little. When hotly pursued by dogs it oftens climbs trees that are quite perpendicular, to a height of twenty feet or more. In captivity gray foxes are forever trying to escape by climbing, instead of by burrowing, as would naturally be expected. In temper, they are treacherous to their keepers, and also to each other, and as "pets" are anything but desirable.

The Swift, or Kit Fox, \( (Vulpes velox) \), is the daintiest, smallest and liveliest of all American foxes. From his delicate little nose to the tip of his well-trimmed tail, he is every inch a thoroughbred. His countenance is bright and pert, and when several specimens are kept together they are very playful. One striking feature of this little animal is what may well be termed its trimness. When in fair condition, its coat of thick, silvery gray fur is as smooth and even as if recently trimmed by a barber.

On the western plains, where it once had for companions the buffalo and prong-horn, the swift is becoming rare. Its worst enemy is the deadly strychnine bottle of the ranchman.

The specimen shown in the Fox Dens on the opening of the Zoological Park is a new species, closely allied to the above, from Phoenix, Arizona, recently described by Dr. C. H. Merriam as \( Vulpes macrotis \), or the **Large-Eared Swift**.

**THE LYNX HOUSE, No. 63.**

Near the Small Mammals' House (No. 23), will be found a log cabin with its entire front opening into two wire-covered yards. The interior of the building is provided with sleeping-
dens in which the occupants of the two enclosures can keep dry and warm. This installation is for lynxes, but half of it has been occupied by a puma. Already it has fully proven the desirability of keeping lynxes and pumas constantly in the open air, and without artificial heat. To lynxes especially there is nothing more deadly than a well-heated room indoors.

The Red Lynx, Bay Lynx or Wild Cat, as it is variously called (Lynx rufus), is the smallest of American lynxes, and also the one most generally known throughout the Eastern United States. It has small feet, a reddish-gray coat, which frequently is spotted, and no hair pencil on the tip of each ear.

The Canada Lynx, (Lynx canadensis), is recognizable by the long, conspicuous pencil of black hairs rising from the tip of each ear, its thick, furry coat of a leaden gray color, with few spots or none at all, and its very large, hairy paws. It is much more rare than the other lynxes.

THE SEA-LIONS, No. 28.

Of all animals which find permanent homes in zoological gardens and parks, very few afford the public more constant entertainment than sea-lions. They are delightfully active, and in one way or another—diving, swimming, climbing or hopping about—are nearly always "showing off," No one within a quarter of a mile of their pool need inquire where they are, for their loud and cheerful "Hook! hook! hook!" is heard far and wide, and draws visitors like a magnet.

The pool near the Reptile House, originally designed as a summer home for crocodiles and alligators, (No. 28), is so admirably adapted to the wants of the California Sea Lions, the latter have been placed in permanent possession of it. The large Sea Lion Pool in Baird Court will be completed shortly, and occupied by sea lions of another species.

The Californian Sea-Lion, or "Barking Sea-Lion," (Zalophus californianus), is the species most easily caught alive, and the one usually seen in captivity. Its home is the coast of California, but it is said to enter the Sacramento River and travel upward for a considerable distance in pursuit of spawning salmon. Comparatively few sea-lions are now found on the mainland coast of California, and but for the fact that on the United States Light-House reservations their slaughter is prohibited by the Light-House Board, the people of California would now be waging a systematic war on the species, which soon would exterminate it.
The specimens exhibited in the Zoological Park were captured for the Society near Santa Barbara. Their captors provided themselves with lassos, crept along the rocky caverns which served the creatures as sleeping-dens, lassoed them, and drew them forth. During the long journey across the continent they traveled in crates, were fed on raw fish, and twice a day were drenched with water. Inasmuch as these are warm-blooded animals, provided with lungs, not gills, they live and thrive in fresh water. Owing to lack of room, this species has never yet been known to breed in captivity, although many “pups” have been born in zoological gardens of newly caught mothers.

The California sea-lion is very similar in size, and, leaving the old males out of consideration, it is almost the exact counterpart in form of that apple of perpetual international discord—the Alaskan fur seal. The unfortunate fact that the latter animal has become known as a “seal,” has caused much confusion in people’s minds regarding the classification of pinnipeds (fin-footed animals) generally. For this reason, it is proper to observe at this point that:

1. Sea-Lions have flat, triangular, naked front flippers, without claws; they have long necks, and carry their heads high. There are nine species, of which the so-called “fur seal” is one.

2. Seals always have short and stubby front flippers, which are covered with hair, and provided with nails. In most species the hair is coarse and valueless. The seal has a very short neck and by reason of the weakness of its front flippers, it is not nearly so active, nor so interesting as the sea-lion.

The Harbor Seal, (*Phoca vitulina*), is the species common along our Atlantic coast, and since it serves so well as a type of the hair seals, or true seals, it will presently be shown in the Park. In comparison with the active and vivacious sea-lion, it is a tame and rather uninteresting creature; but neither has any commercial value, save for purposes of exhibition when alive.

**THE BEAR DENS, No. 31.**

The Zoological Society which undertakes to form a fairly representative collection of the bears of North America, assumes no light task. This continent possesses more species of bears—and more that are large and dangerous—than all the rest of the world together. Already our collection of bears is one of the most interesting features of the Park, and also one of the most satisfactory. The collection contained on May 1, 1902, 10 species, represented by 34 specimens. To provide for future accessions, four more dens are to be constructed in 1902, complet-
ing the series as originally planned. It is the intention of the Zoological Society to collect and exhibit specimens which will add as much as possible to available material for a complete revision of our Ursidae.

Not only are North American bears numerous in species, but some of them are of large size, and uncomfortably savage in disposition. In captivity they require many things. Their open dens must be large, properly open to sunlight, and also properly shaded; the cage-work must be strong, high, and invulnerable against attack; the sleeping dens must be roomy, thoroughly dry, and the operation of their very numerous iron doors must be free but safe. The water supply and drainage of each den must be perfect, and every square foot of each den must be subject to the wash of hose, and the rasp of the scrubbing brush.

The construction of first-class dens for big bears, and a great many of them, is serious business, and very expensive.

The Grizzly Bear, or "Silver-tip Grizzly" (Ursus horribilis).—The rapid disappearance of this species from the United States renders all living examples of it specially interesting. Already the Californian grizzly (described by Dr. Merriam as Ursus horribilis horribilis, is almost a creature of history, and the Rocky Mountain species is fast being thinned out by the ever-increasing hunters.

Of all bears, the silver-tip grizzly is the most savage and dangerous. He is easily angered, and when wounded or harried not only becomes furiously vindictive, but he also possesses a degree of courage which renders him a dangerous antagonist. As a general thing, a grizzly bear, like a lion or tiger, will run as soon as he discovers the presence of his only enemy—man; but if he is wounded or cornered—or thinks he is cornered—he assumes the aggressive, without an instant's delay. Unfortunately, the largest silver-tip grizzlies ever killed have been too far from scales to make it possible to weigh them. President Roosevelt estimated the weight of his largest specimen, killed in the Big Horn Mountains, Wyoming, at 1,200 pounds, and declares that "he was a good deal heavier than any of our horses," and "fat as a prize hog." Judging from the size of some of the skins that have come from Wyoming grizzlies, there is no reason to doubt the accuracy of the estimate, although it is probable that the great majority of Rocky Mountain grizzlies killed during recent years have been under six hundred pounds in weight.

The most interesting specimen of the Rock Mountain silver-tip now on exhibition (June 1, 1902) is a dark-colored and very handsome specimen, named "Engineer," now 37 months old, obtained in Meeker, Colorado, by Professor Henry F.
KODIAK BEAR.

Eighteen months old.
LIST OF THE BEARS OF NORTH AMERICA.

Corrected to May 1, 1902.

*Ursus maritimus*, (Desm.), Polar Bear.
Arctic regions generally.

*Ursus middendorffi*, (Merr.), Kodiak Bear.
Kodiak Is., Alaska. (Largest of all.)

*Ursus dalli*, (Merr.), Yakutat Bear.
Yakutat Bay, Alaska.

*Ursus dalli gyas*, (Merr.), sub. sp. nov.
Pavlof Bay, Alaska Peninsula.

*Ursus merriami*, (Allen), sp. nov.
Portage Bay, Alaska Peninsula.

*Ursus kidderi*, (Merr.), sp. nov.
Chinitna Bay, Alaska Peninsula.

*Ursus sitkensis*, (Merr.), Sitka Bear.
Alaska coast, near Sitka.

*Ursus horribilis*, (Ord.), Grizzly Bear: Silver-Tip.
Wyoming and Utah to Alaska.

*Ursus horribilis horriacus*, (Baird), Sonora Grizzly.
Southwestern New Mexico.

*Ursus horribilis alascensis*, (Merr.).
Norton Sound, Alaska.

*Ursus richardsoni*, (Reid), Barren-Ground Grizzly.
Great Slave Lake region, and Barren-Grounds.

*Ursus americanus*, (Pallas), Black Bear.
Eastern North America.

*Ursus luteolus*, (Griffith), Louisiana Bear.
Louisiana and Texas.

*Ursus floridanus*, (Merr.), Everglade Bear.
Florida.

*Ursus emmonsi*, (Dall), Glacier Bear.
St. Elias Alps, Yakutat Bay.
Osborn, and presented to the Society by the Engineers’ Club of New York City. At present the color of this individual is darker than the most common type of the silver-tip, which is sometimes almost as gray as a badger.

The Kodiak Bear, \((Ursus middendorffi, Merriam)\), said to be the largest of all living bears, is found on Kodiak Island, Alaska, and the mainland adjacent thereto. The Society has very fortunately come into possession, as a gift from two of its members, William White Niles and J. Barron Niles, of two brown cubs which were captured in May, 1899, at Hudson Lake, Copper River District, Alaska. At the time of their capture they weighed eight pounds each. On November 1st they weighed about ninety pounds each, and had begun to show a lighter color than a silver-tip of the same age from Colorado. In view of the lack of precise information regarding the brown bears of the far north, the development of these two fine specimens will be watched with keen interest.

Beyond question, they are of a different type from the well-known silver-tip grizzly of our Rocky Mountains. The coat is very long, rather coarse, and although not inclined to curl, gives the animal a shaggy appearance. The coat of the silver-tip is as even and immaculate as if it had been combed and trimmed by a barber. The Alaskan bear has the high shoulders but not the claws of the typical grizzly, and its head is much broader for its length. The muzzle is short, very thick, and cut off squarely at the nose, which gives the whole head a curious appearance of squareness.

The color of the Alaskan bear differs as widely from the silver-tip as both do from the ordinary black bear. The coat of the former (in October, when new and fully mature.) is on the head, shoulders, back, and sides, of a general color half way between yellow ochre and Naples yellow. The legs and hinder parts are darker in color, corresponding most nearly to burnt umber. The hair of the crown, jaws, and throat is so long that the face seems to be surrounded by a ruff. On top of the shoulders the hair is between five and six inches long, and on the abdomen it measures between eight and nine inches.

In view of the great scarcity of Alaskan bears in scientific collections, and the urgent need for more light on their classification, these two specimens are of uncommon interest and value. It is believed that they represent the giant brown bear species of Kadiak \((Ursus middendorffi)\), but it is impossible to determine to a certainty before they reach maturity.

The Californian Grizzly, \((Ursus horribilis horri-\text{amus})\), is much larger than the Rocky Mountain species, and its
fur is brown-gray rather than silvery gray. There is good reason to believe that this species sometimes attains a weight of 2,000 pounds.

In a wild state grizzly bears live on berries and fruits of all kinds available, succulent roots, grubs, carrion if it comes handy, and live game if it can be killed. In the cattle-growing states bordering the Rocky Mountains, owing to their cattle-killing propensities, a bounty of from twelve to fifteen dollars per head is paid for their destruction.

The Black Bear, (*Ursus americanus*).—Until quite recently all black bears in North America were referred to a single species, with the type of which most persons are familiar. Even during the last twenty years living representatives of the black bear group have been found in nearly every state and territory of the United States, and also in northern Mexico, Province of Quebec, Alberta, Assiniboia, British Columbia, Alaska, and the Mackenzie River basin. On the opening of the Zoological Park the dens contained three specimens, one a large adult male specimen from Florida, a female from the Adirondacks, in her second year, and another immature specimen from western Colorado.

With the above is shown a fourth specimen referable to the black bear group (*Ursus americanus*), brown in color, and of a type known universally throughout the West as the cinnamon bear. The scientific status of this creature is by no means satisfactory. Because of the fact that its skull and dentition reveal no constant difference in structure from those of the typical black bear, and in spite of the fact that a cinnamon bear can instantly be distinguished by its color, even at a distance of a quarter of a mile, Dr. Merriam and all other American mammalogists refuse to consider the cinnamon bear as a distinct variety, or, in fact, as anything else than a pure black bear! Possibly this view is correct, for it is well known that both brown and black cubs have been found in the same litter. One fact remains, however, which is significant. While in the northern gray squirrel (*Sciurus carolinensis*), and also in the fox-squirrel (*S. niger*), all possible gradations of color are found, from the typical gray and red to jet black, the color-line between the cinnamon bear and the typical black bear always is sharply drawn, and every specimen is referable at a glance to one type or the other. The cinnamon bear deserves further investigation.

The Polar Bear, (*Ursus maritimus*).—In nearly every collection of living bears the individuals of this species are the most showy and attractive. Their white coats quickly catch the eye of the visitor, and whether young or old, they are gener-
ally the most active and playful of all captive bears. In cold weather, when other bears lie in the sun, or, if permitted, curl up in the straw of their sleeping dens, the polar bear will disport himself in the freezing cold water of his swimming pool, and joyously play with a cake of ice until the sight of it makes one shiver.

Although the polar bear inhabits practically the whole of the Arctic Ocean and its numerous islands, it is by no means the most northerly warm-blooded mammal. Nansen found fox tracks at 85° N., but the most northerly bear observed was on the 84th parallel. The favorite home of this animal is the edge of the great polar ice cap, where Neptune and the Frost King wage continuous warfare. He seldom ventures more than a day's journey inland, on any shore. In winter, as the edge of the ice-pack moves southward, and in summer, when it retreats northward, he follows it in order to keep in touch with the ringed seals and walrus that also go with it.

The power of the polar bear to resist ice-cold water—nay, even to enjoy it—may fairly be regarded as one of the wonders of nature. On the coast of Alaska this strange creature will plunge into the Arctic Ocean and swim miles from shore, through tossing fields of broken ice, and wherever the mother leads, her cubs follow.

The world's supply of captive polar bears comes almost wholly from whalers and sealers, who improve every opportunity to capture cubs. A great number thus find their way into the hands of Mr. Carl Hagenback, of Hamburg, who supplied the
two large specimens now occupying the most northerly bear den of our first series. The grizzly bear of the United States will soon cease to exist, but not so with the polar bear. Thanks to the Frost King, he needs from man no protection against man's propensity to exterminate all wild creatures. There will be hundreds of bears around the northern end of Franz Josef Land as long as the seals and walrus remain for them to feed upon.

The Polar Bears' Den is situated at the north end of Rocking Stone Hill, about two hundred feet from the north end of the first series of Bear Dens. It is reached by descending the steps leading toward the Beaver Pond, and turning to the right. From the Rocking Stone Restaurant, the Polar Bears are quickly reached by descending the hill toward the north.

The Brown Bear of Europe (Ursus arctos), is represented by two very distinct types.

Two specimens from Central Russia bear a general resemblance to Rocky Mountain grizzlies so striking that were they not labeled very few persons would suspect their European birth. They have the high shoulders and grizzly brown coat of the silver-tip, and in the Rocky Mountains would be considered typical examples of Ursus horribilis.

Two very light colored cubs, from Trebizond, Asia Minor, approach the external character of the Syrian bear. They are very docile and affectionate, and seem entirely lacking in the irritable temper and revengeful spirit so often found in bears. They represent the highest type of the amiable and obedient spirit characteristic of the European brown bear, and which unhappily has so often led into durance vile, with gypsy bear-trainers, animals worthy of a better fate.

The Hairy-Eared Bear, (Ursus piscator), a species very rarely seen in captivity, is represented by two fine specimens from the Altai Mountains, Central Asia. This animal is sometimes called, on account of its peculiar light-brown color, the Isabella bear. Its more correct name has been bestowed on account of its large and very hairy ears. It inhabits northeastern Asia, as far southwestward as the Altai Mountains. The fine pair exhibited was presented to the Society by Mr. Carl Hagenback.

The Himalayan Black Bear, (Ursus torquatus), is the handsomest of the four Asiatic species of black bears, and can easily be identified anywhere by three distinct characters, neither of which is possessed by any other black bear. They are, a pure white chin, long side-whiskers on the jaws and sides of the neck, and very large ears. Up to this date the geographical
PART OF THE BEAR DENS.
range of this very interesting animal has been recorded as extending from eastern Persia through Beluchistan, Afghanistan, Assam, and South China to Formosa; but the three specimens exhibited were taken in northern Japan, where the existence of this species seems to be established beyond question.

The Japanese Black Bear, \((Ursus japonicus)\), from northern Japan, is one of the smallest of living bears, being only slightly larger than the Malay sun bear. In general appearance it suggests a small edition of the American black bear. The first specimen exhibited at the Zoological Park was very good-natured, but all those received since are nervous and irritable, and also very timid.

The Sloth Bear, \((Ursus labiatus)\), often called the Long-lipped Bear, can be recognized as far as it can be seen by its shaggy mop of enormously long, black hair, its white muzzle, and its very long, white claws. It is a creature of many peculiarities. It inhabits India generally in forest regions.

**LIST OF BEARS IN THE ZOOLOGICAL PARK.**

*June 1, 1904*

<table>
<thead>
<tr>
<th>Bears</th>
<th>Species</th>
<th>Locations</th>
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<tbody>
<tr>
<td>2 Polar Bears</td>
<td>Ursus maritimus</td>
<td>Nova Zembla</td>
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<tr>
<td>2 Kodiak Bears</td>
<td>Ursus middendorffi</td>
<td>Alaska</td>
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<tr>
<td>1 Peninsula Bear</td>
<td>Ursus merriami</td>
<td>Alaska Peninsula</td>
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<td>1 Grizzly Bear</td>
<td>Ursus horribilis</td>
<td>Colorado</td>
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<td>1</td>
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<td>Southern Alaska</td>
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<td>1</td>
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<td>Wyoming</td>
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<td>1</td>
<td></td>
<td>Chihuahua, Mexico</td>
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<tr>
<td>1 Black Bear</td>
<td>Ursus americanus</td>
<td>New York</td>
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<td>1</td>
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<td>Pennsylvania</td>
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<td>Colorado</td>
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<td>Wyoming</td>
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<td>1 Cinnamon Bear</td>
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<td>Asiatic Turkey</td>
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<tr>
<td>2 Syrian Bears</td>
<td>Ursus syriacus</td>
<td>Central Russia</td>
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<tr>
<td>2 Brown</td>
<td>Ursus arctos</td>
<td>N. W. Mongolia</td>
</tr>
<tr>
<td>4 Hairy-Eared Bears</td>
<td>Ursus piscator</td>
<td>Japan</td>
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<tr>
<td>1 Himalayan Black Bear</td>
<td>Ursus torquatus</td>
<td>Japan</td>
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<tr>
<td>2 Japanese Bears</td>
<td>Ursus japonicus</td>
<td>India</td>
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<tr>
<td>3 Sloth Bears</td>
<td>Ursus labiatus</td>
<td>Yezo, Japan</td>
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<tr>
<td>2 Yezo</td>
<td>Ursus ferox</td>
<td>Yezo, Japan</td>
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35 specimens, representing 12 species.
The Malayan Sun Bear, (Ursus malayanus), is the smallest bear in the world, also the ugliest and the most ill-tempered. When fully enraged, it sometimes barks like a dog. Its hair is very short and close, and its head and feet seem to be too large for its body. This species inhabits Borneo, Sumatra, the Malay Peninsula and Farther India.

The Raccoons' Tree.—A permanent installation for Raccoons has been established near the southern end of the Bear Dens, where its inmates will be near their plantigrade relatives. At the foot of the steps leading down from the Rocking Stone, a thrifty cedar-tree, forty feet in height, has been enclosed by an elliptical iron fence provided with a sheet-metal overhang which is not negotiable by any Procyon. Inside the fence is a dry yard, a pool of water for all purposes, and the trunk of the tree is surrounded by a rustic shelter house, divided into ten warm and dry compartments. Underneath the house is a clean and smooth wooden floor, on which the food is served.

The smooth, horizontal limbs of a cedar-tree are grateful and comforting to a dozing raccoon, and the tree is not so high that the animals can climb beyond the visual power of the visitor. By a wise provision of Nature, three-fourths of the green branches of this particular tree are on the western side, where they form a welcome wind-break in winter and sun-shade in summer.

LONG-LIPPED SLOTH BEAR.
THE SMALLER QUADRUPEDS.

THE SMALL MAMMALS’ HOUSE, No. 23.

Most difficult of all collections to settle satisfactorily in a zoological park or garden, is the great omnium gatherum of small species which fall within the meaning of the term “Small Mammals.” When fairly completed, every large garden provides separate rooms or small buildings for the various orders of small quadrupeds, but until this point is reached it is necessary to assemble many of them in one building.

The habitants of the temporary Small Mammals’ House are subject to so many changes it is impossible to offer descriptive notes which will have much permanent value. At the approach of winter, this building is filled to overflowing with small quadrupeds that require tropical warmth, regardless of classification. In spring, its cages are emptied into the open-air enclosures. It is a handy nursery for tender young animals that require special care, and at all times it is a first-rate hospital for non-infectious cases of a mild type.

There are a few species which are so nearly permanent in this building as to merit notice.

The Coati-Mundi, (pronounced Coy’ty-mon’day) (Nasua rufa), is for its size one of the best exhibition animals that can be found outside of the Primates’ House. It is closely related to our raccoon, but is far more showy and interesting. It has a very lively and industrious disposition, is a good climber, and from dawn until dark is almost constantly on the move. Although it is a carnivorous animal, and provided with powerful canine teeth, it is not naturally quarrelsome, but on the contrary is quite gregarious in its habits. The genus Nasua inhabits Mexico, Central and South America.

The Raccoon Dog, (Nyctereutes procyonoides), of Japan, is to all outward appearances a raccoon, but instead of having plantigrade feet, like the raccoon, its feet are digitigrade, or toe-walking. It is a true dog, but presents an extraordinary external resemblance to the raccoon.

The Civet “Cat,” (Viverra malaccensis), is not a true cat, but represents the large group of cat-like animals known
zoologically as the *Viverridæ*. This family is widely distributed throughout southeastern Asia, and contains a great variety of forms, a large proportion of which are very odd and interesting. The species named above is quite common in the Malay countries. Another representative of this family is found in the *Binturong*, or “*Bear-Cat*,” (*Arctictis binturong*), of the Malay Peninsula, a long-tailed, shaggy-coated animal, either black or blackish-gray, which, in spite of its most common name in the East Indies, is very far from being either a bear or a cat.

The *Ocelot*, (*Felis pardalis*), will always be found within or near the Small Mammals’ House. Of the spotted felines of America, this creature stands next to the jaguar, both in beauty and in size. It is a showy, handsome creature, but no two specimens are marked exactly alike. It is found from southern Texas to Buenos Ayres, South America, and is sufficiently acclimatized in the Zoological Park that it has bred here, and lived out doors all winter quite successfully.

The *American Badger*, (*Taxidea americana*), and the *Mexican Badger*, (*T. berlandieri*), from Arizona, will be found near No. 23. The latter species is distinguished from the more common form by the broad white stripe along the top of the neck and back. These specimens are exhibited on a wooden floor for the reason that if permitted to burrow freely, they would be in their burrows when they should be on exhibition.

**THE OTTER POOLS, No. 21.**

The *American Otter*, (*Lutra canadensis*), is unfortunate in being the bearer of valuable fur, and in the northern regions, where the cold causes the development of fur that is available for the use of the furrier, this creature is so nearly extinct that trappers no longer pursue it. In the Southern States, where its fur is short, rather coarse and “off color,” the otter still is found. In some portions of eastern Florida, and along the coast of South Carolina, it is frequently taken. In captivity it often becomes quite tame, even affectionate, and always is interesting. Unless closely confined, however, it is prone to wander, and meet premature death.

In captivity the otter usually is active and restless, and very much in evidence. Owing to the strength of its jaws, its ability to climb under certain conditions, and its restless activity it is difficult to confine a full-grown otter in anything else than a complete box of iron cage-work. But the Zoological Society has a strong desire to avoid box-cage construction for quad-
rupeds whenever it is possible to do so, and for this reason the experiment of confining our otters with an iron fence and an overhang will now be tried.

Few persons save woodsmen and naturalists are aware of the fact that in a wild state the otter is a very playful animal, and is as fond of sliding down hill, over a wet and muddy slide, with a water plunge at the bottom, as any young person is of "shooting the chutes." Like the small boy with the sled and a snowy hillside, the otter sometimes indulges in its sliding pastime for an hour at a time, with a keen relish for the sport that is quite evident to all who have ever watched it.

The otter is a carnivorous animal, and in a wild state lives upon fish, frogs, crabs, young birds, small mammals, and, in fact, about any living thing which it can catch.

The Coypu Rat, *(Myopotamus coypu)*, of Central and South America, is interesting because of the fact that it is the largest of all rats or rat-like animals. In its habits it is as fond of water as the musk-rat. It is believed to be sufficiently clothed with fur to endure outdoor life in the Park, even in winter, and an effort will be made to acclimatize it here in one of the otter pools.

**THE PRAIRIE-DOGS’ VILLAGE, No. 56.**

The Western "Prairie-Dog," or Prairie Marmot, *(Cynomys ludovicianus)*. Occupying a conspicuous hill-top near the Prong-Horned Antelopes’ Range, and overlooking the Aquatic Mammals’ Pond, is a circular enclosure, eighty feet in diameter, surrounded by an iron fence with an overhang, with walls going down to bed rock. This contains about fifty fat and jolly little prairie marmots, one-half of which are the gift of a Montana ranchman, Mr. Howard Eaton. The soil of the enclosure has never been disturbed, and there is no danger that the little creatures ever will be smothered in their burrows, as frequently happens in earth that has once been dug up and filled in again.

Owing to its optimistic and even joyous disposition, the prairie-dog has many friends, and "happy as a prairie-dog" would be a far better comparison than "happy as a king." His cousin, the woodchuck, has the air of being perpetually "in the dumps," but the prairie-dog—never. His so-called bark is really a laugh, and his absurd little tail was given to him solely as a means of visible expression of good nature. But he has his enemies and detractors. The coyote loves his plump and tooth-
some body; the "granger" hates him for the multitude of his holes, and puts spoonfuls of poisoned wheat into his burrow.

THE BURROWING RODENTS, No. 22.

North America is wonderfully rich in species of gnawing animals, and the end is not yet. The investigations of our mammalogists are adding new species with a degree of rapidity and parallelism that is fairly bewildering.

On January 1, 1900, a careful list of our species (by Mr. D. G. Elliot) revealed ten families represented by 371 species and 256 sub-species, making a total of 627—if all claims are allowed.

It is the duty of the Zoological Society to do its utmost to increase as much as possible the sum total of knowledge of our largest order of mammals. Manifestly, however, it is impracticable to do more than place before visitors a reasonable number of well-chosen types, which shall represent as many as possible of the twelve families, and also the genera most worth knowing.

The most serious obstacle in the way of anyone who attempts to exhibit collections of living rodents lies in the natural propensity of so many species to keep out of sight during the daytime. This is particularly true of the members of the mouse, pocket gopher, and pouched rat families, comprising about three hundred species in all. With very few exceptions, the whole matter of the exhibition of collections of living rodents is something new, and every step is an experiment. In the belief that even the most shy burrowing animals will appreciate abundant room, perfectly natural surroundings, plenty of food, and immunity from annoyance, and eventually fall into the habit of spending many of the daylight hours above ground, as do prairie dogs, the Society has constructed a series of fifteen small yards, each 10 x 20 feet, bounded by walls going down to bed rock, and enclosed above by a box-like arrangement of very light wire-netting 5 feet high. The ground is chiefly undisturbed soil of a firm and gravelly nature, thoroughly drained, and all earth filling has been tightly rammed into place to prevent caving in the burrows. Above ground, each yard contains weathered rocks, stumps, and hollow logs in abundance.

In these fifteen yards, and the extensions presently to be made, each of which will hold specimens of at least two or three species, will be placed strongly marked types of those families whose representatives are most numerous in North America,
and also the least known, only a few of which may be mentioned here.

The Sewellel Family, \((Aplodontidae)\), contains five or six species and is of unusual scientific interest. The Sewellel, Mountain Beaver, Farmer or “Showt’l” \((Aplodontia rufus and major)\), is an animal of the size and general appearance of a large, short-tailed muskrat. It inhabits a few localities in remote regions in the mountain-valleys of northern California, Oregon, Washington, and southern British Columbia. It feeds like a beaver, climbs bushes four feet high, burrows in wet ground, and fights like a little fiend when brought to bay. Notwithstanding the size of this animal, it is very seldom seen, and is but little known.

The Squirrel Family, \((Sciuridae)\), is large (one hundred and forty-one species), very interesting, and entitled to much consideration. In the present enclosure will be shown many species of interesting ground squirrels, chipmunks, and marmots. The tree squirrels will shortly be provided with isolated living trees, in close proximity to the Burrowing Rodents’ quarters.

The Rabbit Family, \((Leporidae)\), is one of the most difficult to install and exhibit. Its members are large and showy, but for several reasons it is very difficult to keep them on exhibition in captivity. In time, however, all four of the great groups—rabbit, varying hare, jack hare, and also the pikas, forming the allied family \(Ochotonidae\)—will be represented by specimens.

Just what can be accomplished satisfactorily with the most interesting members of The Jumping Mouse, Pouched Rat, and Pocket Gopher families, remains to be determined by trial. If they can be induced to show themselves to visitors, during daylight hours, they will be kept for exhibition; otherwise not.

THE BEAVER POND, No. 33.

Hidden away in a deep valley between high hills of virgin forest lies the Beaver Pond. The spot is so secluded, so silent and primeval, that it seems like the heart of the Adirondack wilderness. Lying fairly in the lap of the granite hills is a three-acre oval of level swamp, which one year ago was full of woodland rubbish and choked by rank weeds. Fortunately for our purpose, the big forest trees stop at the edge of the swamp, but a dozen young maples stand on grassy tussocks, quite out of the water. The seclusion of the spot, the splendid
forest, the food wood and the possibilities of the dam, all naturally suggested the beaver. The natural elements for a beaver's paradise were all there, and the way to the finished installation was clear.

In order that the building of a dam by the beavers would not raise the water level so high as to flood the roots of a number of fine forest trees and destroy them, two feet of soil was taken out of the swamp, and at the same time a broad outlet was excavated. A fence of small iron bars, with an overhang, was designed to encircle an area of about three acres. Within the enclosure thus made stand thirty large forest trees—chiefly oak, sweet gum, and maple—which have been protected by guards of wire and corrugated iron. The small maples, however, have been given over to the beavers, to cut down and use as food wood and also in their dam-building operations.

The Beaver Colony in our pond is in first class working order, and its display of work makes a highly satisfactory exhibit. The dam, about 40 feet long and four feet high, was built of poles and sticks which were cut, peeled, floated down and placed by the beavers, and pointed up with mud. There is a house ten feet in diameter and four feet high (at this date), similarly constructed. Within the enclosure about twenty saplings and trees have been cut down by the beavers and used up for food and building materials.

For this colony the Society is indebted to Mr. Hugh J. Chisholm, who procured for it two specimens from Canada and three from Maine.

The American Beaver, (Castor canadensis), is a remarkable animal. In original thought it is equalled by few animals, and in industry by none. With the possible exception of the porcupine, it is the largest gnawing animal in North America, once was widely distributed, and its beautiful fur has been in demand ever since the days of the colonists. Unfortunately, the beaver's intelligence was directed chiefly to the building of dams, canals, and houses, and procuring an abundant supply of food wood, rather than in providing itself with means of escape from its arch enemy—the man with a steel trap. Because of the constant demand for its fur, this animal has been so nearly exterminated throughout the United States, that practically none remain save where they are rigidly protected. At present the largest colonies known are those in the Yellowstone Park, although in Canada and the Northwest many still remain.

The most wonderful thing about the beaver is the manner in which he builds dams, to make ponds deep enough for his timber-floating operations, and to afford him a submarine passage to
his house. Give him a valley and a stream of water, and he will gladly make a pond out of whatever raw materials are at hand. He uses the four-foot sticks from which he has eaten the bark for food, and with these, and an abundance of mud, he will raise a good strong dam to a height of four feet, and a width on the ground of ten feet or more. The mud used is dug out of the bottom and sides of the pond, and carried, while swimming, between his paws, with his front feet holding it against his breast. The sticks used in the dam are thrust endwise into the mud on top of the dam, and the mud used is patted down with his fore feet. The tail is not used as a trowel, but in swimming it is the beaver’s propeller.

In captivity the beaver is not wholly a satisfactory animal. Like some human craftsmen, he positively declines to work under observation, and performs nearly all his tasks at night. He thinks nothing of gnawing down a tree a foot in diameter, and cutting its limbs into pieces which he can handle while swimming. If he can secure enough food wood of kinds to his liking, he eats little else. Besides building dams to create ponds in which he can take refuge when hard pressed, he constructs canals and houses for winter use. He also digs burrows into high banks; but his entrances to his various homes always are under water.
THE REPTILES.

THE REPTILE HOUSE, No. 27.

The scientific museums of the United States are rich in exhibition collections of every description save Reptiles and Amphibians. Of living reptiles, but one collection worthy of the name has been seen on this side of the Atlantic, namely, that contained in the Reptile House of the Philadelphia Zoological Gardens. The American public has had no opportunity elsewhere to study living reptiles. It is not strange, therefore, that to many otherwise well-educated persons, the great world of reptiles is practically unknown.

In view of this fact, and of the remarkable interest attaching to this Class, the Zoological Society decided that the first large building erected in the Zoological Park should be the Reptile House. The lions, tigers, elephants, and monkeys will follow the installation of satisfactory collections of saurians, lizards, turtles, serpents, and amphibians. Our Reptile House represents an earnest effort to present carefully selected examples of all these orders, in a manner which may, if possible, afford the visitor and the student a general view of the important groups of living reptiles.

The length of the Reptile House, over all, is one hundred and forty-six feet, and its greatest width is one hundred feet. It is constructed of buff mottled brick, combined with granite and Indiana limestone. In the ornamental cornice of terra cotta, reptilian forms, modelled by Mr. A. Phimster Proctor, the well-known animal sculptor, constitute an important element. The building is roofed with slate, heated by hot water, and cost, with its cages, about $50,000. It is beautifully situated on the edge of a forest of primeval oaks, very near the geographical center of the Park.

The great central hall is unbroken by a single column, and at one end it opens across the crocodile pool and its sand-banks, through three huge arches, into the green, jungly mass of the conservatory. Of the tropical vegetation massed behind the pool—palmettoes, bayonet cacti, yucas, and the like, and the tillandsias, Spanish moss, resurrection ferns, and butterfly
orchids, which grow on the live oak which leans out over the pool—nearly the whole came from Florida, along with five alligators, the first occupants of the pool. The plant life of the Reptile House is in charge of Mr. Hermann W. Merkel, Chief Forester of the Park.

In effect, the central hall appears to be one hundred and fifteen feet in length, by forty feet wide, exclusive of the cages. But, large as this building is, it would be an easy matter to fill all its available space with the reptiles of North America alone, choosing only the handsome and showy forms. As we contemplate the great number of species in our own reptilian fauna, the thought occurs, What can we do with the reptiles of the Old World? Manifestly, the only proper course is to choose from the reptiles of the world the forms which will make for visitors and students the most instructive and attractive series of important types.

**THE CROCODILES AND ALLIGATORS.**

**The Order of Crocodilians.**—This important order, the members of which are widely distributed throughout the tropics and sub-tropics of the world, contains nineteen species, which very readily fall into three great groups, or families—alligators, crocodiles, and gavials. At this point it is well to correct certain very general misapprehensions regarding crocodilians.

Crocodiles are *not* confined to the Old World; at least three species being found abundantly in tropical America.

The “movement” of a crocodile’s jaw differs in no manner whatever from that of an alligator.

Only a few species of crocodiles are dangerous to man.

There is no authentic record of the loss of a human life through our common alligator.

**The Alligator Family** embraces the well-known alligator (*A. mississippiensis*) of the southern United States, two species of caiman (*C. trigonatus* and *palpebrosus*) of Central and South America, and three jacares of South America. The head of the alligator is very flat and its sides are nearly parallel, while the head of the jacare is quite as triangular in shape as is that of the mugger of India. This family contains six species, all of which are found in the new world only.

**The Alligator** species is well represented in the Pool in the Reptile House, by four lusty specimens, all of which eat voraciously, are growing rapidly, and undoubtedly enjoying life. The largest specimen, a burly monster called “Old Mose,” now
13 feet in length, has gained 12 inches since his arrival from Indian River, Florida, in 1899. The food of these saurians consists of fish, large fowls, and small dead animals of any size up to thirty pounds.

The Crocodile Family is widely represented throughout the world. Of the whole eleven species, the American continent contains four—the Florida crocodile (*Crocodilus acutus floridanus*), attaining a length of fourteen feet, which was discovered at the head of Biscayne Bay, in 1875, by W. T. Hornaday; the American crocodile (*C. acutus*); the sharp-nosed Orinoco crocodile (*Crocodilus intermedius*), found in South America; and the small *Crocodilus rhombifer* which is found only in Cuba and the West Indies.

Of the seven remaining species, Asia contains four, and Africa three. Of the Asiatic species, one frequents salt water.

The Florida Crocodile is now represented by a specimen nearly 9 feet long, from Madina Creek, southern Florida, presented by Mr. Julian A. Dimock. It is to be recognized at a glance by its dark olive color and sharp-pointed head. This is the only species of crocodile found in the United States. Its maximum length is 14 feet 2 inches.

The Cuban Crocodile is represented by two specimens presented by Capt. A. G. Hammond, Eighth U. S. Cavalry. This is a small species, and is believed not to exceed 8 feet in length. It bears some resemblance to the Florida crocodile, but is specifically distinct.

The Gavial Family contains but two species, the well-known gavial of the River Ganges, with a beak like the handle of a frying-pan, and the tomistoma, of Borneo, which more nearly approaches the true crocodiles.

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THE LIZARDS.

The Order of Lizards, (*Lacertilia*), requires at least six species to represent its best known types, all of which will at all times be on exhibition in the Reptile House. The Common Iguana, (*Iguana iguana*), is a large and showy tree-climbing species from the West Indies, where it eats soft fruits, and in turn is eaten by the natives. The beautiful, emerald-colored Green Lizard, (*Lacerta viridis*), of Europe, is not only a beautiful species, but it is also one of the most satisfactory to keep in a vivarium—a good feeder and always posing. The Chameleon of the Old World (*Chamaeleo vulgaris*), because of its color phases and its remark-
able form, is truly a great "curiosity"; but it should not be confused with our so-called American chameleon, which belongs to another genus, and is also less interesting. Our well-known **Gila Monster**, (pronounced *He-la*) (*Heloderma horrida*) is a stupid, slow-moving creature from the Southwestern deserts, thick-set and stumpy in body, and it has the appearance of being covered all over with dark-brown, black, and yellow beads, such as Indians use in their bead industry. Its bite is sufficiently

**SYNOPSIS OF THE CLASS REPTILIA.**

At this date, (June 1, 1902), all these examples are on exhibition in the Reptile House.

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**LIVING REPTILES.**

| Serpents, or Ophidia | Regal Python... Malay Peninsula. |
|                     | Anaconda ....... British Guiana. |
|                     | Black Snake (*B. constrictor*) ....... Zoological Park. |
|                     | Garter Snake.... Zoological Park. |
|                     | Hog-Nosed Snake Zoological Park. |
|                     | Diamond-Backed Rattlesnake Florida. |
|                     | Water Moccasin Florida. |
|                     | Coral Snake..... Florida. |
|                     | Cobra de-Capello India. |

| Turtles, or Chelonia | Alligator Turtle. Louisana. |
|                     | Snapping Turtle. Zoological Park. |
|                     | Box Tortoise.... Zoological Park. |
|                     | Giant Tortoise.. Galapagos Is. |
|                     | Gopher Tortoise. Florida. |
|                     | Painted Turtle... New York. |
|                     | Soft-shelled Turtle Indiana. |
|                     | Green Turtle..... New York. |
venomous that it inflicts a painful wound, but it is not necessarily fatal. The very popular Horned "Toad" (*Phrynosoma*), of the southwestern states, of which there are eight or nine species, should be mentioned if for no other reason than to place it where it belongs—with the lizards, and not with the toads. The famous Glass Snake, (*Ophiosaurus ventralis*) is important because its resemblance to a snake is so perfect it is generally mistaken for one, although a true lizard.

**THE TURTLES.**

The Order of Turtles, (*Chelone*), is so large that it has been found necessary to devote to its representatives the whole central space of the main hall of the Reptile House, and also a specially designed tortoise house of glass in the eastern end of the building. Until the Lion House is erected, this room will be occupied by a few of the large carnivorous animals. In the main hall are two features—one, a large square tank for marine turtles; the other, a pool of running water between banks of earth, sand, and living plants. This tank is thirty-five feet in length, and by means of low, plate-glass partitions it is divided into ten cross sections, each of which can very comfortably provide for the wants of at least three species of turtles of medium size. With a wonderfully rich chelonian fauna on the western continent to provide for, there will be little room to spare for Old World forms, and the temptation to make this collection strictly occidental, is almost too great to be resisted. For the sake of brevity and clearness, only six types have been chosen for special mention.

The following species taken together fairly represent the different forms of chelonians, from the highest to the lowest.

The Alligator Turtle, (*Macrochelys lacertina*), is the largest fresh-water chelonian in North America. In form and temper it resembles the common snapping turtle of the North, and its home is in the Gulf States. The largest of the two Louisiana specimens on exhibition weighs 115 pounds.

The Snapping Turtle, (*Chelydra serpentina*), which is the most courageous and pugnacious of all turtles, is rather poorly protected by its shell, and must therefore fight for its place in nature.

The Box Tortoise, (*Cistudo carolina*), lives on land, and as a means of perfect protection has been enabled by nature completely to withdraw its head and legs within its shell,
by means of a hinge across the middle of the plastron, or lower shell, to close it tightly.

The Gopher Tortoises, (*Testudo carolina*), are large, thick-shelled, clumsy creatures, which burrow in holes in the sandy southern regions where they live.

The Painted Turtle, (*Chrysemys picta*), is a species of wide and common distribution, and fairly representative of the host of fresh water terrapins and turtles so common throughout the United States in ponds and streams of all sorts.

The Soft-shelled Turtle, (*Aspidonectes ferox*).—As to living relatives, this strange genus seems apropos of nothing. Like some of the marine turtles its shell is greatly reduced in weight, so that it can float more readily; instead of being solid bone, it terminates in a wide, thin edge of cartilage, which is so soft that when properly boiled it constitutes palatable food.

The Giant Tortoises.—Before the close of the year 1902, the Tortoise Room, at the eastern end of the Reptile House, will be fitted up for this very interesting collection, and it will at last be located in its proper place. Of the giant tortoise of the Galapagos Islands, the Society is in possession of four or five specimens, representing three species—*Testudo vicini* (largest), *T. ephippium* and *T. nigrita*. The weight of these is, respectively 310 lbs., 118 lbs. and 66 lbs. The largest (and oldest) specimen in the collection is for good reasons believed to be at least 400 years old! The length of its shell on the curve is 4 feet 3 inches, width 4 feet 7½ inches, height 20 inches. The food of these creatures consists of coarse vegetables, melons, fruit and green grass. In warm weather they are often permitted to graze on the lawn.

The Green Turtle, (*Chelone mydas*), like all sea turtles, is provided with flippers instead of legs and feet, and it typically represents several species of sea turtles of large size and constant commercial value as food, which never come on land save to deposit their eggs in the warm sand of the seashore.

THE SERPENTS, OR OPHIDIA.

The Order of Serpents, (*Ophidia*). The large glazed cases along the northern side of the main hall are devoted to the larger serpents, while the smaller species are provided for along the south wall, and in the adjoining room. One serious difficulty in the management of a collection of living serpents lies in the fact that often the most valuable specimens are so
nervous and shy in their feeding habits it is impossible to cage several together.

Out of the many species of serpents exhibited in the Reptile House, ten are chosen as fairly representing the principal groups.

The Black Snake, \((Bassianium constrictor)\), a common species in the eastern United States, is probably the highest type of the harmless snakes. It is a serpent of great vigor and activity in running, climbing, and swimming; it possesses great courage, and seeks prey of many kinds in all kinds of situations.

The Regal Python, \((Python reticulatus)\), here represented by a fine specimen, twenty-two feet in length, weighing one hundred and seventy pounds, is the best representative of the rock pythons of Asia and Africa. The island of Borneo is its centre of distribution. None of the constrictors are venomous, but their crushing power is almost beyond belief.

The Rock Python of Africa, \((Python sebae)\), is a light-colored species with a very small head, and is frequently seen in the hands and around the necks of snake-charmers.

The Anaconda, \((Eunectes murinus)\), is one of the largest constrictors of tropical America, and is noted for its aquatic habits. It is a handsome serpent, being of a rich green color, marked with round black spots.

The Garter Snake, \((Eutenia sirtalis)\), is more frequently seen in the eastern United States than any other serpent. Although the warfare waged against it is perpetual, regardless of the fact that it is as harmless as a fly, its numbers do not sensibly diminish.

The Hog-Nosed Snake, "Puff-Adder," or "Sand-Viper," \((Heterodon platyrhinus)\), represents a large and important family, and, despite its dangerous appearance and terrifying names, it is quite harmless. It represents one of Nature's methods for protecting harmless and inactive creatures, by making them resemble others which are dangerous.

Venomous Reptiles.—Because of the number of species of rattlesnakes which have found lodgment in the United States, and the trouble they have caused in a few localities, we are specially interested in all serpents which are dangerous to man. The species named below represent the deadly genera which civilized man has most cause to fear.

The Diamond Rattlesnake, \((Crotalus adamanteus)\) is too handsome, too showy, and too large to be chosen as the best average type of the genus \(Crotalus\); but he is king of his kind, and cannot be ignored. Three species shown side by side in our Reptile House afford striking examples of protective
coloration. The diamond-back rattler of Florida and the South is yellow, brown, and black, to match the checkers of sunbeam and shadow that fall upon the sands under the palmetto leaves.

The most vicious snake in North America, and one of the ugliest in appearance is the Water Moccasin, (Ancistrodon piscivorus)—closely related to the beautiful Copperhead, (A. contortrix). It is more dreaded in the South than the rattler, because it strikes on the slightest provocation, and without the rattler’s timely warning. Its colors are dull, its scales rough, its body ill-shaped and clumsy, its temper is vicious, and for every reason it is a serpent to be disliked.

The Harlequin Snake, or Coral Snake, (Elaps fulvus), represents a genus which contains many species, though but few of them occur in America.

The King Cobra, (Naja bungaris), from the Malay Peninsula, often called Snake Eating Cobra, is the most dangerous of all serpents, because it is the largest and the most athletic of the venomous species, and for its bite there is no effective antidote. It feeds only on living snakes. The fine specimen exhibited is about ten feet in length, and has thriven ever since its arrival in 1899.

The Cobra-de-Capello, (Naja tripudians), of which some fine specimens are shown, is the terror of India, where it kills between 18,000 and 20,000 people per annum! This is the most deadly of all serpents. For its bite, science has thus far been powerless to find an antidote, although Dr. Albert Calmette, of Lille, France, experimenting extensively in this direction, has secured fairly successful results.

THE BATRACHIANS, OR AMPHIBIANS.

Among the many wonders of Nature, none are more interesting than those forms which serve to connect the great groups of vertebrate animals, by bridging over what otherwise would seem like impassable chasms. For a high example, consider the duckbill, or platypus, an Australian mammal about the size of the muskrat, which stands almost half way between the mammals and birds. It lays eggs, and has a bill and webbed front feet, like a duck.

Between the birds and the reptiles there is a fossil bird, called the Archaeopteryx, with a long, vertebrated, lizard-like tail, which is covered with feathers, and the Hesperornis, a water bird with teeth, but no wings, which inhabited the shores of the great western lake which has already yielded to American paleontologists a great number of most remarkable fossil for...
Between the reptiles and the fishes, stretches a wonderful chain of living links by which those two classes of vertebrates are so closely and unbrokenly united, and by such an array of forms, that they constitute an independent class, the Batrachia or Amphibia. In the transition from water to land, from fins and gills to legs and lungs, Nature has made some strange combinations. In some instances the fins, legs, lungs and gills have become so mixed that several notable misfits have resulted, and in some cases we see gills and legs going together, while in others lungs and fins are associated.

The Reptile House opens with ten species of Batrachians, and it is reasonably certain that this number will be maintained and increased. They are to be found in the small cases ranged along the south side of the Main Hall.

**The Bull-Frog**, (*Rana catesbiana*), is a fair representative of the Batrachians which stand nearest to the true land-going reptile. During the early stages of its existence it is, in turn, a fin-tailed tadpole with no legs, a short-tailed tadpole with a pair of front legs, a shorter-tailed tadpole with four legs, and finally a fully-developed, land-going frog, with a voice like a small bull, and no tail whatever. Of the genus *Rana*, there are five species in the eastern United States, several of which inhabit th Zoological Park.

**The Wood Frog**, (*Rana sylvatica*), is frequently seen in moist valleys in the Zoological Park, where its chocolate brown back so closely matches the color of the dead leaves and moist earth, it is difficult to find, save when it takes one of its flying leaps. The specimens shown were taken near the Beaver Pond.

**The Tree Frog**, (*Hyla pickeringi*), is the commonest of the queer little tree-loving species which are so easy to hear, and so difficult to find. In spring their voices are the first to be heard in the swamps. The Zoological Park is full of *Hylas*, and their cheerful piping is heard at all seasons, especially in dry mid-summer, when dark storm-clouds gather and promise rain.

**The Common Toad**, (*Bufo lentiginosus*), is found in the Zoological Park, though not in such abundance as the two preceding species.

**The Spotted Salamander**, (*Salamandra maculosa*), because of its broad, bright yellow bands and blotches, laid on a rich, dark-brown body color, is one of the most showy of all Batrachians. It comes from Europe, and being much prized in collections, it frequently passes through the hands of dealers in reptiles. Its skin is very moist and clammy, which gives the creature the appearance of having been varnished. This is the
creature which is supposed to be able to withstand fire—a belief which is purely imaginative.

The Spotted Salamander, (Amblystoma tigrinum), and the Axolotl, (A. mexicana), are widely different creatures from the preceding. Of the genus to which they belong, the former is by far the most widely distributed species. It is found throughout the greater portion of the North American continent, and as far south as Central Mexico. Thirteen other species of the genus Amblystoma are found in North America and Mexico. In the matter of “harmonizing with environment,” the Amblystoma is one of the most remarkable creatures in existence. In its “larval” stage (corresponding with the tadpole stage of a frog), this animal possesses external gills, red and sponge-like in appearance, and its tail has a fin-like edge above and below, like the tail of an eel.

So long as this larval creature remains in water, its external gills remain and do duty, and the larval stage continues indefinitely. Remove it from the water, or let its home pool dry up, and, presto! its gills dry up, its tail loses its fin-like edges, and the creature goes about on land, breathing air instead of water, with lungs instead of gills. The spotted salamanders exhibited were captured in the Zoological Park.

The “Water-Dog” or “Hell-Bender,” (Cryptobranchus horridus), is a salamander-like amphibian, from eighteen to twenty-two inches long when adult, found more frequently in Pennsylvania than elsewhere. They are said to be very tenacious of life, and voracious in their food habits, feeding on worms, minnows and crayfish, and often taking the hook of the fisherman in quest of that most repulsive of all American fishes, the cat-fish. Between cat-fish and water-dog there would seem to be small choice. Mr. William Frear offers this testimony in regard to the tenacity of life of this creature:

“One specimen, about eighteen inches in length, which had lain on the ground exposed to a summer sun for forty-eight hours, was brought to the museum, and left lying a day longer before it was placed in alcohol. The day following, desiring to note a few points of structure, I removed it from the alcohol in which it had been completely submerged for at least twenty hours, and had no sooner placed it on the table than it began to open its big mouth, vigorously sway its tail to and fro, and give other undoubted signs of vitality.”

The Congo Snake, or Amphiuma (Amphiuma means), is a creature which closely resembles a thick-tailed snake. A close examination, however, discloses a tiny pair of front legs; and far back, well toward the end of the tail, a small
pair of hind legs appear. These are about as valuable to the animal as the tiger's clavicle is to him. There are but two species belonging to this strange genus, both of which are found in the stagnant waters of our southeastern states. Still lower than the amphiuma, is The Mud Eel, (Siren lacertina), of the southeastern quarter of the United States, which possesses small external gills, and only one pair of legs, which are in front.

The Menobranchus, or Mud Puppy, (Necturus maculatos), possesses external gills and four legs, and in-habits many of the rivers of Ohio, Pennsylvania, Indiana, and also the Great Lakes and northern New York. It is often taken in fishermen’s nets.

THE ZEBRAS.

On May 20, the Zoological Society received by purchase from Mr. Hagenbeck, who imported them last year from German East Africa, two fine adult specimens of Crawshay’s Zebra, (Equus burchelli crawshayi). They are temporarily exhibited in the Antelope House.

This zebra very closely resembles the mountain zebra of South Africa, (Equus zebra), and forms a perfect connecting link between that species and the group of Burchell Zebras. It is found in British Central Africa west of Lake Nyassa, and in German East Africa as far north as Mt. Kilimandjaro. In captivity it is quite as rare as the Mountain Zebra.

THE PRJEVALSKY HORSES.

In the corral adjoining the zebras are exhibited two speci-mens of the newly-discovered Prjevalsky Horse (Equus prjev-alskii), of Sungaria, western Mongolia, between the Altai and Tyan-Shan Mountains. Amongst wild horses and zebras this species is the nearest approach to the domestic horse. In appearance it is much like the Persian Wild Ass.

The parents of these specimens were captured in 1900, by an expedition sent to Mongolia by Mr. Carl Hagenbeck, at a cost of about $25,000. Out of 52 colts captured, only 23 reached Hamburg alive, and these specimens are the first that have reached America.
THE ANTELOPE HOUSE, No. 30.

The Antelope House occupies a commanding situation on a high, tree-covered knoll at the south end of the Zoological Park. The situation seems as if specially formed by Nature to be occupied by this building, and its outside enclosures. The drainage is quite perfect, and about one-half the yards are well shaded.

The building has been designed to meet the wants of giraffes and large African antelopes of all kinds, more especially those which require 60° of heat in winter. Until the Elephant House is erected, the great pachyderms—elephant, rhinoceros and hippopotamus—will also be quartered here.

The Antelope House is 142 feet long by 78 feet in extreme width. In architectural style it conforms with the other large animal buildings of the Park. Both for visitors and for its animals, it is roomy and well lighted, and in every way fitted
to house and display a large and valuable collection of tropical hoofed animals. It contains 24 interior compartments, directly connecting with 23 open-air yards for use in mild weather. This building was completed and occupied on October 17, 1903, and with all its surrounding improvements has cost about $80,000.

The Nubian, or Three-Horned Giraffes, (*Giraffa camelopardalis*), are at present the most important and interesting animals in this building. The pair came from German East Africa, are now (June, 1904) about four years old, and cost $5,500. The male stands 10 feet 8 inches in height, and the female 10 feet 1 inch. Both are good-tempered animals, and have been in good health ever since their arrival. Their food consists of clover hay, broken forage biscuits, an assortment of raw vegetables carefully cut into small pieces, a small quantity of bran, and rock salt.

During the ascendency of El Mahdi in the Egyptian Soudan, the exportation of Giraffes from central East Africa ceased altogether for a period of several years. But with the recapture of the Soudan territory, and the building of railways through East Africa to the lake region, about the year 1900 the capture and exportation of Giraffes began with renewed energy. To-day there are eight specimens in America, and in Europe at least twenty, besides which several died soon after arrival.

A study of the Giraffes reveals most interesting conditions. According to the point of view, the total number of species and subspecies may be reckoned at any number from two to six, inclusive. According to the specimens in hand, the Southern, or Two-Horned Giraffe, (*Giraffa capensis*), seems clearly defined from the Northern, or Three-Horned Giraffe, (*G. camelopardalis*). Next, the Somali Giraffe, (*G. reticulata*), of the Lake Rudolf region and northern British East Africa, seems fairly separable. At first the Five-Horned Giraffe, of western Uganda, seemed quite distinct, but now British naturalists hesitate about according to it rank as a separate species, because of its intergradation with the Nubian form, (*camelopardalis*).

Judging from all evidence now available, it seems that the Giraffes of to-day represent the midway stage of an effort to develop several species from the parent stock, the Three-Horned Giraffe, which is the species here represented. The existing forms, including all species and subspecies, intergrade and run together in a manner that is fairly bewildering; but if the Giraffes could remain uninfluenced by man for a suffi-
NUBIAN, OR THREE-HORNED GIRAFFES.
ciently long period, the probabilities are that the species now branching off would be clearly established.

The oldest, the best-known and the most common Giraffe is the three-horned species, found from central Uganda southward. The five-horned variety meets the former in Uganda, and occurs from that region westward to the edge of the great equatorial forest, and on westward even to Lake Tchad, and the Lower Niger Valley. Excepting in Uganda, Kahma’s country, and a few other protected districts, the Giraffe is now rare, particularly throughout the regions that are accessible to hunters. Thousands of these wonderful creatures have been killed by hunters, both white and black, solely for the sake of seeing them dead, and leaving them as prey to the hyaenas and hunting-dogs. It seems to be beyond the power of most men who can shoot, to see living wild animals, no matter how large or wonderful, without desiring to reduce them to carcasses, fit only for scavengers.

The Eland, (Taurotragus oryx), is the largest and most imposing of all the antelopes. As might be inferred from its great size, it is now so nearly extinct that it has disappeared from the lists of dealers in wild animals. The fine adult male specimen now in the Antelope House was obtained from the herd of the Duke of Bedford, through Carl Hagenbeck, and was presented to the Zoological Society by Mr. George F. Baker.

Of Elands there are two well-marked species. That of eastern and southern Africa, here represented, was once numerous on many of the fertile plains of the great plateau now known as Rhodesia, and in fact throughout nearly the whole of the uplands of eastern Africa, from the Cape to the Sahara. Unfortunately, however, white hunters and modern firearms have reduced the countless thousands of the great herds to numbers so small that the capture and exportation of Elands has practically ceased.

The great bulk of the Eland, and the readiness with which the animal accepts the conditions of captivity, led the 13th Earl of Derby to make, between 1842 and 1851, in the now historic Knowsley Menagerie, an effort to acclimatize this species in England, and have it bred as a food animal. Although a number of Elands have been born in captivity, the number on public exhibition still remains very small. The only captive herd known to the writer is that of the Duke of Bedford, in Woburn Park, England, which is at once the admiration and envy of all collectors of living wild animals.

The White-Tailed Gnu, (Connochaetes gnu), once
was abundant in South Africa, south of the Vaal River. But it has shared the fate of all the other large mammals of that region, and unless a few scattered bands still exist in the Kalahari Desert or in German South-West Africa, the species is indeed extinct in a wild state. Nearly all of the specimens now living in captivity were born in captivity, for both species of Gnu take kindly to life in parks and gardens.

Every way considered, the Gnu is an animal of odd and remarkable form. It has the most wonderful nose to be found among the Antelopes, its horns are curiously formed, the hair on its head and neck exhibits various peculiarities, and its hips are oddly modeled. Its long, flowing tail is so horselike that for many years this animal was pictured and popularly known as the "Horned Horse."

The White-Bearded Gnu, (Connochaetes albojubatus), is noticeably larger than the white-tailed species, and in some respects it presents a finer appearance. Its bulk is considerably greater, and its color is more pleasing. This species bears a strong resemblance to the third species, which is known as the Brindled or Blue Gnu, (Connochaetes taurinus), from which the former is distinguished by its white mane and jaw-tufts, and generally paler color. At wide intervals the White-Bearded species inhabits southern East Africa, from about S. Lat. 23° to the Albert Nyanza and Lake Rudolph, but chiefly near the coast. In only one locality do we learn of its occurrence west of the 30th meridian. To-day it is most numerous in German East Africa and the southern portions of Uganda.

The Addax Antelope, (Addax naso-maculatus), is a spiral-horned antelope which inhabits the southern edge of the Sahara Desert from Dongola quite across Africa to Senegal. Its extremely broad and spreading hoofs betoken a dweller upon sand, and are strongly suggestive of the snow-shoe hoofs of the caribou. It is said that this animal is not to be taken without making a journey into the desert, with camels.

The beautiful but rather small Beatrix Antelope, (Oryx beatrix), represents the long-horned, straight-horned antelopes of the Genus Oryx, and it inhabits the borders of the Arabian Desert. It is now so seldom taken alive that it is rarely seen in captivity.

The Leucoryx Antelope, (Oryx leucoryx), is the only member of its genus which has curved horns. Because of the length and very slight curvature of the horns, this species has by some writers been spoken of as the Sabre Antelope, and by a mischievous perversion that name has
been turned into "Sable" Antelope, which refers to a totally different creature, (Hippotragus niger). Anyone who places an order for the purchase of a real Sable Antelope, and receives a Leucoryx instead of a Hippotragus niger, is profoundly disappointed.

This species is a desert habitant, and its home is the desert region of North Africa from Dongola to the Senegal country. The longest Leucoryx horns on record measure 39½ inches.

Baker's Roan Antelope, (Hippotragus equinus bakeri), is sometimes called Baker's Horse Antelope, but the latter is a poor designation for this fine, high-spirited animal. It belongs to the same genus as the very handsome and high-headed sable antelope mentioned above, but, as its best name implies, it is a tawny-brown animal. Its ears are so very long and pointed, and patterned in such artistic curves, that they serve the excellent purpose of fixing the species in the mind of everyone who sees it. The subspecies here shown is found in German East Africa, but its precise range is at present unknown.

The Sing-Sing Waterbuck, (Cobus unctuosus), is a creature of the lowlands, and frequents the dense tangles of tall reeds that border many of the rivers of West Africa, above the great equatorial forest. In captivity it sometimes is one of the most insanely nervous and irrational creatures imaginable, ever seeking self-inflicted injuries.

The Blessbok, (Damafuscus albibrans), is a small but handsome purple-and-white antelope which is now very nearly extinct. The acquisition of the specimen now shown was very unexpected, and it is predicted that this may prove to be the last specimen of the species that ever will reach our hands. Formerly a number of herds were preserved on fenced farms in the Transvaal and Orange Free State, but it is feared that none of them survived the Boer war. This species never lived north of the Limpopo, but south of that river it once was so numerous that a truthful traveler once described a vast plain as being "purple with Blessbok."

The Nilgai, (Portax tragocamelus), is the largest of the Indian antelopes, and while it has the stature and the high shoulders of a Baker's roan antelope, its absurdly small horns give it, beside the large antelopes of Africa, a very commonplace and unfinished appearance. The males and females are as differently colored as if they belonged to different species. This animal inhabits the roughest portions of the central plains of Hindustan, from Mysore to the Himalayas. In northern India it is found along the Rivers Jumna and Ganges, in
rugged and barren tracts of ravines which in character and origin resemble our western "bad-lands."

**The Black-Buck, or Sasin Antelope, (Antelope cervicapra),** also of the central plains of Hindustan, is one of the handsomest of the smaller antelopes. The horns of the male are long, strongly ringed, twisted spirally, and rise from the head in the shape of a V, sometimes to a length of 28 inches. At first the young males are fawn-colored, like the females, but as they grow older they steadily grow darker, until finally the whole upper body and lower neck are suffused with a rich brown-black color. On the plains between the Rivers Ganges and Jumna, herds of Black-Buck live in densely populated agricultural regions, and one of the greatest difficulties attendant upon its pursuit lies in shooting an animal without also shooting a native.

**THE LLAMA HOUSE, No. 38A.**

*Situated near the Southwest Entrance.*

The arid regions of South America are inhabited by four species of long-necked, long-haired, soft-footed animals, so closely related to the camels of the Old World that they are called cameloids. There are four species. The llama and alpaca are in a state of domestication, and are supposed to have been derived from the wild guanaco and vicunia. All of them may truthfully be described as small-sized, humpless camels; and their tempers and mental traits are as odd as their forms.

The ordinary cameloid is a quiet and inoffensive creature; but the exception is a rogue of rogues. It will bite with the persistence of a bull-dog, and with its massive, chisel-like lower incisors inflicts ugly wounds. At times a llama or vicunia becomes actually insane, and seeks to destroy every living creature within its reach. Regardless of punishment, such creatures attack their keepers and their herd-mates, spit upon visitors, and rage up and down their corrals in most absurd fashion. Occasionally such individuals require to be completely isolated.

**The Llama, (Lama glama),** is the largest and strongest member of this group. Its body is covered with a thick mass of long, wavy hair of fine texture, which may be either brown, white, white and brown, or almost black. The head and legs are short-haired like those of the guanaco. From time immemorial, this animal has been used as a beast of burden, and in the Andes
has played an important part in the mineral industry by carrying silver ore and bullion from the mines.

The Alpaca, \( (Lama\ pacus) \), is bred for its wool. It is smaller than the llama, but more abundantly haired on the legs, neck and head. Its fleece is long, and lies in stringy tufts. Usually its color is dark brown or black, but occasionally a white Alpaca is seen. A white specimen in the Zoological Park collection has blue eyes.

The Guanaco, \( (Lama\ guanacus) \), is one of the most interesting and valuable wild animals now found in Patagonia. Unfortunately, it is so stupid and incapable that it is easily killed. The natives of Terra del Fuego, themselves almost the lowest and most ignorant of men, slaughter Guanacos for food by surrounding groups of them and clubbing them to death.

In size the Guanaco is between the llama and vicunia, and its shoulder height is about 4 feet. Its hair is thick and woolly, of a pale reddish color, and there are naked patches on the legs. This species is found on the Andes, from Ecuador to Terra del Fuego, and appears to be most abundant in Patagonia.

The Vicunia, \( (Lama\ vicunia) \), is the only member of the cameloid group which is not clothed with a mass of long hair. It is the smallest member of the group, comparatively short-haired, its color is a uniform light brown, its head is small, and there are no callosities on the hind legs. The Vicunia is found from southern Ecuador, through Peru to Central Bolivia.

The Zoological Society's entire collection of cameloids was presented by Mr. Robert S. Brewster.

**THE EUROPEAN BISON.**

In a corral adjoining the Buffalo Entrance, on the Boston Road, are to be found two specimens of the rare and almost extinct European Bison, \( (Bos\ bonasus) \). This species is the nearest living relative of the American bison, and the two young specimens (male and female), now exhibited, came quite unexpectedly into the possession of the Zoological Society in April, 1904. They were acquired from the small captive herd in the forest of the Prince of Pless, in Silesia, southeastern Germany, and are the first living specimens of the species to be exhibited in America.

The distinguishing characters of this species are shorter and less abundant hair on the head, neck and shoulders than our bison, a tail densely covered with hair throughout its length, very long legs, and a short body.
But for royal protection, this species would long ere this have become extinct. In the year 1857, about 1,898 head were living, but in 1892 the total had decreased to 491. All save a very few of the survivors inhabit the forests of Bielowitza and Swisslotsch, Lithuania, West Russia, and are strictly protected by the Czar. A few small bands still exist on the northern slope of the Caucasus Mountains around the sources of the Laba and Bjellaja, sometimes ranging up to an elevation of 8,000 feet. Wherever found, they live in scattered bands of from three to ten individuals. All the survivors of this species are so jealously guarded that very few of the zoological gardens of Europe have been able to procure specimens. This animal is very often miscalled the "aurochs," and from this error much confusion has arisen. The true aurochs, (Bos primigenius), was the wild progenitor of some of the existing breeds of domestic cattle, but it is now extinct.

IMPROVEMENTS IN PROGRESS.

The Ostrich House.—During the summer or early autumn of 1904, the new building now being erected opposite the Burrowing Rodents' Quarters will be completed and occupied. This structure will be known as the Ostrich House, and it will contain a representative collection of ostriches, rheas, emus and cassowaries. The length of the building is 170 feet, and its cages will connect with a series of open-air yards in which the birds will have free range. The collection now being formed for this building will be adequately described in all future editions of this Guide Book.

The Small-Mammal House.—Closely adjoining the Ostrich House, and connected with it by a pavilion, is the permanent Small-Mammal House, replacing the temporary structure which once bore that name. With the removal of the latter, to make room for the new building, our collection of small mammals was unavoidably withdrawn from exhibition. The new building is of the same length and general dimensions as the Ostrich House, and the two will be completed together. It will contain a large and varied collection of small mammals, chiefly carnivores and marsupials, and both the building and its contents will receive adequate notice in the next edition of this volume.

The Large Bird-House.—The imposing structure rising on the northwest corner of Baird Court is to be the house for the accommodation of song birds and perching birds
generally, other than the large birds of prey, and the shore birds. It is an L-shaped building, and the section nearest the Lion House will be devoted to the parrots, parrakeets, macaws, cockatoos and lories. The north hall will contain in its central area a very commodious flying cage, especially devoted to our native song birds.

The building as a whole contains 114 cages, the majority of them large enough to accommodate groups of fifteen or twenty individuals. It is hoped that this structure will be finished and occupied not later than October 1, 1904.

**Asiatic Deer Barn, No. 42.**—On the crown of the hill between the Aquatic Birds’ House and the Southern Boulevard an important new feature is being developed. A large deer barn of eight rooms is being erected, and the ranges surrounding it are being remodeled, to provide for seven deer herds instead of three. This building will be devoted wholly to large species of deer from Asia, and when fully completed its ranges will contain seven important species of the large deer that inhabit the Old World. This installation will be ready by July 1, 1904.
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