

AMERICAN MUSEUM OF NATURAL HISTORY

# North American Ruminants



BY

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SUPPLEMENT TO AMERICAN MUSEUM JOURNAL

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# American Museum of Natural History

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The Museum is open free to the public on Wednesdays, Thursdays, Fridays, Saturdays and Sundays. Admittance is free to Members every day.

The membership fees are,

Annual Members.....	\$ 10	Fellows.....	\$ 500
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All money received from membership fees is used for increasing the collections.



## CONDITIONS IN 1918

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It is now sixteen years since this leaflet was printed and many changes have taken place among our big game animals, both those in a wild state and those represented in the Museum. With the exception of the bison, which, owing to strenuous efforts on the part of a few individuals, has increased in numbers, our big game animals have continued steadily to decline. This is especially true of the pronghorn, an animal of very delicate constitution and very difficult to preserve under any conditions. The Virginia deer, on the other hand, can be readily preserved and rapidly increases in numbers wherever granted proper protection. Some of the gaps in the study series have been filled but some still remain.

Owing to the general growth of the collections without corresponding growth of the building, it has not proved practicable to construct groups on the scale of the Bison and the Moose, but a number of groups of a smaller size have been added. These include the Pronghorn Antelope, Roosevelt's Elk, Grant's Caribou, Virginia Deer, Bighorn and Mountain Goat.

There has been some necessary rearrangement of collections, due to lack of room. The boreal mammals have been transferred to the North American Hall and so have the groups of mammals found within fifty miles of New York City.

# American Museum of Natural History

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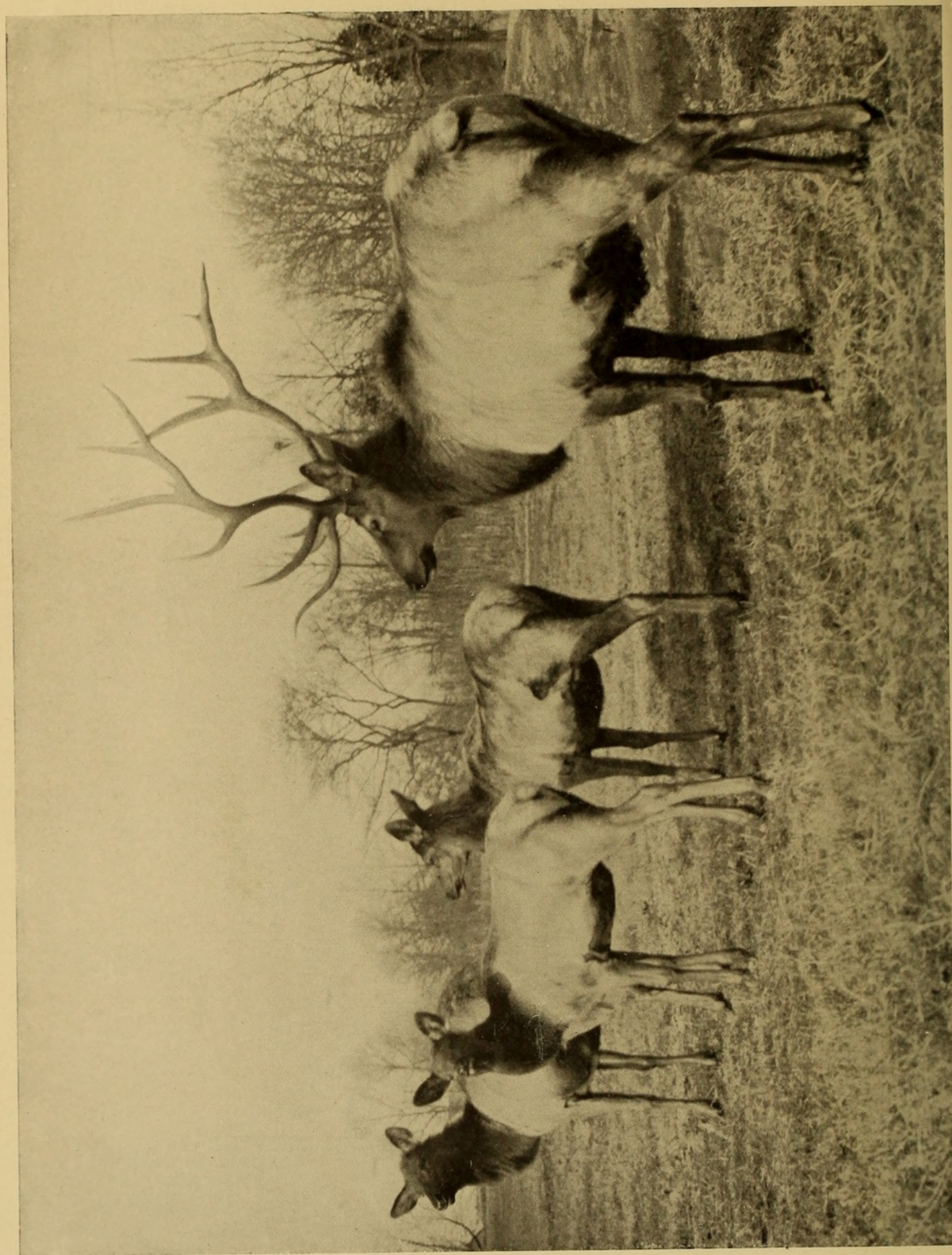
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# North American Ruminants.

A Guide Leaflet to the Collection  
in the  
American Museum of Natural History.

By

J. A. ALLEN, PH.D.,

Curator of Mammalogy and Ornithology.

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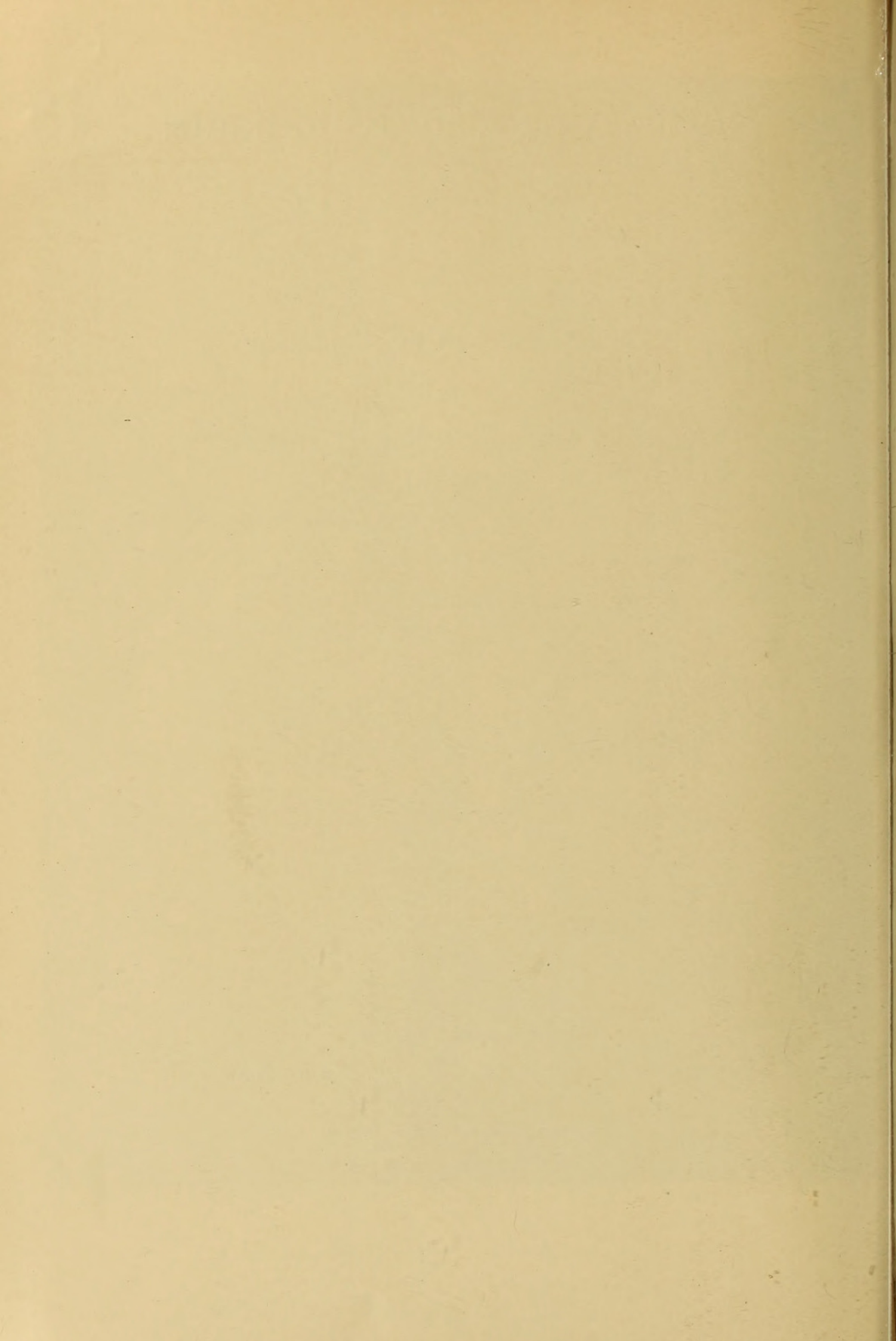
**GUIDE LEAFLET No. 5.**

SUPPLEMENT TO THE AMERICAN MUSEUM JOURNAL,

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## NORTH AMERICAN RUMINANTS.

By J. A. ALLEN, Ph.D.,

Curator, Department of Mammalogy and Ornithology.

### INTRODUCTION.

THE Ruminants of North America comprise the Deer, the Pronghorn Antelopes, the Bighorn or Mountain Sheep, the Mountain Goats and the Bison or "Buffalo." They are all "game animals," and, like the game animals of all parts of the world, they are, in many instances, rapidly approaching extermination. The Bison, once so abundant on our western plains, is now almost an animal of the past. The Elk or Wapiti Deer has been exterminated over probably nine-tenths of its former range; the Pronghorn, the Virginia Deer and the Mule Deer have also become greatly restricted, as has the Moose. Even the Caribou and the Musk-Ox in the far North are being slaughtered annually by the thousand, and are becoming exterminated over extensive areas where they were formerly abundant.

The partial extermination of large mammals is inevitable, as the country becomes settled, and the land is required for agricultural purposes, but in this country the waste of animal life has been enormous and inexcusable. The Buffalo was slaughtered by the million long before its haunts were needed for settlement, partly for its hide and partly to afford sport for the big-game hunter. The slaughter of the Elk in the trans-Mississippian territory has been almost equally needless and extensive. The Rocky Mountain Bighorn has been wiped out of existence over large portions of its natural range, and now the destruction of the Caribou and Moose in the far North is proceeding with almost incredible rapidity, not only in the regions invaded by the miner and prospector, but also along the Arctic coast for the supply of whale ships with fresh meat. Doubtless some of the strongly marked climatic races of the Deer tribe have been wholly destroyed, with no specimens in our museums to testify to their former existence.



## NORTH AMERICAN RUMINANTS

Owing to the large size of these animals and the consequent difficulty and expense of obtaining and preparing them, very few specimens have found their way to museums, and no time should be lost in obtaining such series as will adequately represent them, since it will soon be too late to secure the animals even for museum purposes. A single specimen or a pair of specimens is insufficient for the purpose, since each species varies greatly in color according to season and in other characters according to age and sex. Our large museums owe it to posterity to see that these animals are suitably represented, preferably mounted as groups with their natural surroundings, and in large series for the purposes of research and to draw upon later for exhibition, since it unfortunately happens that specimens exposed to light as museum exhibits quickly deteriorate by fading and from other causes, and eventually require replacement by fresh material.

### HORNS AND ANTLERS OF RUMINANTS.

The Ruminants are herbivorous, cud-chewing animals; they include the Deer, the Pronghorns, the Antelopes, the Sheep, the Goats and the Ox tribe, and hence nearly all of the mammals most economically important to man. They form two quite distinct divisions according to the nature of their horns, these divisions being known respectively as Solid-horned Ruminants and Hollow-horned Ruminants, and also as Antlered Ruminants and Horned Ruminants. The first section includes the Deer and Pronghorns, and the other the Antelopes and the Sheep, Goat and Ox tribes. The antlers of Deer consist of nearly homogeneous

**Antlers of Deer.** bony tissue, lighter and more porous in structure than ordinary bone; are generally much branched or forked, and are shed and renewed every year. They are secondary sexual organs, usually present only in the male, and when existing in the female, as in the case of the Caribou, they are greatly reduced in size. They are shed soon after the rutting season, and are renewed by a wholly new growth, acquired slowly, so that the fully grown and perfected antler is worn for only a few months. During growth it is enclosed in a soft membrane,



## NORTH AMERICAN RUMINANTS

covered externally with short, thick, velvety fur, which consists of a network of blood vessels which supply nutriment for the growth of the antler. During this stage the antlers are said to be "in the velvet," and are then very sensitive to injury. When fully grown, the membranous covering shrivels and dries up, and falls off in shreds or is rubbed off by the animal.

The horns of the hollow-horned Ruminants are entirely different from the antlers of Deer, in structure as well as in manner of growth. They are usually common to both sexes, as Horns of  
Oxen,  
Sheep, etc. in our domestic cattle, are simple and not branched, and grow continuously throughout the life of the animal, though very slowly after it has reached maturity, and are never shed. They consist of a bony core—an elongated process from the frontal bone—covered with horn, from which the organ takes its name, and which is easily removed by maceration, or through decomposition after the death of the animal. This outer shell is the true horn, the bony core is its support.

The American Pronghorns offer a *quasi* exception to this division of Ruminants into solid-horned and hollow-horned sections. They have the permanent bony horn-core of the hollow-horned division, with an outer horny sheath, which is annually shed and renewed, as are the solid antlers of the Deer tribe. They are, however, usually assigned to the solid-horned or antlered section of Ruminants.

### FAMILIES OF NORTH AMERICAN RUMINANTS.

Technically speaking, the Ruminant game animals of North America consist of three distinct families, two of which are represented by several genera, and some of the genera by numerous species. These families are, the Pronghorns, family *Antilocapridæ*; the Deer, family *Cervidæ*, and the Sheep, Goat and Ox tribes, forming the family *Bovidæ*. These will be now passed in review, with special reference to their present representation in the American Museum. The geographical area covered in this connection by the term North America includes the whole North American continent from the Arctic regions to Panama.





Photo. by E. F. Keller

PRONGHORN OR AMERICAN ANTELOPE. NEW YORK ZOÖLOGICAL PARK  
(From negative taken for Department of Public Instruction, American Museum)



## NORTH AMERICAN RUMINANTS

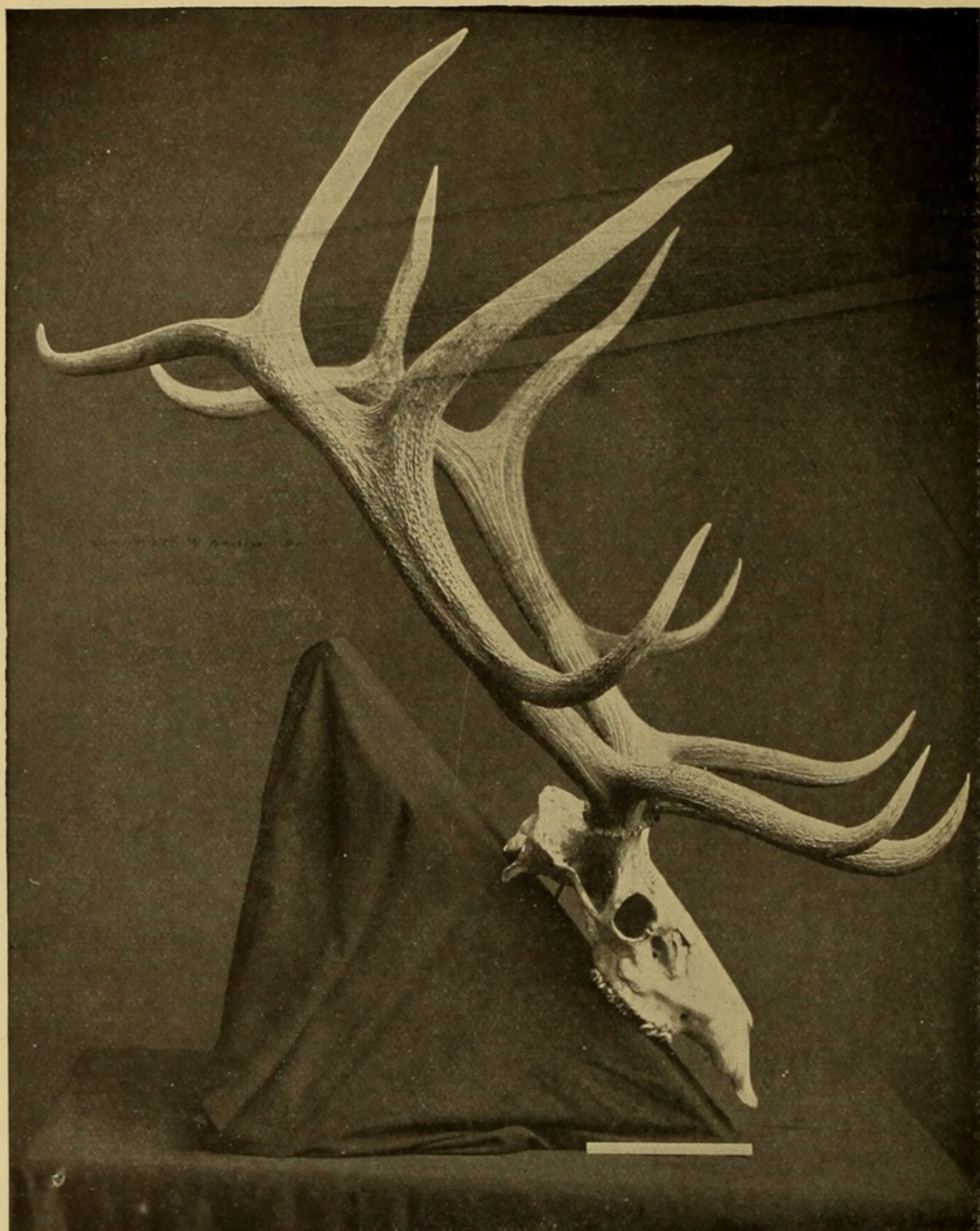
### ANTLERED RUMINANTS.

The Pronghorns, or Pronghorn Antelopes, or American Antelopes, as they frequently are called, formerly had a range which extended from the Saskatchewan region southward over the plains, parks and portions of the Great Basin Pronghorn. region to the tablelands of Mexico, their eastern limit being the eastern border of the Great Plains. Over this vast area they formerly ranged in large herds, numbering hundreds and often thousands of individuals, but they have now disappeared entirely from a large portion of this great region, being found in their former abundance only within comparatively limited districts. Two forms of Pronghorn are now recognized by naturalists—a northern and a southern, the latter at present confined to a small area in Mexico. The Pronghorn, though often called the “American Antelope,” is not a true Antelope, as once supposed, but is a distinct family type, found only in North America. It is one of the most beautiful, graceful and agile of American game animals, gentle, and possessed of great curiosity, advantage of which is often taken to secure its destruction. Unless strenuously protected, it will soon wholly disappear from our western mountain valleys and plains.

The Pronghorn is represented in the Museum by a pair of mounted specimens and a mounted skeleton, and in the study collection by a small series of skins and skulls. Owing to the peculiar interest of this very distinct type, it should be elaborately presented to the public as a group, with the proper setting to illustrate its natural haunts.

The Deer tribe consists of five groups, commonly recognized as genera, namely: the Elk, genus *Cervus*; the small Deer of the United States and Mexico, genus *Odocoileus* (recently known, successively, as *Cariacus* and *Dorcelaphus*); North  
American  
Deer several smaller kinds of Deer or Brocket, with unbranched antlers, of the genus *Mazama*, found in southern Mexico and Central America; the Moose, genus *Alces*, with broad palmate antlers, and the Caribou, genus *Rangifer*, of which five or six very distinct forms are known.





ELK OR WAPITI, NORTH DAKOTA  
(From Bulletin American Museum, Vol. XVI, 1902, p. 5)





ARIZONA ELK  
(From Bulletin American Museum, Vol. XVI 1902, p. 4)



## NORTH AMERICAN RUMINANTS

The Elk, or Wapiti Deer, is one of the largest and most stately of the Deer tribe, with very large, branching antlers and a magnificent pose. This animal formerly ranged eastward nearly or quite to the Atlantic coast of the Middle States, but now it practically is extinct east of the Rocky Mountains and is becoming greatly reduced in numbers throughout the western natural parks and valleys, where not many years ago it roamed in large bands. This type of Deer formerly extended southward to the northern border of Mexico, occupying isolated areas wherever the conditions of the country favored its existence. The eastern form probably differed considerably from the animal of the plains and Rocky Mountain region, but how and to what extent it was distinct will never be determined, owing to the entire absence from our museums of specimens from the eastern part of the United States.

Elk, or Wapiti.  
A darker western form, known as the Roosevelt Elk, is still found in small numbers in the coast ranges of Oregon, Washington and British Columbia. It is much darker in color, and differs somewhat in the character of the antlers from the Rocky Mountain form. A southern form, almost extinct, has been described recently from Arizona, which differs from the others in color and in the form of the antlers. Of the Rocky Mountain Wapiti, the Museum has several poor mounted specimens, a mounted skeleton and several specimens in the study collection, mostly animals which had been in captivity and which have been received from zoölogical gardens. Of the Roosevelt Elk, the Museum recently has purchased a series of five specimens for mounting as a group, but the Arizona form is represented by a single skull. It is very desirable that the mounted specimens should be replaced by better examples, and the Arizona Elk obtained, if possible.

Moose.  
The Moose, perhaps the largest of the Deer tribe, being heavier bodied than the Elk, but with less branching though much broader antlers, is found from northern New England, northern Minnesota and Montana northward nearly to the Arctic regions. The Moose of the eastern districts is already represented in the Museum by a group of specimens, ob-



## NORTH AMERICAN RUMINANTS

tained mostly in New Brunswick and mounted with great care, the accessories representing an autumn scene in the actual haunts of the animal. This group is one of the most elaborate of its kind in the world as regards the details of construction.



ALASKA MOOSE (*ALCES GIGAS*)

From mounted specimen in Museum. Andrew J. Stone Expedition

The Moose inhabiting Alaska and the extreme northern portion of British Columbia differs from its eastern representative in its somewhat larger size, darker coloration and more massive antlers. It has been called *Alces gigas*, in reference to





NEWFOUNDLAND CARIBOU (*RANGIFER TERRÆNOVÆ*)  
Mounted specimen in American Museum  
(From Bulletin American Museum, Vol. VIII, 1896, pl. x)





KENAI CARIBOU (RANGIFER STONEI)

Mounted specimen in American Museum. Andrew J. Stone Expedition  
(From Bulletin American Museum, Vol. XIV, 1901, p. 144)



## NORTH AMERICAN RUMINANTS

its large size. The largest antlers have the remarkable spread of seventy-eight inches. The Museum is fortunate in the possession of a good series of this type of Moose, suitable for mounting as a group or as single specimens. For this valuable material we are indebted to the Andrew J. Stone expedition, for the maintenance of which the necessary funds have been generously contributed by friends of the Museum.

The Caribou are even more boreal than the Moose. They range next in size to it and the Elk, and have graceful, slender, profusely branching antlers. They are found from northern New England and British Columbia northward to the Arctic coast, and they occur also in Greenland. While the different varieties present general similarity, they differ greatly in size and in style of antlers, according to the regions they inhabit. The Newfoundland Caribou is an insular form restricted to the island from which it has received its name. It is characterized by short, heavy, much-branched antlers and very light coloration. Of this species the Museum has several mounted specimens, but it is especially desirable that it should be illustrated by a group.

The Woodland Caribou, as its name implies, inhabits the woodlands of the colder parts of eastern North America. It is a large dark form, with rather stout antlers. The Greenland and Barren Ground Caribou are both small forms, with relatively long but very slender antlers. They are of special interest as representing the most northern type of the Deer tribe, their homes being the treeless Arctic tundra. Neither form is at present well represented in the collection.

The Mountain Caribou is found in the Rocky mountains from British Columbia northward; it is represented in the mounted collection by a fine adult male. It is one of the largest members of the group, of very dark color and with massive antlers. In Alaska, there appear to be two other phases of this plastic group, one very large and the other small, with small, rather delicately formed antlers. This latter form is now represented by a good series of specimens, lately



## NORTH AMERICAN RUMINANTS

obtained by the Stone expedition; they have been mounted in a group, with appropriate accessories, brought from Alaska.

The Deer constituting the genus *Odocoileus* are much smaller, more graceful and more delicately formed than the Caribou and Moose. They are typically represented by the common eastern or Virginia Deer, and are very numerous in species and subspecies, many of which are quite restricted in distribution. Those of the United States fall into three groups, commonly known as White-tailed Deer, Mule Deer and Black-tailed Deer. The White-tailed Deer embrace the Virginia Deer and its related subspecies, of which four or five are now currently recognized, which differ from one another in size and in minor details of coloration. The Deer, like many other animals, decrease notably in general size, and in the size of the antlers, from the north southward, and are thus separable into well-marked races; the Florida Deer, for example, being not much more than half as heavy as the Deer found in Maine and New Brunswick. Another form of the group is found on the plains, another in Texas and still another in Louisiana.

Virginia  
Deer.

The Mule Deer, so called from the large size of the ears, occupy the middle region of the continent from Canada to Mexico, but are typically represented by the form found in the Dakotas. There are other subspecies in Manitoba, California, Sonora, Mexico and the islands off the coast of California.

Mule Deer.

The Black-tailed Deer, found only on the Pacific slope from California northward to Sitka, are represented by a series of forms. On comparing specimens from Sitka with those from Southern California, the differences in size and color are very striking.

Black-  
tailed Deer.

Besides the Deer already mentioned, five species of this genus are found in Mexico. In comparison with the Virginia Deer they are exceedingly small, with the antlers greatly diminished, being, in fact, miniature representatives of the more northern forms of the genus. In Costa Rica there is another type of small Deer, in which the antlers are

Mexican  
Deer.



## NORTH AMERICAN RUMINANTS

reduced to a single tine only a few inches in length. This Deer belongs to a South American group of the genus *Mazama*, not represented north of southern Mexico.



VIRGINIA DEER

From the group in Local Collection, American Museum

In brief, there are between twenty-five and thirty species of small Deer found in North America, including Mexico, of which



## NORTH AMERICAN RUMINANTS

only six are represented in the Museum. Of these the eastern or Virginia Deer is exhibited in a group in the Local Collection, and there are two or three other mounted specimens in the North American collection. The five other species are represented by single specimens, several of them very poorly mounted; consequently, it may be said that, comparatively speaking, the Museum is

Number of  
Deer in  
North  
America.



Photo. by E. F. Keller

MEXICAN DEER. NEW YORK ZOÖLOGICAL PARK

(From negative taken for Department of Public Instruction, American Museum)

almost destitute of the Deer of this extensive group, only a small part even of those found in the United States being shown in the exhibition series.



## NORTH AMERICAN RUMINANTS

The Deer are subject to much greater variations due to season than most other large mammals, and vary also greatly with age.

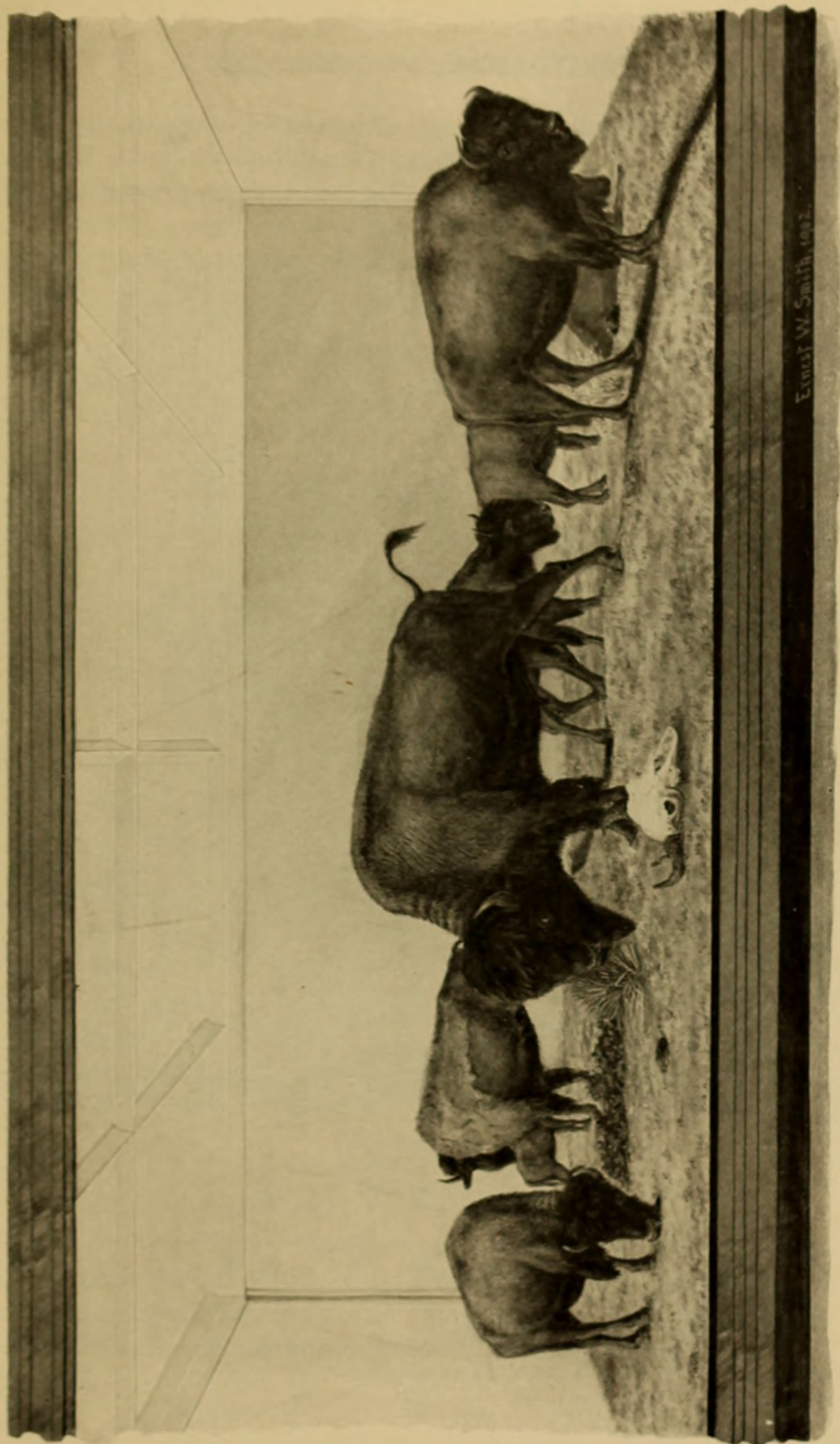
**Variations in Deer due to Season.** The young of the Elk and of all the smaller Deer are, at first, bay spotted with white. After a few months they change their dress for one of a more uniform and wholly different tint, while the adults have a summer dress very different from that worn in winter. The summer coat is short and comparatively fine in texture and generally is of some shade of yellowish brown or "fawn color." At the approach of winter this is succeeded by new hair of a bluish cast, which later becomes brownish gray through the addition of the long, coarser hair that forms the winter coat. The exact tint varies with the species, but the fall and winter coats are always very different in general effect from the dress of summer. The summer coat is commonly termed, in hunter's parlance, the "red coat" and the fall dress the "blue coat."

Besides the differences due to a change of coat with the change of the seasons, there are other differences due to age, as in the **Differences due to Age and Sex.** size and shape of the antlers, their absence in the females at all seasons, and their presence in the males during a portion of the year, and the very different appearance of the antlers when "in the velvet" and when mature. The Deer thus afford very effective material for Museum exhibits, and quite a series of specimens of the same species is required for its proper illustration. Such series, mounted in groups, with proper settings to show the nature of the diverse haunts characteristic of the different species, afford ample range for the skill of the taxidermist and abundant means for the presentation of attractive museum exhibits, pleasing and instructive to the visitor, and form permanent records of species rapidly passing out of existence.

### HORNED RUMINANTS.

Having now passed in review the Deer tribe, we reach the Sheep and Ox tribes. Most prominent of these is the almost extinct American Bison, fortunately well represented in the



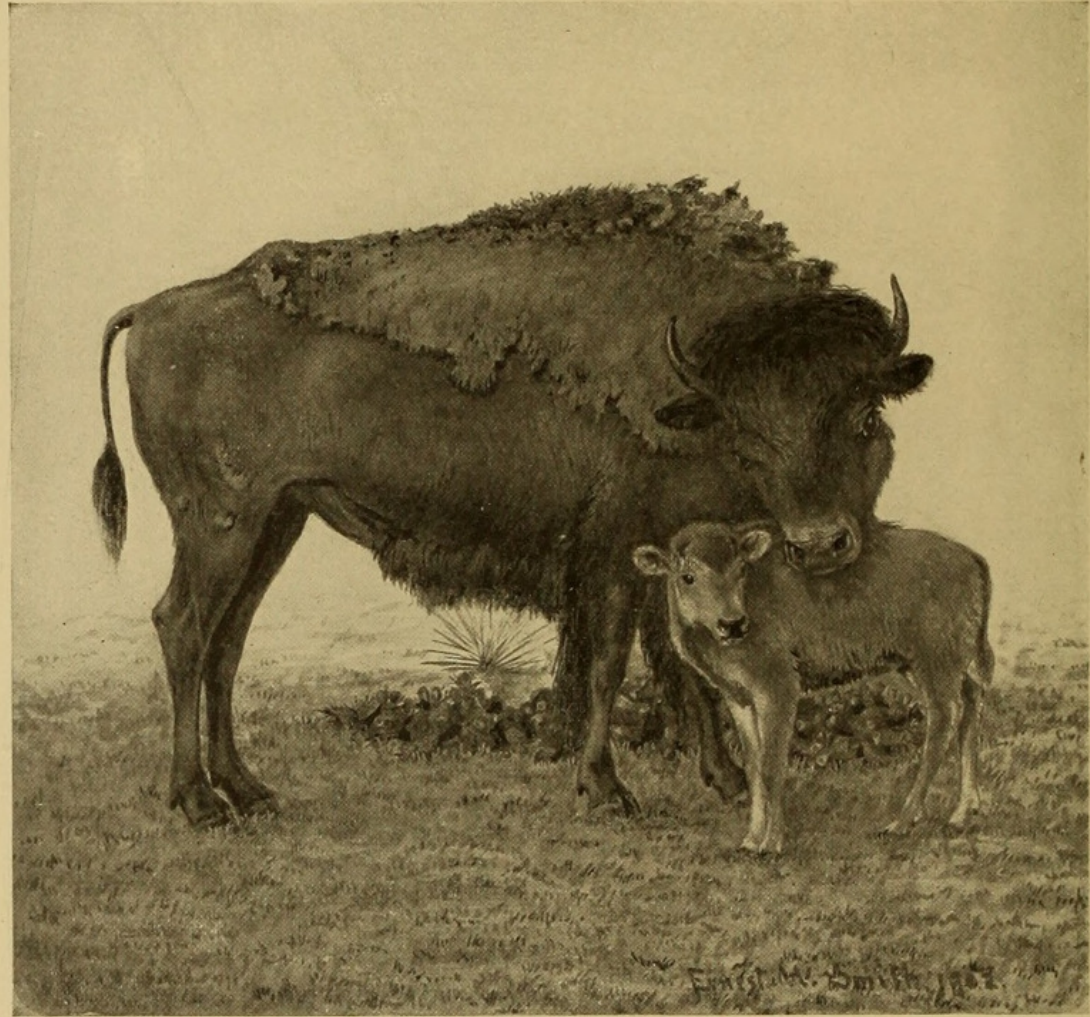


AMERICAN BISON  
Group in American Museum of Natural History



## NORTH AMERICAN RUMINANTS

Museum by skeletons, skulls and skins, in addition to the fine group which forms so conspicuous an exhibit in the North American Hall. Indeed, the Museum is to be congratulated on having not only the finest Bison group in the world, but a large reserve stock of specimens of this rapidly disappearing type, which but a short time ago existed in seemingly



AMERICAN BISON

Cow and calf from group in American Museum  
Specimens presented by Col. W. F. Cody

inexhaustible numbers. In the summer of 1871 the author saw on the plains of western Kansas Buffaloes by the hundred thousand, if not by the million. As far as the eye could reach, the plains, on certain occasions, were literally black with Buffaloes.



## NORTH AMERICAN RUMINANTS

The hide hunters were already among them, and this was one of the years of their greatest havoc. Three years later these same plains were covered with the bleaching carcasses of these hundreds



STONE MOUNTAIN-SHEEP (OVIS STONEI)

Mounted specimen in American Museum

(From Bulletin American Museum, Vol. IX, 1897, pl. ii)

of thousands of Bisons, from which merely the hides had been removed and the bodies left to rot. In 1873 similar scenes were witnessed in the valley of the Yellowstone, and here again, a few years later, only the carcasses of dead Buffaloes remained,





FIG. 1



FIG. 2

FIG. 1. STONE MOUNTAIN-SHEEP. FIG. 2. ROCKY MOUNTAIN BIGHORN  
From mounted specimens in American Museum  
(From Bulletin American Museum, Vol. IX, 1897, pl. iii)



## NORTH AMERICAN RUMINANTS

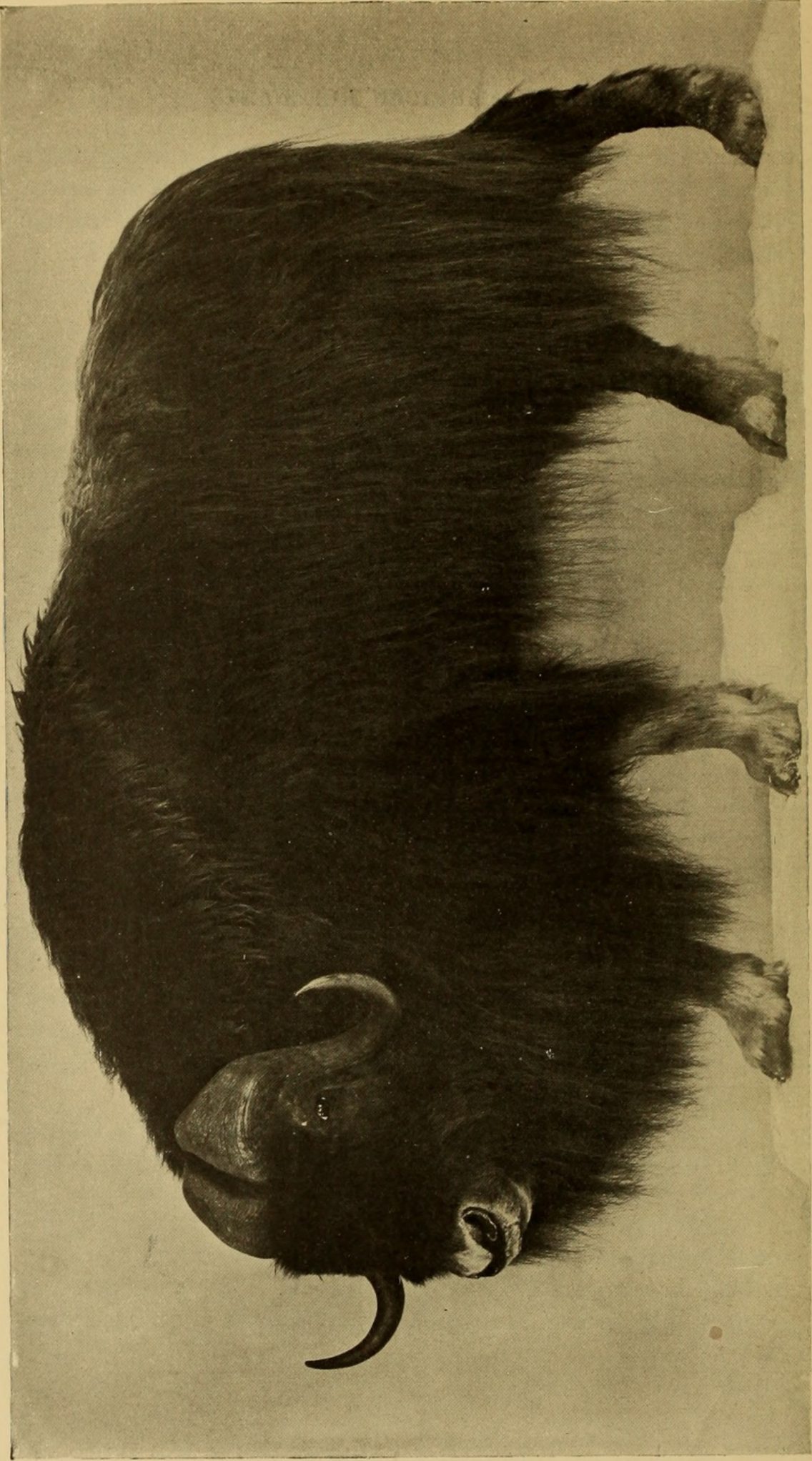
together with their well-worn trails, to testify to the former existence of the immense herds seen in 1873. And now, when only a few hundred remain of all the former millions that roamed the central portion of the continent, from Great Slave Lake to Texas, Congress is reported to be considering a bill for the protection of the American Bison!

The Mountain-Sheep or Bighorns number five species, only one of which is at present well represented in the exhibition collection. This is the Stone Mountain-Sheep from northern British Columbia. Through the Stone Expedition, however, there has just been secured a fine series of the Dall Mountain-Sheep of Alaska, which will furnish material for the illustration of this interesting species by an elaborate group. These two species show the extremes of color in the different kinds of our Bighorns, the Stone Sheep being nearly black and the Dall Sheep, almost pure white. Of the Rocky Mountain Bighorn, the longest known and largest of any of the North American members of the genus *Ovis*, the Museum possesses only a pair of poorly mounted specimens. Efforts have been made and plans elaborated for the construction of a group of this striking species, but the expense of the undertaking has thus far compelled the Museum authorities to postpone any attempt to prepare it.

The southern or Nelson Bighorn, recently described from the Grapevine mountains on the California-Nevada boundary, and the Mexican Bighorn, lately made known from the State of Chihuahua, Mexico, are still desiderata. But the Museum has been fortunate enough to secure specimens of the Fannin Mountain Sheep, discovered the past year near Dawson, Northwest Territory, and known as yet from very few specimens.

The Rocky Mountain Goats comprise two species, one of which has been discovered only recently in the Copper River region of Alaska, and very few specimens of it have as yet reached any museum. The Mountain Goat of the northern United States and British Columbia is represented in our exhibition collection by a single specimen. A group of this species has long been planned, and a few specimens





BARREN GROUND MUSK-OX. ADULT MALE  
Mounted specimen in American Museum  
(From Bulletin American Museum, Vol. XIV, 1901, pl. xii)



## NORTH AMERICAN RUMINANTS

have been gathered for it, but not enough to complete the group. The Goats and Sheep are mountain dwellers, and their favorite haunts are the more inaccessible parts of the higher ranges. Yet they have been followed by the hunter into their remotest and most secluded resorts. The Sheep are exceedingly watchful and sagacious, and these traits alone have preserved them from total annihilation. They have been exterminated in the more accessible parts of their ranges, and survive in comparatively small numbers and greatly restricted areas. The Goats were originally much less widely distributed in North America than the Sheep. Their chief protection lies in the inaccessibility of their favorite ranges; since, when once discovered, their safety depends upon the difficulty and danger attending their pursuit rather than upon that keen alertness so characteristic of the Mountain Sheep.

The Musk-Oxen, or Musk-Sheep, as they sometimes are called, are the only remaining members of the Ruminants to be mentioned. They are, however, neither oxen nor sheep, <sup>Musk-Oxen.</sup> nor very closely allied to either, but are a very distinct type of the hollow-horned section of the Ruminants, entitled to a distinctive name free from the implication of any such alliance. Like the misapplied name Buffalo for the Bison, however, and of Robin for various birds, in different countries, that are not robins, and scores of other misapplied popular names, the term Musk-Ox has so firm a foothold that it is not likely soon to be displaced. The Musk-Oxen are the most exclusively Arctic of all Ruminants, their home being the remote, treeless Barren Grounds of the far North, where vegetation is scanty, and the ground is buried in snow for a large part of the year. Nature has provided the animal with a heavy fleece of soft hair and wool for its protection against the inclemency of the long Arctic winter. The Musk-Oxen are in the last stages of numerical decline; formerly ranging, in comparatively recent geological times, as far south as Kentucky, Missouri and Utah, and over a large part of Siberia to Germany and England, they now are restricted to the Barren Grounds east of the Mackenzie river, the Arctic islands north of Hudson Bay, and a narrow coast strip on both sides of northern Greenland,





PEARY MUSK-OX. ADULT MALE  
Mounted specimen in American Museum. Peary Expedition  
(From Bulletin American Museum, Vol. XIV, 1901, pl. xiii)



## NORTH AMERICAN RUMINANTS

where their numbers are being rapidly diminished by Indians and Eskimos and by Arctic explorers.

There are two species of Musk-Oxen, the Barren Ground and the Greenland, both of which are well represented in the Museum collection. Six specimens of the Greenland species, secured for the Museum by Lieut. R. E. Peary, have been mounted and installed as a group in Hall No. 207 of the East Wing. The Barren Ground species, also, is well represented by mounted specimens, including the young as well as the adult.

From the foregoing it is evident that the Museum is very deficient in the large game animals of North America, many of the forms being entirely absent and others very inadequately represented. It is the wish of the Museum authorities to exhibit each prominent species by a group, planned on a large scale, with proper accessories to illustrate the life habits of the animal; in other words, on the same scale as the present Moose and Bison groups in the North American Hall. The careful construction of these groups implies not only a considerable expenditure of money in procuring specimens of the animals for mounting, but also in furnishing the accessories and making the studies for its setting. The designer of a group should visit the country inhabited by the animals it is intended to illustrate, plan the group in the field, and collect samples of rock, soil and vegetation for use in the construction of the exhibit. In no other way can the results be realistic and satisfactory,—exact representations of nature, which it is the purpose of these groups to reproduce. Since not every specimen is suitable for mounting, a considerable series must be collected or purchased in order to select therefrom material that will be satisfactory.

**Exhibits  
Needed.**

NOTE.—The attention of the reader is called to the fact that in the halls of Ethnology, Nos. 101, 102, 108, on the ground floor of the building, will be found many articles of dress made from the skins of the Deer and other members of the family of Ruminants, also many implements of the chase and of home industries made from the bones and antlers of the Deer, Elk etc. The teeth of some of the Rumi-





PEARY MUSK-OX. ADULT FEMALE  
Mounted specimen American Museum. Peary Expedition  
(From Bulletin American Museum, Vol. XIV, 1901, pl. xiv)



## NORTH AMERICAN RUMINANTS

nants, particularly the so-called "tusks" of the Elk, have been used by the Indians for ornamental purposes. Specimens illustrating such uses will be found in the same halls. The Museum Memoir on the Thompson River Indians, by James Teit, contains descriptions of many such garments and implements, and the specimens therein described are on exhibition in these halls.

The ancestors of the higher Ruminants are mainly of Old-World origin and are comparatively scarce and late in appearance in the fossil beds of our own continent. The following exhibits in the Hall of Fossil Vertebrates, No. 406, on the fourth floor of the Museum, should be examined by the readers of this Guide Leaflet who are interested in evolution:

The Irish Deer, or Irish Elk, (*Megaceros hibernicus* Owen), from near Limerick, Ireland, a form which is related to the recent genus *Dama*. The specimen was presented to the Museum by Prof. Albert S. Bickmore.

A Model, one-fourth natural size, of *Cervalces*, the great Moose-Elk from the Pleistocene beds of New Jersey. The skeleton is in the Princeton museum.

A hind limb of a fossil Bison from the western Pleistocene beds of Nebraska.

The mounted skeleton of *Merycodus* from the Middle Miocene beds of Colorado. This is an extinct type of Antelope, related to the Pronghorn, but possessed of branching, deciduous, bony antlers like those of the deer.

Skulls and other parts of *Palæomeryx* and other Miocene ancestors of the Deer.—EDITOR.





Allen, J. A. 1904. "North American ruminants." *Guide leaflet 5*, Page 1–29.

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