

UNITED STATES
DEPARTMENT OF AGRICULTURE
LIBRARY



BOOK NUMBER 500019
1
B52N
22
1902

22 of 250 1/2

U. S. DEPARTMENT OF AGRICULTURE
DIVISION OF BIOLOGICAL SURVEY

NORTH AMERICAN FAUNA

No. 22

[Actual date of publication, October 31, 1902]



A BIOLOGICAL INVESTIGATION OF THE HUDSON BAY REGION

BY

EDWARD A. PREBLE
ASSISTANT BIOLOGIST, BIOLOGICAL SURVEY

Prepared under the direction of
Dr. C. HART MERRIAM
CHIEF OF DIVISION OF BIOLOGICAL SURVEY



WASHINGTON
GOVERNMENT PRINTING OFFICE

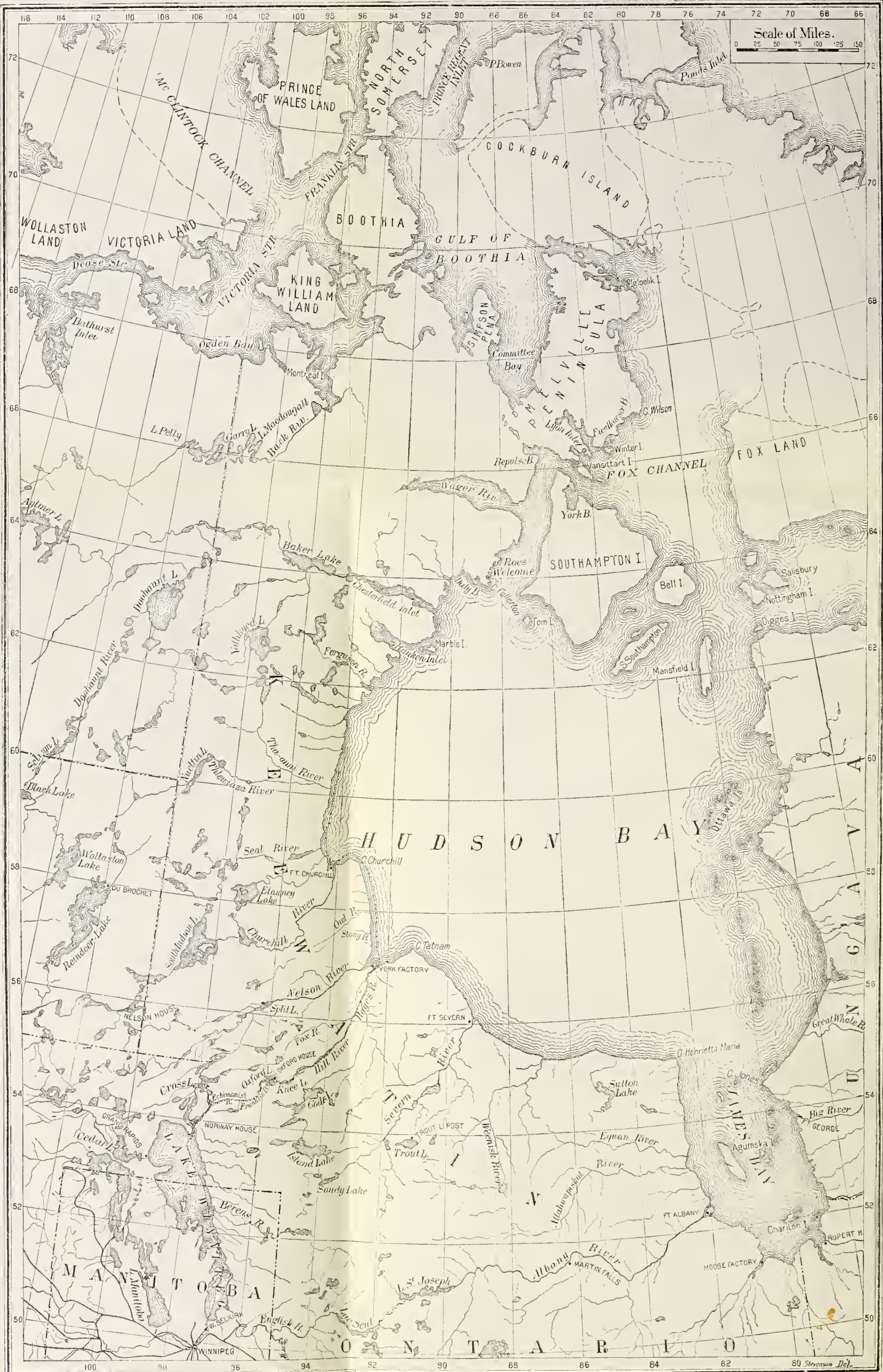
1902

CONTENTS OF NORTH AMERICAN FAUNA.

- No. 1. Revision of the North American Pocket Mice. By Dr. C. Hart Merriam. Pp. 36, pls. 4. October 25, 1889. Price, 10 cents.
- No. 2. Descriptions of fourteen new species (genera *Onychomys*, *Arctomys*, *Lagomys*, *Spermophilus*, *Tamias*, *Nyctinomys*, and *Arvicola*) and one new genus (*Phenacomys*) of North American Mammals. By Dr. C. Hart Merriam. Pp. 52, pls. 8, figs. 7. October 30, 1889. Price, 10 cents.
- No. 3. Results of a Biological Survey of the San Francisco Mountain Region and Desert of the Little Colorado, Arizona. By Dr. C. Hart Merriam. [List of Reptiles and Batrachians, by Dr. Leonhard Stejneger.] Pp. 136, pls. 14 (2 colored), maps 5 (colored), figs. 2. September 11, 1890. Price, 25 cents.
- No. 4. Descriptions of twenty-six new species of North American Mammals. [Revision of *Spilogale* and descriptions of new species in nine other genera.] By Dr. C. Hart Merriam. Pp. 60, pls. 3, figs. 3. October 8, 1890. Price, 10 cents.
- No. 5. Results of a Biological Reconnoissance of south-central Idaho. By Dr. C. Hart Merriam. [List of Reptiles and Batrachians, by Dr. Leonhard Stejneger.] Pp. 132, pls. 4 (1 colored), figs. 4. July 30, 1891. Price, 15 cents.
- No. 6. (Not published.)
- No. 7. The Death Valley Expedition: A Biological Survey of Parts of California, Nevada, Arizona, and Utah. Part II. [Reports on Birds, by Dr. A. K. Fisher; Reptiles and Batrachians, by Dr. Leonhard Stejneger; Fishes, by Chas. H. Gilbert, Ph. D.; Insects, by C. V. Riley, Ph. D.; Mollusks, by R. E. C. Stearns, Ph. D.; Desert Trees and Shrubs, by Dr. C. Hart Merriam; Desert Cactuses and Yuccas, by Dr. C. Hart Merriam; List of Localities, by T. S. Palmer.] Pp. 402, pls. 14, maps 5 (colored), figs. 2. May 31, 1893. (Out of print.)
- No. 8. Monographic Revision of the Pocket Gophers, Family *Geomysidae* (exclusive of the species of *Thomomys*). By Dr. C. Hart Merriam. Pp. 258, pls. 20, maps 4 (colored), figs. 71. January 31, 1895. Price, 35 cents.
- No. 9. (Not published.)
- No. 10. Revision of the American Shrews of the Genera *Sorex*, *Notiosorex*, and *Blarina*. By Dr. C. Hart Merriam and Gerrit S. Miller, Jr. Pp. 124, pls. 12, figs. 3. December 31, 1895. Price, 10 cents.
- No. 11. Synopsis of the Weasels of North America. By Dr. C. Hart Merriam. Pp. 44, pls. 6, figs. 16. June 30, 1896. Price, 10 cents.
- No. 12. Genera and Subgenera of Voles and Lemmings. By Gerrit S. Miller, Jr. Pp. 84, pls. 3, figs. 40. July 23, 1896. Price, 10 cents.
- No. 13. Revision of the North American Bats of the Family *Vesperilionidae*. By Gerrit S. Miller, Jr. Pp. 135, pls. 3, figs. 40. October 16, 1897. Price, 10 cents.
- No. 14. Natural History of the Tres Marias Islands, Mexico. By E. W. Nelson and others. Pp. 97, map 1, figs. 2. April 29, 1899. Price, 10 cents.
- No. 15. Revision of the Jumping Mice of the Genus *Zapus*. By Edward A. Preble. Pp. 41, pl. 1, figs. 4. August 8, 1899. Price, 5 cents.
- No. 16. Results of a Biological Survey of Mount Shasta, California. By Dr. C. Hart Merriam. Pp. 179, pls. 5, figs. 46. October 28, 1899. Price, 20 cents.
- No. 17. Revision of American Voles of the Genus *Microtus*. By Vernon Bailey. Pp. 88, pls. 5, figs. 17. June 6, 1900. Price, 10 cents.
- No. 18. Revision of the Pocket Mice of the Genus *Perognathus*. By Wilfred H. Osgood. Pp. 65, pls. 4, figs. 15. September 20, 1900. Price, 10 cents.
- No. 19. Results of a Biological Reconnoissance of the Yukon River Region. By Wilfred H. Osgood and Louis B. Bishop. Pp. 100, pls. 7. October 6, 1900. Price, 10 cents.
- No. 20. Revision of the Skunks of the Genus *Chincha*. By Arthur H. Howell. Pp. 62, pls. 8. August 31, 1901. Price, 10 cents.
- No. 21. Natural History of the Queen Charlotte Islands, British Columbia; Natural History of the Cook Inlet Region, Alaska. By Wilfred H. Osgood. Pp. 87, pls. 7, fig. 1. September 26, 1901. Price, 10 cents.

All applications for Nos. 1-5, 8, and 10-21 should be addressed to the Superintendent of Documents, Union Building, Washington, D. C.

Remittances should be made by postal money order or express money order, *not* by postage stamps or private check.



KEEWATIN.

The route followed by this expedition is shown by a dotted line.

U. S. DEPARTMENT OF AGRICULTURE
DIVISION OF BIOLOGICAL SURVEY

NORTH AMERICAN FAUNA

No. 22

[Actual date of publication, October 31, 1902]

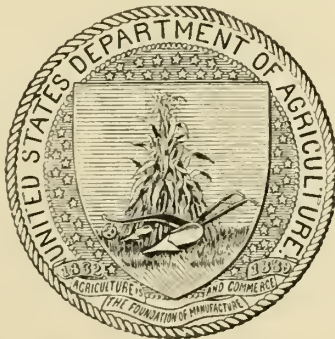


A BIOLOGICAL INVESTIGATION OF THE HUDSON BAY REGION

BY

EDWARD A. PREBLE
ASSISTANT BIOLOGIST, BIOLOGICAL SURVEY

Prepared under the direction of
Dr. C. HART MERRIAM
CHIEF OF DIVISION OF BIOLOGICAL SURVEY



WASHINGTON
GOVERNMENT PRINTING OFFICE
1902

LETTER OF TRANSMITTAL.

UNITED STATES DEPARTMENT OF AGRICULTURE,

Washington, D. C., August 18, 1902.

SIR: I have the honor to transmit for publication, as North American Fauna No. 22, a paper on the natural history of the Hudson Bay region, by my assistant, Edward A. Preble.

C. HART MERRIAM,

Chief, Biological Survey.

HON. JAMES WILSON,

Secretary of Agriculture.

PREFATORY NOTE.

A century or more ago the employees of the Hudson's Bay Company sent collections of birds and mammals from Hudson Bay to London. Some of these specimens came from the shores of Hudson Bay, others from trading posts in the distant interior; but many were not labeled to show where they were obtained. They were examined by the naturalists of the time and a number of species were described and named as new. In most cases the original specimens have disappeared and modern naturalists have been greatly perplexed in attempting to ascertain just what the species really were. No modern museum possessed anything approaching a representative collection of the mammals and birds of Hudson Bay, and specimens for comparison with related forms from other parts of Boreal America were not to be had. The resulting embarrassment was most keenly felt when the Biological Survey secured large collections from Alaska. In many instances it was impossible to tell whether certain Alaska species were identical with or distant from related forms previously described from Hudson Bay. In order to obtain the long-needed material it was determined to send an expedition to Hudson Bay. Edward A. Preble was placed in charge of this expedition; his report shows how well and faithfully his duties were performed. His successful trip, in an open boat, in inclement fall weather, from Fort Churchill to the Barren Grounds near Cape Eskimo, in search of topotypes of the Hudson Bay ground squirrel (often known as Parry's marmot) deserves special commendation.

I take pleasure also in referring to the uniform courtesies and facilities extended by the officers and employees of the Hudson's Bay Company, particularly by Mr. C. C. Chipman, commissioner of the company, at Winnipeg.

C. H. M.

CONTENTS.

	Page.
Introduction and itinerary	9
General account of the region traversed.....	11
Life zones of the region	22
Previous work	23
Bibliography.....	27
Note on boundaries of the region treated.....	38
New species.....	38
Annotated list of mammals.....	39
Annotated list of birds.....	75
Annotated list of batrachians.....	133

ILLUSTRATIONS

	Page
PLATE I. Map of Keewatin	Frontispiece.
II. Fig. 1. General view of Norway House.—Fig. 2. Shore of channel near Norway House	10
III. Fig. 1. Spruce thicket near Norway House.—Fig. 2. Aspen thicket near Norway House	10
IV. Fig. 1. Rocky shore near Norway House, showing store of fur-trader.—Fig. 2. Sea River Falls (looking down).....	12
V. Fig. 1. Oxford House (photographed by William Campbell).—Fig. 2. Indian Camp, Oxford House	12
VI. Fig. 1. Rapid below Windy Lake.—Fig. 2. Canoe entering rapid, Trout River.....	14
VII. Fig. 1. Rapid, Trout River.—Fig. 2. Shore of Knee Lake near south end	14
VIII. Fig. 1. White Mud Rapid, Hill River.—Fig. 2. Hill River near Seeing Portage; Brassy Hill in distance	16
IX. Fig. 1. Left bank of Hill River from Rock Portage.—Fig. 2. Clay banks, lower Hill River.....	16
X. Fig. 1. Fort Churchill.—Fig. 2. Meadows, looking southwest from Fort Churchill.—Fig. 3. Seal (<i>Erignathus barbatus</i>), Fort Churchill.	18
XI. Fig. 1. Ledge of quartzite at Fort Churchill.—Fig. 2. Low tide at Fort Churchill	18
XII. Fig. 1. Camp on Barren Grounds, 50 miles south of Cape Eskimo.—Fig. 2. Burrow of lemming (<i>Lemmus trimucronatus</i>), Barren Grounds	20
XIII. Fig. 1. Camp on Barren Grounds, 25 miles south of Cape Eskimo.—Fig. 2. Eskimo guide at northern camp	20
XIV. Fig. 1. Dragging canoe up rapid, Trout River.—Fig. 2. Hell Gate Gorge (looking up).....	22

A BIOLOGICAL INVESTIGATION OF THE HUDSON BAY REGION.

By EDWARD A. PREBLE.

INTRODUCTION AND ITINERARY.

In 1610 Henry Hudson, while searching for a northwest passage, entered and partially explored the great inland sea that bears his name. In 1670 the Hudson's Bay Company was organized to trade for furs with the natives of the great unexploited territory adjacent to the Bay. This company first established several trading posts at the mouths of the rivers tributary to the Bay and then gradually extended its field of operations inland. By this means the southern and western shores of Hudson Bay and the principal rivers emptying into it on the west had become fairly well known at a time when immense areas in North America, apparently more favorably located and more accessible, were still unexplored. As a natural result the birds and mammals of this semiarctic region were early brought to the attention of naturalists, and many species whose ranges extend over a very large area were first described from specimens sent to Europe from Hudson Bay. This was mainly due to the labors of the employees of the Hudson's Bay Company, who, residing at trading posts and coming in contact for purposes of trade with practically all the natives of the region, were able to secure natural history specimens with comparative ease, especially the larger species. The many collections thus made were conveniently sent to England by the ships which paid annual visits to the posts. In this way a number of mammals and many birds, mainly littoral and pelagic species, first became known to science. As time went on, however, less attention was given to the fauna of this region, while most other parts of North America were ransacked for natural history material, so that the close of the nineteenth century found Hudson Bay one of the most neglected fields of modern zoological research. Some species, originally described from poor specimens, and in the loose and inaccurate style of a hundred years ago, were known by these descriptions alone, while others were represented in museums only by poorly

stuffed and faded specimens, entirely inadequate to meet the requirements of modern scientific methods. This lack of material, in connection with the absence of definite knowledge as to the boundaries of the life zones, made it desirable that a collection, as thorough as possible, be made in the region.

Early in the summer of 1900, therefore, I was detailed to make a biological reconnaissance of as much of the region immediately to the west of Hudson Bay as it would be practicable to cover in a single season. My brother, Alfred E. Preble, of Tufts College, Massachusetts, accompanied me as assistant.

The Hudson's Bay Company still maintains trading posts throughout the region we were to visit, and the officials of the company compose almost its entire white population. These posts are situated on the usual lines of travel, and constitute the only bases of supplies available; hence it was considered advisable to arrange with the company for food and means of transportation.

This we did on our arrival at Winnipeg on June 13, and obtaining a canoe from the company, set out the next day down the Red River. The following morning we took the Northwest Navigation Company's steamer *Princess* at West Selkirk, and on June 17 arrived at Norway House, near the north end of Lake Winnipeg, where we were to begin operations. Here we collected until June 23, when our northern trip was resumed. We took two Indians for guides, boatmen, and camp hands, and a large Peterborough canoe, in which our collecting and camp outfit and provisions were carried.

We passed down the east channel of Nelson River, and ascending the Echimamish, followed the usual boat route to York Factory, stopping to collect at favorable points. At the head of the Echimamish proper, which terminates abruptly at a rock about 30 yards broad called the Painted Stone, we made a portage and launched our canoe in a small lake. A stream flows eastward from this lake and we thus had the advantage of the current for the remaining distance to Hudson Bay. Beyond Painted Stone Portage the route passes successively through the Robinson lakes, Franklin River, and Pine, Windy, Oxford, Knee, and Swampy lakes. These different lakes vary from a few miles to forty in length, and the channels connecting them contain numerous rapids. Hill River forms the outlet of Swampy Lake, the last of the chain, and unites with Fox River to form Steel River. This in turn unites with the Shamattawa, and the resulting stream, known as Hayes River, empties into Hudson Bay at York Factory. On reaching the Bay we exchanged our canoe for a sailboat and made our way up the west coast to Fort Churchill, at the mouth of the river of that name. Here, after a few days' stay, I left my brother to complete the collection, while I pushed northward well into the Barren Grounds. This trip consumed three weeks, and on my return to Fort Churchill we immediately started on the homeward journey in order



FIG. 1.—GENERAL VIEW OF NORWAY HOUSE.



FIG. 2.—SHORE OF CHANNEL NEAR NORWAY HOUSE.



FIG. 1.—SPRUCE THICKET NEAR NORWAY HOUSE.



FIG. 2.—ASPEN THICKET NEAR NORWAY HOUSE.

to complete it before navigation closed. We passed down the coast to York Factory in a sailboat and retraced our way to Norway House in our canoe. The trip up the rapid streams with our heavily loaded boat was a very arduous one, but we reached Norway House without accident or delay on September 16, having completed a journey by canoe and sailboat of more than 1,200 miles, much of it through very difficult water. We took a steamer from Norway House on September 19 and arrived at Winnipeg on September 22.

During our trip to Hudson Bay we were placed under many obligations to a number of officers of the Hudson's Bay Company, to whom our cordial thanks are hereby extended. Through the courtesy of C. C. Chipman, commissioner of the Hudson's Bay Company at Winnipeg, we were able to make arrangements to secure supplies and transportation at the different trading posts of that company on our route; without this aid the trip could hardly have been accomplished. Among others who assisted us in various ways are Messrs. William Clark, W. C. King, and Roderick MacFarlane, of Winnipeg; J. K. MacDonald, of Norway House; William Campbell, of Oxford House; G. B. Boucher, of York Factory; Ashton Alston, of Fort Churchill; and especially Dr. Alexander Milne, of Winnipeg (formerly of York Factory), who has given me many notes on the distribution of the larger mammals. To the Rev. Mr. Chapman, a missionary at Fort Churchill, we were also indebted for information and various courtesies. The Rev. W. A. Barman, of Winnipeg, kindly furnished us with a list of the principal trees and shrubs occurring about Winnipeg. From Colonel Scobell, C. E., of Winnipeg, we obtained much detailed and valuable information concerning the boat route to York Factory.

In preparing this report I have received many courtesies from Mr. Robert Ridgway, curator, and Dr. C. W. Richmond, assistant curator of birds in the U. S. National Museum, who have not only permitted the unrestricted use of the collection under their charge but have helped me in many other ways. Mr. Gerrit S. Miller, jr., assistant curator of mammals in the National Museum, has extended similar favors in regard to the mammals; and Dr. Leonhard Stejneger, curator of reptiles in the National Museum, has aided in identifying the frogs collected. Thanks are also due to Frederick V. Coville, botanist of the Department of Agriculture, and his assistants, for identifying the plants collected. Finally, I am indebted to Dr. C. Hart Merriam and Dr. T. S. Palmer, chief and assistant chief of the Biological Survey, for various courtesies extended during the progress of the work.

GENERAL ACCOUNT OF THE REGION TRAVERSED.

Winnipeg is situated at the junction of the Red and Assiniboine rivers, on the site of old Fort Garry. To the westward stretch the plains, but the vicinity of the rivers is well wooded with elm (*Ulmus americana*), mossy-cup oak (*Quercus macrocarpa*), basswood (*Tilia*

americana), ash-leaved maple (*Acer negundo*), and other species, with an undergrowth composed principally of viburnums, hazel (*Corylus americana* and *rostrata*), wolfberry (*Symphoricarpos occidentalis*), hawthorn (*Crataegus coccinea*), etc.

The Red River below (to the north of) Winnipeg is very winding and is inclosed between banks of clay and limestone which at first are rather high and steep and are fairly well wooded, though the woods seldom extend far back from the river. But just beyond West Selkirk (a village about 20 miles below Winnipeg, near the site of the historic Selkirk Settlement) the banks become lower and the woods gradually yield to willow thickets. Farther down, a few miles from the mouth of the river, these willow thickets in turn disappear, and Lake Winnipeg is approached through a marsh which extends as far as the eye can reach, and where numberless coots and other marsh-loving birds find a congenial home.

Soon after we entered the waters of Lake Winnipeg, about 42 miles from our starting point, our course carried us too far from shore to permit observations as to forest conditions, and such was the case throughout much of our voyage up the lake, though a few opportunities for notes were offered. At The Narrows we could see that the western shore was well wooded with birch and conifers, a character of forest which, we were told, continues south nearly to the mouth of Red River.

At Bull Head, off which we anchored early on the morning of June 16, the forest consisted mainly of spruce, tamarack, a species of pine (probably *Pinus divaricata*), birch (*Betula papyrifera*), and poplar (*Populus balsamifera*), the deciduous species predominating. The shores of the northern part of the lake are low and sandy with numerous outcrops of gneiss, and many low islands of the same rock occur. Great Playgreen Lake, the body of water next traversed, lies just east of the northern part of Lake Winnipeg, with which it is connected at its southern end by a rocky channel. This channel is entered at Mossy Point, the southern extremity of a slender strip of land separating the two lakes, on which Norway House was originally situated. Nelson River issues from Great Playgreen Lake by two main channels, known as East and West rivers, which, coming together at Cross Lake, inclose Ross Island, 50 miles in length. East River, on leaving Great Playgreen Lake, divides into several minor channels encircling small islands, then expanding forms Little Playgreen Lake, about 25 miles from the outlet of Lake Winnipeg, and 300 miles from the southern end. On one of these islands, at the southern margin of Little Playgreen Lake, stands Norway House (Pl. II, fig. 1). Two miles distant, on the eastern shore of the lake, is Rossville Mission.

Like most of the region between Lake Winnipeg and Hudson Bay, the country about Norway House consists largely of swamps, mainly



FIG. 1.—ROCKY SHORE NEAR NORWAY HOUSE, SHOWING STORE OF FUR TRADER.



FIG. 2.—SEA RIVER FALLS, LOOKING DOWN.



FIG. 1.—OXFORD HOUSE.
Photographed by William Campbell.



FIG. 2.—INDIAN CAMP, OXFORD HOUSE.

grown up to willows and tamaracks. Numerous elevated places occur, rocky 'islands' on which has accumulated a rather thin covering of soil, supporting a moderately heavy growth of black and white spruce (*Picea nigra* and *P. alba*, Pl. III, fig. 1), balsam fir (*Abies balsamea*), Banksian pine (*Pinus divaricata*), aspen poplar (*Populus tremuloides*, Pl. III, fig. 2), balsam poplar (*Populus balsamifera*), canoe birch (*Betula papyrifera*), and tamarack (*Larix laricina*). These species form the bulk of the forest between Lake Winnipeg and Hudson Bay.

From the vicinity of Norway House to the Sea River Falls (Pl. IV, fig. 2), about 20 miles below, the shores are rather low (see Pl. II, fig. 2; Pl. IV, fig. 1). Then for the few remaining miles before the mouth of the Echimamish is reached the route lies through a channel bordered by rather high banks and forested with birch and poplar. The water of the Echimamish, which flows into Nelson River from the eastward, is very dark and contrasts markedly with that of the Nelson, which carries the whitish waters of Lake Winnipeg. The course here leaves East River and ascends the Echimamish, a short distance from the mouth of which it passes through Hairy Lake, a broad, shallow sheet of water a few miles in length, in which grow extensive patches of bulrush (*Scirpus lacustris*). Above this lake for more than 20 miles the Echimamish is a winding, sluggish stream, with an east and west trend, and averages about 50 feet in width. Its banks are low and marshy, and on the lower part extensive swamps border it on either side. Occasional outcrops of gneiss occur, dry 'islands,' which form the only available camping places. The forest consists mainly of spruce, tamarack, and willow, the latter usually predominating. Mosquitos, which swarm over the entire region, are here almost unbearable, and as the shallowness of the water, which is barely deep enough to float a canoe, makes paddling very difficult, the ascent of this river was perhaps the least pleasant part of our journey. Three dams, at one of which—the second—we did some collecting, are kept up for the purpose of holding back a sufficient amount of water to permit the passage of boats. The stream flows through a flat country and in several places in the upper part of its course, broadens and forms small ponds. In its comparatively still waters the yellow pond lily (*Nymphaea*) grows abundantly.

At the Painted Stone, about 36 miles from Norway House, the stream comes to an abrupt termination, and boats are carried across a rock and launched in a small lake with high, rocky shores. From this lake issues a stream generally considered a part of the Echimamish, which in the Cree language signifies 'the river that flows each way.' It would appear that the small lake is fed from some underground source, and that some of its waters escape into the western part of the Echimamish. The vicinity of Painted Stone Portage proved a very good collecting ground. The eastern part of the Echimamish is

deep and bordered by high, rocky banks, on which *Potentilla tridentata* grows abundantly. Seven miles from the Painted Stone the stream unites with White Water River, which discharges the waters of Little Lake Winnipeg, and from this point to Oxford Lake the stream is called Franklin River.

The Robinson lakes, the southern shores of which are rather marshy and the northern shores higher, are next passed, and then 12 miles from the junction of the two streams Robinson Portage is reached. Here a portage of about three-fourths of a mile is necessary to avoid Robinson Rapids, where the river plunges through a deep ravine in a series of falls and rapids, with a total descent of about 50 feet. Deep mossy woods border this gorge, the excessive moisture from the rapids causing a luxuriant growth. From the lower or northern end of Robinson Portage, which lies nearly north and south, extends a line of lakes with marshy shores and supporting an abundant growth of sweet flag (*Acorus calamus*). A short stop was made and some collecting done at the north end of the portage. Immediately below these lakes the river plunges with considerable rapidity through a rocky gorge called Hell Gate. A short portage is made at its entrance, and after being launched in a surging pool at the foot of the rapid, the canoe is borne swiftly through the gorge. In some places the rocky walls rise nearly perpendicularly without a break; in others the bank consists of a succession of steep mossy terraces, the homes of several eagles.^a Throughout most of its course of 7 miles through the gorge, the river is confined within narrow limits, and the smooth but impetuous current bears the voyager rapidly onward, constantly bringing fresh vistas to his view. In a few places a portion of the rocky walls has fallen, partially damming the stream, and the canoe is run through short, rapid chutes, the perpendicular walls preventing a landing, however desirable it might appear. Farther down the rocky banks are not so high and the surrounding country is seen to consist of rugged rock masses scantily clothed with Banksian pines. Here the voyager may land to see the 'kettles'—deep, rounded potholes of various sizes, which have been worn in the rock during past ages.

A short distance beyond the lower end of Hell Gate Gorge, 23 miles from Robinson Portage, lies Pine Lake, a small, irregularly outlined body of water containing numerous islands and environed by rocky but fairly well wooded shores. Ten miles farther on, below a succession of small ponds and channels with marshy shores, lies Windy Lake. Here the banks are moderately high and formerly were well wooded; but within the past few years they have been partially denuded by fire. The head of Windy Lake is 12 miles distant from Oxford Lake, near

^a Compare Franklin, who says, in speaking of this gorge, "The brown fishing-eagle had built its nest on one of the projecting cliffs." Narrative of a Journey to the Polar Sea, p. 39, 1823.



FIG. 1.—RAPID BELOW WINDY LAKE.



FIG. 2.—CANOE ENTERING RAPID, TROUT RIVER.



FIG. 1.—RAPID, TROUT RIVER.

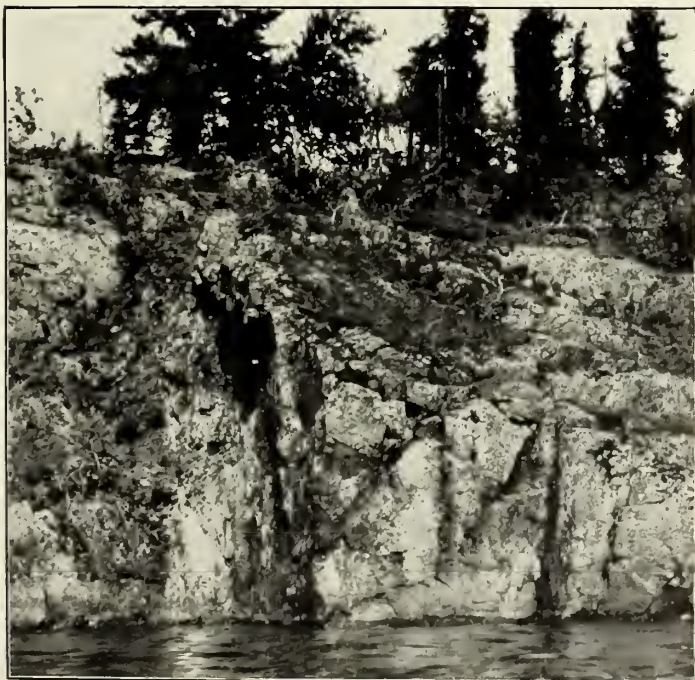


FIG. 2.—SHORE OF KNEE LAKE NEAR SOUTH END.

the northern end of which, 30 miles farther, is situated Oxford House, the only post or habitation of any kind on this route between Norway House and Hudson Bay (Pl. V, figs. 1 and 2). In the short stream connecting the two lakes four rapids occur, at two of which portages are necessary (Pl. VI, fig. 1).

Oxford Lake extends southwest and northeast, and its 30 miles are marked by irregular shores and many islands. The shores are mainly of rock and are generally well forested. The locality about Oxford House we found favorable for collecting and a stop of a few days was made. The promontory on which the post is situated was probably well wooded originally, but its western half has been entirely cleared and is mainly covered with grass, with a few patches of willows and other shrubs. East of this cleared area the ground slopes gently to Back Lake, about a quarter of a mile distant, and is fairly well covered with spruce, fir, tamarack, poplar, and willow. The soil is a stiff clay, and potatoes and other garden vegetables of fine quality are raised.

The waters of Oxford Lake flow into Back Lake through a short, narrow channel, and those of Back Lake find their outlet in Trout River (Pl. VI, fig. 2; Pl. VII, fig. 1), which runs southeastward to Trout Falls, 9 miles from Oxford House. At Trout Falls the river makes a plunge of about 12 feet into a deep pool. A short distance below is Knee Lake, a rather narrow body of water 40 miles in length and extending in a general southwest and northeast direction, with two somewhat abrupt bends. The shores of the southern part are high and well wooded (Pl. VII, fig. 2), and many wooded islands of various sizes dot the surface of the lake. At about a third of its length from the upper end the lake contracts and its shores become low and swampy. In this narrow part is Magnetic (or Magnetite) Island, a low, bare, irregular rock which offers considerable attraction to the magnetic needle. The shores and islands of the northern or larger part of the lake are low by comparison with those of the southern part, but are, like those, well wooded.

The next lake in the series is Swampy Lake, which is connected with Knee Lake by Jack River, a stream about 10 miles in length, containing four rapids in its brief course. Swampy Lake is 13 miles long and has low shores, especially on the eastern side, where the Hudson's Bay Company formerly had a post, long since abandoned.

Various species of water milfoil (*Myriophyllum*) and pondweed (*Potamogeton*) grow in the shallow portions of all these lakes, sometimes so profusely as to seriously interfere with navigation; and the beautiful water arum (*Calla palustris*) is frequently seen near the margin of lake or river. The larger species of birds are noticeably scarce and wild, in consequence of the incessant warfare waged by the natives, who eat anything wearing fur or feathers, and never willingly allow a large bird of any kind to escape. For this reason the gulls, terns, and ducks,

which were nesting as we passed, were excessively shy. On the lakes and rivers off the main route these conditions probably do not prevail.

Swampy Lake finds its outlet in Hill River, a rapid, winding stream, containing a great many willow-covered islands, and characterized during the first 30 miles of its course by numerous rapids. These necessitate frequent portages, half the entire number on the route, but fortunately they are all short. Each of these portages has its significant name—White Mud Portage (Pl. VIII, fig. 1), Mossy Portage, Seeing Portage, etc. The particular significance of the last named is that from the portage thus known Brassy Hill, a notable landmark, is seen for the first time on the way to the Bay (Pl. VIII, fig. 2). This hill, which is also responsible for the name of the river, is a remarkable gravelly elevation 390 feet high and three-quarters of a mile east of the river. As it is the highest point of land anywhere in the whole region between Lake Winnipeg and Hudson Bay, the natives naturally regard it as a veritable mountain.

About 15 miles below the 'Hill,' Rock Portage, the last on the route, is reached. Here a large flat rock divides the channel, and on each side is a fall of about 5 feet. Boats and baggage are carried over the rock. The Hudson's Bay Company formerly maintained a trading post near this point, but abandoned it many years ago. Between Brassy Hill and Rock Portage banks of clay gradually make their appearance. These, at first low, increase in size and in the vicinity of the Rock have attained considerable height (Pl. IX, fig. 1). From this point to Hudson Bay the character of the country and of the river remains much the same. The clayey banks continue on both sides nearly all the way and vary from a few feet to two hundred in height. They are marked by numerous gullies, cut by the many small streams that enter the main river, and, owing to frequent landslides, are continually giving way, precipitating uprooted trees into the river (Pl. IX, fig. 2). In many places they are covered with a rank growth of willows and grasses, amid which are various orchids, violets, polygonums, and other small plants.

Several species of scouring-rush (*Equisetum*) grow abundantly in the shallow water and often on the banks. Along upper Hill River sweet gale (*Myrica gale*) is common, and at the mouth of Fox River, 30 miles below Rock Portage, buckthorn (*Rhamnus alnifolia*), honeysuckle (*Lonicera glaucescens*), silverberry (*Elæagnus argentea*), small-flowered viburnum (*Viburnum pauciflorum*), and Canadian buffaloberry (*Lepargyrea canadensis*) were collected. None but the last two were noted farther north. Banksian pine (*Pinus divaricata*) and canoe birch (*Betula papyrifera*) also find their northern limit in this region near the confluence of Hill and Fox rivers; and the aspen poplar (*Populus tremuloides*) was not noted beyond this point, though it may possibly extend farther north on this route. In some places



FIG. 1.—WHITE MUD RAPID, HILL RIVER.



FIG. 2.—HILL RIVER NEAR SEEING PORTAGE; BRASSY HILL IN DISTANCE.

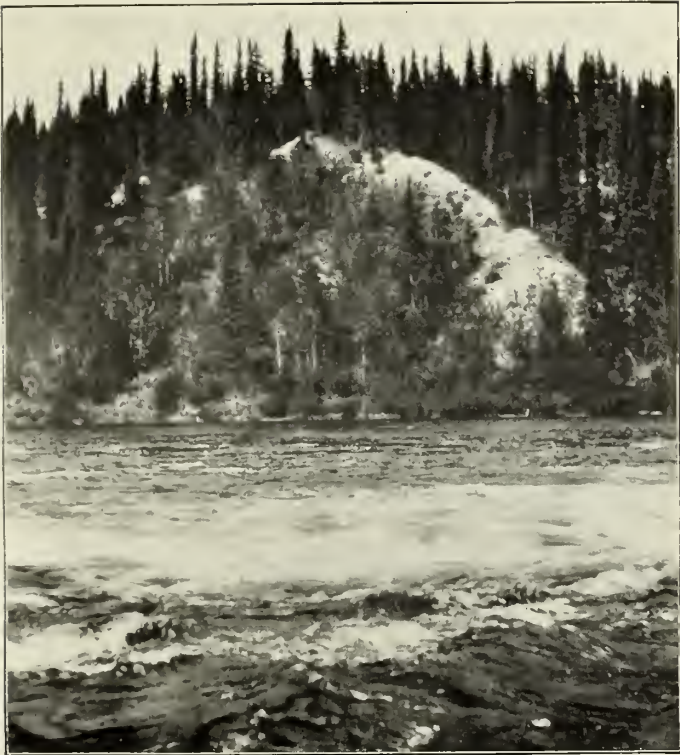


FIG. 1.—LEFT BANK OF HILL RIVER FROM ROCK PORTAGE.



FIG. 2.—CLAY BANKS, LOWER HILL RIVER.

the valley of Hill River is narrow and the view of the traveler is confined to the immediate banks; in others it is broad, and its gradual, well-wooded slopes afford more extended prospects.

The stream resulting from the junction of Hill and Fox rivers is called Steel River. After a course of 30 miles this in turn unites with the Shamattawa to form what is known as Hayes River, a broad, shallow stream on whose shores gravelly beaches, absent on the deep and narrow Steel River, alternate with high clay banks. In the next 50 miles the character of the country varies but little. Back from the river are mossy swamps, which support a growth of black crowberry (*Eupetrum nigrum*), Labrador tea (*Ledum*), dwarf birch (*Betula glandulosa*), and associated species. Spruces and tamaracks are rather stunted. This characteristic Hudsonian country first makes its appearance in large areas on the east side of Swampy Lake, about 100 miles from Hudson Bay in a direct line, and is probably continuous from that point to the Bay, although for some distance the immediate banks of the river continue to show a more southern element.

In the lower part of Hayes River are a number of low, sandy islands nearly devoid of vegetation from being overflowed and ice swept during a large part of the year. Arctic terns and semipalmated plovers, which breed abundantly on some of the islands, were here met with for the first time.

Six miles from the point where Hayes River empties into the Bay is York Factory, a post of the Hudson's Bay Company. It is on a strip of land, here 3 or 4 miles wide, lying between the Hayes and the Nelson. In the old days it was an important and well-peopled post, and was formerly the base from which all the supplies for the great interior region, brought from England by fleets of sailing vessels, were distributed by boats.

The ground is low and swampy and is covered by the usual rather stunted growth of spruces, tamaracks, and thickets of willow. The soil is of a spongy character and remains frozen a few feet below the surface throughout the year.^a The woods extend about 5 miles beyond the post and are succeeded by a mile of very wet marsh intersected by many sloughs and channels. This marsh, which is called Point of Marsh or Beacon Point, supports a rank growth of grass and water plants, among which bog-bean (*Menyanthes trifoliata*) and various species of pondweed (*Potamogeton*) are especially conspicuous.

^a Concerning this subject Richardson says:

"At York Factory, on Hudson's Bay, in lat. 57°, in October, 1835, recent frosts had penetrated eight inches into the soil; the thaw due to the summer heat extended twenty-eight inches beyond this, beneath which a frozen bed seventeen and a half feet thick reposed on thawed mud which had a temperature of 33° F. The mean annual heat of this place is 25½ F., being equal to that of Fort Simpson, which lies five degrees further north." Arctic Searching Expedition, p. 217, 1851. (See also Richardson, Edin. New Phil. Journ., XXX, p. 117, Jan., 1841.)

Various ducks and marsh sparrows and the elusive yellow rail find here a congenial habitat, and here, during their semiannual migrations, the various geese, ducks, and shore birds which breed in myriads to the northward stop for rest and food. Mosquitos become more abundant as the Bay is neared and are extremely troublesome at this point.

During our stay at York Factory—July 11 to 17—collecting was difficult, owing to the almost incessant rain. More time was needed, but the short season and the distance still to be covered impelled us to proceed. Temporarily abandoning our canoe, therefore, we left in a sailboat for Fort Churchill, 150 miles up the coast.

Contrary winds and periods of calm conspired to delay us, and the trip occupied six days. On the afternoon of the second day, being unable to proceed, we pushed in as far as possible toward the shore at high tide, and during the ebb were able to go ashore by taking a 3-mile walk over the bouldery, weed-strewn beach, where, on every hand, flocks of shore birds of various species were hastily seeking a feeding place on the broad expanse left bare by the ebbing tide. On reaching the shore we found the Barren Grounds on a small scale lying before us. Gravelly ridges, the remains of old sea beaches, extended in various directions at a few feet above the general level, the intervening depressions occupied by small ponds or marshes. Occasional stunted spruces on the ridges and dwarf birches and straggling willows on the lower ground were the only fair-sized shrubs, though various small shrubby plants were abundant. Hundreds of curlews, godwits, phalaropes, plovers, and sandpipers of different species swam or waded about the shallow ponds in their never-ending search for food. A den on a gravelly hillock a foot or two higher than the general level was occupied by a litter of half-grown Arctic foxes, and not far away was seen a pair of willow ptarmigan with young just able to fly.

These patches of tundra are found all along the coast between York Factory and Fort Churchill. They seem to be roughly semi-circular in shape, the woods that bound them extending much nearer the coast on the banks of the rivers than elsewhere. At the point where we landed, between Stony and Owl rivers, the forest was just visible from the shore of the Bay. Similar conditions are said to exist farther south toward the Severn, though in all probability fewer Barren Ground animals are found in that region.

No other stop was made until we reached the mouth of Churchill River. Here the physiographic conditions are different from those found at any other points visited on the shore of the Bay. A ridge of greenish-gray sandstone or quartzite (Pl. XI, fig. 1) extends to the coast on each side of Churchill River, and on the eastern side stretches eastward along the coast several miles toward Cape Churchill. These



FIG. 1.—FORT CHURCHILL.



FIG. 2.—MEADOWS, LOOKING SOUTHWEST FROM FORT CHURCHILL.
*Habitat of *Calcarius pictus*.*



FIG. 3.—SEAL (*ERIGNATHUS BARBATUS*), FORT CHURCHILL.



FIG. 1.—LEDGE OF QUARTZITE AT FORT CHURCHILL.



FIG. 2.—LOW TIDE AT FORT CHURCHILL.
Feeding ground of various shore birds.

ridges, particularly on the western side of the Churchill, consist of a succession of rounded hills, which attain a maximum altitude of about 100 feet, and support a shrubby, herbaceous growth with many mosses. Over this rocky area are scattered numerous shallow ponds with outlets flowing to the sea through narrow ravines that are scantily clothed with dwarfed spruces and willows. In these sparsely wooded ravines the Harris sparrow was common, the parent birds accompanying young just from the nest. A low, gravelly point extending seaward from the hills forms the western bank of the river immediately at its mouth. On this point lie the ruins of old Fort Prince of Wales, destroyed by the French in 1782. The bank of the river immediately opposite is composed of high rocks rising abruptly from the water.

Fort Churchill (Pl. X, fig. 1) is situated on the west side of the tidal lagoon which comprises the lower part of Churchill River. It is about 4 miles from the mouth of the river. To the south and west extends a broad, level meadow, only a foot or two above high-water mark, clothed with a low, shrubby growth in which appears an occasional dwarfed spruce or tamarack (Pl. X, fig. 2). This meadow is a favorite place for Smith longspurs and horned larks, and on its drier portions we found a few burrows of lemmings (*Dicrostonyx*). Numbers of seals (Pl. X, fig. 3) of several species frequent the mouth of Churchill River, attracted by the abundance of fish at that point.

As it was very desirable to do some collecting on the Barren Grounds, I left Fort Churchill on July 30 in a small sailboat, accompanied by three Indians, my brother remaining at Churchill to complete the collection. On account of the low coast, the tide in many places going out from 6 to 8 miles (see Pl. XI, fig. 2), traveling in a small boat is very difficult. We could not land except at high tide, and were obliged to embark at the same stage of water. Owing to the build of our boat, sailing was impossible unless the wind was fair or nearly so, and rowing was very difficult.

On the afternoon of July 31 a few hours were spent on the shore of Button Bay. Here the spruce woods nearly reach the shore at one point. North of the woods a broad grassy plain, intersected by many channels connecting small, shallow ponds, extends for several miles along the shore. Over this area a great many shore birds and ducks were feeding, some species accompanied by young, evidently reared in the vicinity, but by far the greater number associated in large, restless flocks, showing that the southward movement had commenced.

That evening we rowed several miles along the coast and encamped after dark on a small, sandy islet, just above high-water mark, where Arctic terns were breeding. The next evening our camping place was a sandy point near the mouth of Seal River, the position of which is indicated by a conspicuous rounded mound that stands near its banks.

Along the coast here the woods are visible from the Bay, and scattered dwarf spruces and tamaracks extend to the shore. Before Hubbart Point is reached, however, the tree limit curves inland so rapidly that the forest disappears from view altogether, although, according to Tyrrell, it can be seen with a glass from the summit of Hubbart Point.^a

This point, which we passed on the afternoon of August 2, is a high, grassy headland used as a burial place by the Eskimos, and is the most conspicuous landmark on this part of the coast, the mound near Seal River, just mentioned, being next in importance. Egg Island, which is mentioned as a breeding place for many sea birds, is apparently not conspicuous, for we failed to identify it either time we passed, probably being too far off shore to see it. At dark on August 2 we anchored behind a small, rocky islet somewhat north of Egg Island, and at daylight next morning were again on our way.

By noon we had reached a sandy point near Thlewiaza River, which proved so favorable a spot for collecting that I remained there several days (Pl. XII, fig. 1). From the shore to a number of rocky and gravelly ridges a few feet in height, which were several miles inland, the country was nearly level, and was mostly wet and filled with small hummocks. Near the shore were many broad, shallow ponds and muddy flats. Occasional dry areas, apparently raised sea beaches, were covered with rounded boulders of various sizes, and were inhabited by lemmings of the genus *Lemmus*, the burrows of which also occurred in the drier portions of the adjacent grassy meadows. A large species of meadow mouse (*Microtus*) was also found here, but was more abundant in the patches of coarse beach grass (*Elymus mollis*) which grew on the sandy ridges near the shore. On the gravelly ridges back from the immediate shore, pied lemmings (*Dicrostonyx*) were fairly abundant, and a number were secured. Dwarf shrubs, none of them exceeding a few inches in height, abounded; the most conspicuous were black crowberry (*Empetrum nigrum*), dwarf birch (*Betula nana*), Labrador tea (*Ledum palustre*), and several species of dwarf willows, including *Salix angularum* and *S. phylicifolia*. The scene was one of absorbing interest. On the beach and mud flats and about the shallow ponds thousands of shore birds of a dozen species circled and fed, the larger kinds, mainly Hudsonian curlews and godwits, keeping at a little distance, the smaller kinds almost oblivious of my presence. In the deeper ponds among the ridges back from shore red-throated and Pacific loons, which later made night hideous by their cries, were feeding their unfledged young. Pomarine and parasitic jaegers harried about the tundra or sat motionless on the knolls, apparently asleep. Willow ptarmigan led their broods about in search of food, and horned larks, Lapland longspurs, tree and savanna sparrows, and redpolls flitted from boulder to boulder.

^a Ann. Rept. Can. Geol. Surv., 1896 (new ser.), IX, p. 90F. (1897).



FIG. 1.—CAMP ON BARREN GROUNDS, 50 MILES SOUTH OF CAPE ESKIMO.



FIG. 2.—BURROW OF LEMMING (*LEMMUS TRIMUCRONATUS*), BARREN GROUNDS.



FIG. 1.—CAMP ON BARREN GROUNDS, 25 MILES SOUTH OF CAPE ESKIMO.



FIG. 2.—ESKIMO GUIDE AT NORTHERN CAMP.

Leaving on the afternoon of August 8, I pushed northward, accompanied by an Eskimo (Pl. XIII, fig. 2) who had promised to guide me to a place where ground squirrels could be secured. After a great deal of hard work and exposure we landed, on the evening of August 9, in a small, shallow bay at the mouth of a stream about 25 miles south of Cape Eskimo (Pl. XIII, fig. 1). Here I remained until August 13.

The country was similar to that farther south and supported a similar flora, but wet ground was less common and sandy ridges were more frequent. The Barren Ground caribou had commenced their southward movement and one was secured. Some of the shore birds had departed, and the daily lessening numbers of other species had an obvious significance. On the sandy ridges and hillocks were scattering barrows of ground squirrels, but the absence of colonies indicated that I had reached only the border of their range. Two polar bears were seen in the vicinity, but we were unable to secure either.

The distance to be covered and the difficulties of navigation to be overcome admonished me that my return journey must be begun, and on the morning of August 13 I started southward. The wind was against us the first day, and at the close of the second we had progressed no farther than my former camp, about 25 miles. Two more days of very laborious work took us a few miles below Hubbard Point. Here willows attain a respectable size, and on the boulder-covered ridges the buffalo-berry (*Lepargyrea canadensis*) is a conspicuous shrub. A few Arctic hares were found here, and on the morning of August 17 two were secured.

On August 17 and 18 slow progress was made, and we were only able to reach a point about 15 miles above Seal River, the high mound near its mouth being visible from the ridges close to camp. Tamaracks grew in the more sheltered places, and the edge of the forest was only a few miles back from the coast.

On the morning of August 19 a fair, strong wind that lasted until noon carried us within sight of the Beacon and the high rocks near Fort Churchill, which we reached that evening. During my absence my brother had made a good collection, and we left Fort Churchill on the afternoon of August 21, arriving at York Factory on the evening of August 26. In the course of this uneventful voyage we spent a few hours ashore on the afternoon of August 24 about 20 miles below Cape Churchill, where the conditions were somewhat similar to those between Stony and Owl rivers (see p. 18). Lemmings (*Dicrostonyx*) inhabited the sandy ridges near the shore.

We left York Factory on the afternoon of August 28 in our canoe, which was loaded with the outfit and the entire summer's collection, and, making further collections on the way, arrived at Norway House September 16, after a very laborious but pleasant trip.

Hayes, Steel, and Hill rivers as far as the Rock Portage were ascended by tracking—the men walking along the shore pulling the canoe by a line, while our efforts were directed toward steering and avoiding the rocks, though we sometimes relieved them on the line. The passage of the various rapids on Hill River was accomplished with much difficulty. Many were able to ascend by poling and paddling; at others it was necessary to wade waist deep in the seething water, dragging the canoe by hand (Pl. XIV, fig. 1); and often neither of these methods was possible and we were obliged to unload the boat and carry both canoe and baggage around the rapids. To avoid the ascent of the river through Hell Gate Gorge (Pl. XIV, fig. 2), we made a detour, as is usual on the upstream journey. Leaving Pine Lake by a narrow passage, we followed the windings of a tortuous lake for several miles in a direction approximately parallel to the course of the river, and then made a portage over a low divide to the shore of an arm of one of the lakes a short distance above Hell Gate Rapids. About twenty-five portages in all were required on the return journey, during which we retraced, with the exception of the slight deviation just mentioned, the exact route followed on our northward journey.

The trip down Lake Winnipeg was made by steamer, and we arrived at Winnipeg September 22.

LIFE ZONES OF THE REGION.

Our route from Winnipeg to the northernmost point reached, a short distance south of Cape Eskimo, passed successively through the Canadian and Hudsonian zones and entered well into the Arctic.

In the fauna and flora of Winnipeg the Canadian element seems to predominate, though the presence of *Quercus macrocarpa*, *Acer negundo*, and *Ulmus americanus* among trees, *Blarina brevicauda* among mammals, and *Zenaidura macroura* and *Icterus galbula* among birds, indicate that there is a strong tinge of Transition. It is probable that this Transition element disappears a short distance to the northward, but no very definite data regarding the country bordering Lake Winnipeg is available. In the region about Norway House the fauna is pure Canadian, as evidenced by the presence of *Parus hudsonicus*, *Perisoreus canadensis*, *Hylocichla u. swainsoni*, *Canachites canadensis*, *Picoides arcticus*, *Regulus satrapa*, *Zonotrichia albicollis*, *Mustela pennanti*, *Mustela americana*, *Lynx canadensis*, and other characteristic Canadian species. In the cleared and burnt tracts *Chordeiles virginianus* is common.

Between Norway House and Swampy Lake there is little change in the fauna. On the eastern shore of Swampy Lake the true Hudsonian begins and is probably continuous to Hudson Bay. Here *Zonotrichia albicollis* is gradually replaced by *Z. leucophrys*, *Chordeiles* occurs only as a straggler, and *Peromyscus* is much reduced in numbers. This



FIG. 1.—DRAGGING CANOE UP RAPID, TROUT RIVER.



FIG. 2.—HELL GATE GORGE, LOOKING UP.

area appears to be a sort of coastal plain, and occupies a strip at this point about 100 miles wide on the borders of the Bay. It is comparatively level, and the beds of the streams are free from rocks. The spruce, tamarack, balsam poplar, aspen poplar, Banksian pine, and canoe birch, which have formed the bulk of the forest, are here reduced in size, and the last three practically disappear near this point. These conditions prevail until the Bay is reached at the mouth of Hayes River. How far this Hudsonian strip extends southward along the coast of Hudson Bay is not apparent, but the presence at Moose Factory of *Ampelis cedrorum*, *Dendroica maculosa*, *Wilsonia canadensis*, *Sialia sialis*, *Carpodacus purpureus*, and *Condylura cristata* would seem to indicate that at that point the Canadian element must predominate over the Hudsonian. To the northward from York Factory along the coast, patches of tundra, where the fauna is typically Arctic, are first found not far above Nelson River. Similar barren areas occur on the coast between York Factory and Severn River, but too little is known about the fauna of that region to determine whether the Arctic or the Hudsonian element predominates. These barren areas, from York Factory as far north as Fort Churchill, lie mainly between the mouths of the numerous rivers. Above Cape Churchill the Arctic Zone is continuous on the coast, except in the sparsely wooded area about the mouth of Churchill River and on part of the shores of Button Bay, where a considerable admixture of Hudsonian forms occurs. Among the birds and mammals which breed in the Arctic zone may be mentioned various species of *Tringa*, *Phalaropus lobatus*, *Lagopus lagopus*, *Numenius hudsonicus*, *Limosa haemastica*, *Anthus pensilvanicus*, *Calcarius lapponicus*, and *Calcarius pictus*, together with the Arctic fox and Richardson lemming, and farther north the musk-ox and Barren Ground caribou.

PREVIOUS WORK.

The earliest important work referring to the natural history of the Hudson Bay region is Edwards's Natural History,^a published in four volumes from 1743 to 1751, though a few notes on the more conspicuous birds and mammals of the region appeared about the same time in the narratives of the voyage of the ship *California*.

Edwards figured nearly forty species of birds and a few mammals from Hudson Bay, the largest part of which were thus first brought to the attention of the scientific world. His colored figures were accompanied by very good descriptions, but were designated only by English names. Linnaeus bestowed binomial names on most of these species, in some cases referring exclusively to Edwards's figures, but in others citing other authors in addition. Concerning the source of

^a For full references to publications, see Bibliography, p. 27.

the Hudson Bay material on which Edwards's figures were based, Richardson says:

The first collections of Hudson's Bay birds of which I can find any record, are those formed by Mr. Alexander Light, who was sent out, ninety years ago, by the Hudson's Bay Company, on account of his knowledge of natural history; and by Mr. Isham, who, during a long residence, as Governor of various forts or trading posts, employed his leisure hours in preparing the skins of beasts, birds and fishes.^a

While at Hudson Bay Mr. Light seems to have sent some birds to Edwards, which were figured in the first volume of Edwards's work, published in 1743; and on his return to England in 1745 he appears to have turned over to Edwards, through the Royal Society, other birds for illustration. Mr. Isham returning to England at nearly the same time, about 30 undescribed species passed into Edwards's hands from this source, and were figured, together with Mr. Light's collection, in the third volume, published in 1747.

In 1768 the Royal Society of London received from Mr. Graham, of Severn River, a collection of mammals and birds from the west coast of Hudson Bay. A report on this collection was published in 1772 by J. R. Forster, which included descriptions of a number of species new to science.

Mr. Hutchins, an officer of the Hudson's Bay Company, who spent many years on Hudson Bay, mainly at the trading post at the mouth of Severn River, wrote a short time previous to 1785 a manuscript account entitled 'Observations on Hudson's Bay,' which contains many notes on the habits of the birds.^b Speaking of this manuscript, Richardson says:

His observations, which, in fact, embrace almost all that has been recorded of the habits of the Hudson's Bay birds up to the present time, being communicated to Latham and Pennant, are incorporated in the 'General Synopsis of Birds' and in 'Arctic Zoology.'^c

During the period from 1769 to 1772 Samuel Hearne made three journeys overland to the northwest of Fort Prince of Wales (Churchill) in search of copper mines and for purposes of exploration. On his first two attempts he was forced to return before proceeding very far.

^a Fauna Boreali-Americana, II, Introduction, p. ix, 1831.

^b Ernest E. Thompson, who has examined this manuscript, cites it as follows:

"1782. Hutchins, T. Observations on Hudsons Bay, 651 pp.: pp. 45-180 treats of birds.

"An interesting unpublished manuscript volume in the library of the Hudson's Bay Company at London, with marginal annotations by Pennant. The author was for twenty-five years in the employ of the Hudson's Bay Company. There is no date or title page to the volume, but the last date mentioned is July 10, 1782, and it seems safe to conclude that it was issued about this date, from the fact that Pennant, in his second volume of Arctic Zoology (p. 222), published in 1785, refers to Mr. Hutchins's manuscript as though it had just reached him in a complete state." Proc. U. S. Nat. Mus. XIII, 1890, p. 639 (May 29, 1891).

^c Fauna Boreali-Americana, II, Introduction, p. xi, 1831.

His third, however, was more successful, and he reached a point near the mouth of the Coppermine River. The narrative of these trips, which he published in 1795, contains much information concerning the animals of the region visited, but as this lies for the most part beyond the boundaries of the region now under consideration (see p. 38), few of the observations made on his journey are of use in the present connection. In his closing chapter, however, he gives a detailed account of most of the animals with which he had become familiar during a long residence in the country, and some of these observations have been utilized.

Sir John Franklin, in 1819, on his first journey to the Polar Sea, passed through Keewatin from York Factory to Norway House, following the route now usually traveled between these points. And in 1822, on his return to the Bay to sail for England, he again traversed this route. A considerable collection of birds was made at York Factory. Some specimens were apparently taken on the first arrival at the post in the early autumn of 1819, but a larger number between the middle of July and 1st of September, 1822, while the expedition was waiting to return to England. Apparently referring to the first York Factory collection, Joseph Sabine says:

The specimens collected on the first arrival of the travellers at York Factory^a were sent as soon as received in England, to the British Museum, where they became mixed with other collections from Hudson's Bay and Baffin's Bay * * *. It being impossible to separate them, these have been entirely excluded from the account, which consequently contains a much less number of sea birds than would otherwise have appeared in it.^b

The valuable collection made at York Factory in the late summer of 1822 was almost equally unfortunate, as Richardson says:

This was the only autumn collection made on either Expedition, and we regret that we have not been able to avail ourselves of it, so much as we could have wished, in drawing up the present work. Exclusive of the specimens above alluded to as having been entirely lost, many were destroyed by moths in London; and the only portion of the collection which I can now trace are forty specimens, which were presented to the Museum of the University of Edinburgh, and are still in good condition.^c

The voyages of Capts. Edward Parry and John Ross, between 1819 and 1833, added much to the knowledge of the fauna of the northern part of the Hudson Bay region, and reports on the natural history were published in the appendices to their narratives.

^aThis seems to be the only evidence that a collection was made at York Factory on the arrival of the expedition at that post in the early autumn of 1819. No mention of this collection occurs in the narrative of the journey given by Franklin (nor, indeed, is the second collection alluded to), and Richardson intimates that no such collection was made.

^bFranklin's Narrative of a Journey to the Polar Sea, Appendix, p. 670, 1823.

^cFauna Boreali-Americana, II, Introduction, p. xv, 1831.

Between 1829 and 1837 appeared *Fauna Boreali-Americana*, by Swainson, Richardson, and others, the first volume treating of mammals, the second of birds, and the others of fishes and insects. The material accumulated on the voyages of Parry, the first voyage of Ross, and the journeys of Franklin, together with much additional information on the natural history of the northern parts of North America, is elaborated in this valuable publication.

The expedition to the mouth of the Great Fish River under Captain Back (1833 to 1835) was productive of much new information regarding the natural history of the interior of British America, owing chiefly to the labors of Richard King, surgeon and naturalist to the expedition. A few notes appear in Back's narrative of the expedition, which also contains a list by Richardson, unfortunately often without annotations, of the specimens collected. King's narrative of the journey is replete with information on the birds and mammals collected and observed, and the localities and dates of many specimens merely listed in Back's narrative are thus put on record. A few observations of the fauna of the lower part of the Great Fish River and of the region between Lake Winnipeg and York Factory, the route followed by King on his return journey, were made within the boundaries of the present Province of Keewatin.

In 1846 and 1847 John Rae made a journey of exploration from York Factory to the Arctic coast, wintering at Repulse Bay. A great many notes on the natural history of the region appear in his narrative, and the 'Appendix' contains an annotated list, by J. E. Gray, of the mammals secured, and nominal lists, by G. R. Gray, of the birds, fishes, plants, and geological specimens collected. Many of the birds, obtained mainly at Repulse Bay, are still in the British Museum. A few small woodland species, recorded in the British Museum Catalogue of Birds as taken at Repulse Bay, were probably collected farther south during the early part of the expedition.

Thomas Blakiston made some observations in the region between York Factory and Fort Carlton, the results of which appeared in several papers published from 1857 to 1863.

A collection of birds and mammals gathered by officers of the Hudson's Bay Company, mainly from the west coast of Hudson Bay, was reported by Andrew Murray in 1859.

Between 1864 and 1869 C. F. Hall lived among the Eskimos in northern Keewatin, with headquarters at Repulse Bay, whence he made several overland journeys, during which he visited Igloolik, King William Land, and other points. His principal object was to search for traces of Sir John Franklin. The narratives of his expedition contain a great deal of information regarding the game animals of the region

The catalogues of the United States National Museum contain the records of many specimens—mainly birds—collected at Moose Factory, James Bay, by James MacKenzie, C. Drexler, William MacTavish, and others between 1860 and 1870, and a few from other localities. Some of these have been published; others are published for the first time in the present report. Some of the specimens have apparently been lost or exchanged.

In 1878 and 1879 Dr. Robert Bell made some observations and collections in the region between Lake Winnipeg and Hudson Bay, and in 1884 made another collection on the west coast of the Bay. The results of his work were published in the reports of the Canadian Geological Survey.

In 1879 and 1880 Lieut. Frederick Schwatka made an overland journey from Camp Daly, near the mouth of Chesterfield Inlet, to King William Land to search for traces of Sir John Franklin. The narrative of this expedition contains much information concerning the game mammals of the country, on which the party depended chiefly for subsistence.

In the summer of 1881 a small collection of birds and mammals—afterwards acquired by the United States National Museum—was made at Moose Factory by Walton Haydon.

In the Auk for 1890 W. Eagle Clarke records a collection of birds made at Fort Churchill previous to 1845 by Dr. Gillespie, jr.

John Macoun, in the first part of a catalogue of Canadian birds, published in 1900, records for the first time a few birds from the region and contributes much original information regarding their distribution, derived mainly from observations and collections made by himself and other members of the Canadian Geological Survey during various surveying and exploring trips.

BIBLIOGRAPHY.

The following titles include the principal works and articles bearing more or less directly on the natural history of Keewatin, which have been consulted in the preparation of the present report:

1743-51. EDWARDS, GEORGE. A Natural History of Uncommon Birds and of some other rare and undescribed animals. 4 vols. Vol. I, 1743; Vol. II, 1747; Vol. III, 1750; Vol. IV, 1751. 4to. London.

A number of undescribed birds and mammals from Hudson Bay figured in colors, and accompanied by short descriptions and biographical remarks.

1744. DOBBS, ARTHUR. An Account of the Countries adjoining to Hudson's Bay, in the North-West Part of America. 1 vol. 8vo. London.

Mainly historical, but a few notes on natural history *passim*.

1748. [DRAGE, or SWAINE, CHARLES].^a An Account of a Voyage for the Discovery of a North-West Passage by Hudson's Straights to the Western and Southern Ocean of America. Performed in the year 1746 and 1747 in the Ship California, Capt. Francis Smith, Commander. By the Clerk of the California. 2 vols. 8vo. Vol. I, pp. i-vii, 1-237; Vol. II, pp. 1-326. London.
- Vol. I contains much information on the mammals and birds, based mainly on observations made at the mouth of Hayes River, where the expedition passed the winter of 1746-47. The natural history notes are mainly on pp. 174-178, but may also be found here and there throughout the volume. Vol. II, which has not been seen, completes the account and is said to contain natural history notes.
1752. ROBSON, JOSEPH. An Account of six years residence in Hudson's Bay, from 1733 to 1736, and 1744 to 1747. 12mo. London.
- A general account, chiefly concerning Fort Churchill and York Factory, with a few observations regarding the larger mammals and birds.
- 1758 and 1766. LINNAEUS, CAROLUS. *Systema Naturæ per Regna Triâ Naturæ* * * *
- Many species described from Hudson Bay.
1771. PENNANT, THOMAS. *Synopsis of Quadrupeds*.
- Contains much information on mammals of the Hudson Bay region.
1772. BARRINGTON, DAINES. Investigation of the Specific Characters which distinguish the Rabbit from the Hare. <Phil. Trans. London, LXII, pp. 4-14.
- Refers especially to the 'Hudson Bay Quadruped,' and concludes that it is a hare.
1772. FORSTER, JOHN REINHOLD. Account of several quadrupeds sent from Hudson's Bay. <Phil. Trans. London, LXII, pp. 370-381.
- A report on a collection of mammals sent by Mr. Graham to the Royal Society of London.
1772. FORSTER, J. R. An account of the Birds sent from Hudson's Bay; with observations relative to their Natural History, and Latin descriptions of some of the most uncommon. <Phil. Trans. London, LXII, pp. 382-433.
- Report on a collection sent by Mr. Graham to the Royal Society of London. Fifty-eight species treated, the following seven described as new: *Falco spadicus*, *Strix nebulosa*, *Emberiza leucophrys*, *Fringilla hudsonias*, *Muscicapa striata*, *Parus hudsonicus*, *Scolopax borealis*.
1778. PALLAS, PETER SIMON. *Novæ Species Quadrupedum e Glirium Ordine*.
- Original description of *Mus empetra* (p. 75) evidently based on a specimen of the Canadian woodchuck.
1780. ZIMMERMANN, EBERHARD AUGUST WILHELM. *Geographische Geschichte des Menschen, und der vierfüßigen Thiere*. Vol. II.
- Original description of *Bos moschatus* (p. 86) and of *Dipus hudsonius* (p. 358).
1781. LATHAM, JOHN. A general synopsis of Birds.
- Contains much matter from Hutchins's manuscript article on Hudson Bay.
- 1784, 1785. PENNANT, THOMAS. *Arctic Zoology*. Vol. I: Introduction; Class I, Quadrupeds, 1784. Vol. II: Class II, Birds, 1785.
- Contains much original matter concerning Hudson Bay, communicated by Hutchins, Hearne, and Graham; also much material derived from the writings of Ellis, Forster, Latham, etc.

^aThe name of the author is not given; it is stated by some writers to be 'Drage,' by others 'Charles Swaine.'

1790. LATHAM, JOHN. *Index Ornithologicus, sive Systema Ornithologiæ* * * *
Contains original description of *Numenius hudsonicus*, based mainly on a specimen from Hudson Bay received from Hutchins.
1795. HEARNE, SAMUEL. *A Journey from Prince of Wales' Fort in Hudson's Bay to the Northern Ocean*. 1 vol., 4to, pp. i-xliv, 1-458. London, 1795. There is also a Dublin edition, 8vo, 1796, and another London edition, 1807.
Contains notes throughout the narrative on the mammals and birds of the region, Chapter X, pp. 358-458, treating exclusively of the natural history of those parts of British America known to the author.
1814. LEACH, WILLIAM ELFORD. [Description of] *Arvicola xanthognatha*. <Zoological Miscellany; being descriptions of new, or interesting animals. Vol. I, p. 60. Plate XXVI.
"Habitat ad Hudson's Bay."
1819. LEACH, W. E. Notice of some animals from the Arctic Regions. <Thomson's *Annals Philos.*, XIII, pp. 60-61.
A list, slightly annotated, "of the mammalia and birds that have been received from the Northern Expeditions and which have since been sent to the British Museum by the Admiralty." Includes specimens received from Ross and Parry.
1819. ROSS, JOHN. *A Voyage of Discovery, made under the orders of the Admiralty, in His Majesty's ships Isabella and Alexander, for the purpose of exploring Baffin's Bay and inquiring into the probability of a Northwest Passage*. 1 vol, 4to, pp. i-xi, 1-252, i-cxxxvi. London.
Appendix II, pp. xlviii-lx (author not stated) contains an article on the birds and mammals observed about Baffin Bay.
1819. SABINE, JOSEPH. An Account of a new Species of Gull lately discovered on the West Coast of Greenland. <Trans. Linn. Soc. London, Vol. XII, Art. XXXII, pp. 520-523.
Original description of *Larus sabini*. Mention made of a black-headed gull from Hudson Bay, "certainly an undescribed species, bearing a strong resemblance to the *Larus Sabini* except that it has an even tail and is without the dark collar round the neck." (Probably *L. philadelphia*).
1821. PARRY, WILLIAM EDWARD. *Journal of a voyage for the discovery of a N. W. Passage from the Atlantic to the Pacific, 1819-20, in her Majesty's Ships Hecla and Griper*. 4to. London.
A few observations relative to the natural history of Melville Island. (See also Supplement to the Appendix, 1824).
1823. FRANKLIN, JOHN; and SABINE, JOSEPH. *Narrative of a Journey to the Shores of the Polar Sea, in the years 1819, 20, 21 and 22*. By John Franklin. >Zoological appendix by Joseph Sabine. 1 vol., 4to, pp. i-xv, 1-783. London.
A few species from York Factory mentioned in the appendix. The narrative contains a few references to the natural history of Keewatin.
1824. LYON, G. F. *The Private Journal of Captain G. F. Lyon, of H. M. S. Hecla, during the recent Voyage of Discovery under Captain Parry*. [*Parry's Second Voyage*.] 12mo. London.
Contains numerous notes on natural history, relating especially to the vicinity of Winter Island and Igloodik, Melville Peninsula.
1824. MACGILLIVRAY, WILLIAM. Description, Characters, and Synonyms of the Different Species of the Genus *Larus*, with critical and explanatory Remarks. <Memoirs Wernerian Nat. Hist. Soc., V, Part I.
The currently accepted original description of the Ross Gull occurs on page 249.

1824. PARRY, W. E. Journal of a Second Voyage for the discovery of a North West passage from the Atlantic to the Pacific in his Majesty's Ships Fury and Hecla. 1821-23. 4to. London.
Contains a few notes on the natural history of Melville Peninsula. (See also Appendix, 1825.)
1824. SABINE, EDWARD. A supplement to the Appendix of Captain Parry's [first] Voyage for the Discovery of a North-west passage, in the years 1819-20. >Vertebrata, by Edward Sabine.
Collections and observations made mainly about Melville Island.
1825. LYON, G. F. A Brief Narrative of an unsuccessful attempt to reach Repulse Bay through Sir Thomas Roe's "Welcome," in His Majesty's Ship Griper, in the year MDCCCXXIV. Svo, pp. 198. London.
Contains a few notes on the natural history of Southampton Island and of the mainland in the vicinity of Cape Fullerton.
- 1825 (1827). RICHARDSON, JOHN. Appendix to Captain Parry's Journal of a Second Voyage for the discovery of a north-west passage from the Atlantic to the Pacific. 4to, pp. 1-432. London. >Zoological Appendix. Account of the Quadrupeds and Birds, by John Richardson.
Refers mainly to natural history of Melville Peninsula, particularly Winter Island and Igloodik.
1826. PARRY, WILLIAM EDWARD, and ROSS, JAMES CLARK. Journal of a Third Voyage for the discovery of a North-west passage from the Atlantic to the Pacific, performed in the years 1824-25, by William Edward Parry. 1 vol., 4to, pp. i-xxviii, 1-186, 1-151. London. Appendix, Zoology. By Lieut. James Clark Ross.
The zoological appendix refers mainly to the natural history of Port Bowen, where the expedition wintered, and other points about Prince Regent Inlet. A few notes on natural history occur in the narrative.
1828. RICHARDSON, JOHN. Short Characters of a few quadrupeds procured on Captain Franklin's late expedition. <Zool. Journ. III, No. 12, pp. 516-520, Jan. to Apr., 1828.
Original description of *Sorex palustris*, "Hab. Marshy places, from Hudson's Bay to the Rocky Mts." *Cricetus talpoides* described from Hudson Bay (specimen probably from Manitoba or Saskatchewan).
1829. DOUGLAS, DAVID. Observations on some Species of the Genera *Tetrao* and *Ortyx*, natives of North America; with Descriptions of Four new Species of the former and Two of the latter Genus. <Trans. Linn. Soc. London, XVI, pp. 133-149.
Mentions abundance of *Pediocetes phasianellus* about Oxford Lake, and of *Canachites canadensis* on the streams which flow into Hudson Bay.
1829. RICHARDSON, JOHN. Fauna Boreali-Americana, Part First. Quadrupeds. 4to, pp. i-xlii, 1-300. London.
Contains much original matter on the mammals of the Hudson Bay region.
1831. SWAINSON, WILLIAM, and RICHARDSON, JOHN. Fauna Boreali-Americana. Part Second. The Birds. 4to, pp. i-lxvi, 1-524. London.
Contains much original matter on the birds of the Hudson Bay region.
1835. ROSS, SIR JOHN. Narrative of a Second Voyage in search of a North-west Passage, and of a residence in the Arctic Regions during the years 1829, 1830, 1831, 1832, 1833. 1 vol., 4to, pp. i-xxxiv, 1-740. London.
Contains many notes on the zoology of the country to the northward of Hudson Bay, particularly about Felix Harbor, Boothia.

1835. ROSS, JAMES CLARK. Appendix to the Narrative of a Second Voyage in search of a North-west Passage, etc. By Sir John Ross. 1 vol., 4to, pp. i-xii, 1-120, i-ciii. London. >Report on mammals and birds by J. C. Ross, pp. vii-xlv.

A systematic account of the collections and observations made on Ross's second voyage.

1836. BACK, GEORGE; and RICHARDSON, JOHN. Narrative of the Arctic Land Expedition to the mouth of the great Fish River, and along the shores of the Arctic Ocean, in the years 1833, 1834, and 1835; by Captain Back, R. N., Commander of the Expedition. 1 vol., 8vo, pp. i-x, 1-663. London. Appendix No. 1. Zoological Remarks by John Richardson, pp. 477-518.

In the narrative mention is made of the observation of a number of species within the present boundaries of Keewatin. The Zoological Appendix contains a nominal list of the mammals collected, and a list of the birds in which the localities of a few species are indicated, followed by a commentary "respecting those which are objects of chase to the Indian hunter, either for food or for the sake of their fur," with "a few brief remarks on the specimens of the other species when they serve for the elucidation of doubtful points of their history."

1836. KING, RICHARD. Narrative of a Journey to the shores of the Arctic Ocean in 1833, 1834, and 1835; under the command of Capt. Back, R. N. 2 vols. 12mo. Vol. I, pp. i-ix, 1-312. Vol. II, pp. i-viii, 1-321. London.

Contains many notes on the natural history of the Great Fish River and on the route from the headwaters of that river to York Factory via the Slave, Athabasca, Clearwater, Churchill, Saskatchewan, Nelson, Echinamish, Hill, Steel, and Hayes rivers.

1837. RICHARDSON, JOHN. Report on North American Zoology. <Report Sixth Meeting Brit. Assn. Adv. Sci. for 1836, V, pp. 121-224.

Mentions occurrence of many species of birds and mammals in the Hudson Bay region.

1841. BARNSTON, GEORGE. Observations on the Progress of the Seasons as affecting Animals and Vegetables at Martin's Falls, Albany River, Hudson's Bay. <Edin. New Phil. Journ., XXX, pp. 252-256.

Records the times of arrival and departure of many birds, and times of breeding of different birds and mammals, spawning of fish, and many other natural phenomena.

1850. RAE, JOHN; GRAY, GEORGE ROBERT; GRAY, JOHN EDWARD. Narrative of an Expedition to the Shores of the Arctic Sea in 1846 and 1847; by John Rae. 1 vol., pp. 248. London. List of birds by G. R. Gray. Mammals by J. E. Gray.

Besides the systematic lists of the specimens collected, the narrative contains much information on the natural history of the northwest coast of Hudson Bay, particularly about Repulse Bay.

1857. BLAKISTON, THOMAS. Notes of a Naturalist on his Passage towards the Far West. <Zoologist, XV, pp. 5840-5843.

Natural history notes made on a voyage from England to York Factory, Hudson Bay, in which a few species of birds noted in Hudson Straits and on Hudson Bay are mentioned.

1858. BAIRD, SPENCER FULLERTON; CASSIN, JOHN; and LAWRENCE, GEORGE NEWBOLD. Vol. IX of the Pacific R. R. reports. 4to, pp. l-lvi, 1-1005. Washington.

This volume, usually quoted as 'Birds of North America,' contains records of a few birds from Nelson River and Hudson Bay.

- 1858, 1859.** MURRAY, ANDREW. Contributions to the Natural History of the Hudson's Bay Company's Territories. <Edin. New Phil. Journ. (new series), VII, pp. 189-210, Part I, Reindeer, April, 1858. IX, pp. 210-220. Part II, Mammalia, concluded; pp. 221-231, Part III, Aves; April, 1859.
Annotated lists of a number of mammals and of 82 species of birds from the west coast of Hudson Bay and adjoining region.
- 1859.** BLAKISTON, THOMAS. Scraps from the Far West. <Zoologist, XVII, pp. 6318-6325, 6373-6376.
Field notes on birds observed on a journey from York Factory, Hudson Bay, to Fort Carlton, on the Saskatchewan.
- 1860.** BARNSTON, GEORGE. Recollections of the Swans and Geese of Hudson's Bay. <Ibis, II, pp. 253-259, July, 1860.
Remarks on migration and other habits of the common species as observed by the writer at Moose Factory and other posts on Hudson Bay, during a long residence in the country.
- 1860.** SCLATER, PHILIP LUTLEY. [Exhibition of some bird skins procured by Captain Herd at Port Churchill, Hudson's Bay]. <Proc. Zool. Soc. London, XVIII, p. 418.
Mentions a crane, probably *Grus canadensis*, and a goose referred to *B. hutchinsii*.
- 1861.** BARNSTON, GEORGE. Recollections of the Swans and Geese of Hudson's Bay. <Canadian Naturalist and Geologist, VI, Article XXIV, pp. 337-344.
The same as his article under the same title, published in the Ibis for 1860, as above cited, but containing new matter.
- 1861, 1862.** BLAKISTON, THOMAS. On Birds collected and observed in the Interior of British North America. <Ibis, III, pp. 314-320, 1861; IV, pp. 3-10, 1862.
Contains a few references to birds of Hudson Bay, and the region between York Factory and Lake Winnipeg.
- 1863.** BLAKISTON, T. On the Birds of the Interior of British North America. <Ibis, V, pp. 39-87, 121-155.
A nearly complete list of the birds of the interior of Canada, east of the Rocky Mountains, compiled from Fauna Boreali-Americana, and the writings of Murray, Ross, etc., together with the author's own observations.
- 1864-1866.** BAIRD, S. F. Review of American Birds in the Museum of the Smithsonian Institution. Part I, pp. 1-450. [Issued in installments from June, 1864, to June, 1866.]
Contains many records of birds from Hudson Bay. These papers are brought together in Smithsonian Miscellaneous Collections, Vol. XII, 1874.
- 1869.** BAIRD, S. F. Occurrence of the Barnacle Goose in North America. <Am. Nat., II, p. 49.
Records a specimen taken by B. R. Ross near Rupert House, James Bay.
- 1871.** HARTING, J. E. Catalogue of an Arctic Collection of Birds presented by Mr. John Barrow, F. R. S., to the University Museum at Oxford. <Proc. Zool. Soc., London, XXXIX, pp. 110-123.
Catalogues a collection made by officers of various arctic expeditions between 1848 and 1855, which includes specimens from region about Melville Peninsula.
- 1874.** BAIRD, SPENCER FULLERTON; BREWER, THOMAS M.; and RIDGWAY, ROBERT. A History of North American Birds. Land Birds. Vols. I, II, III. 4to. Boston.
Contains much original matter on birds from the Hudson Bay region.

- 1874-1898. SHARPE, R. BOWDLER; SAUNDERS, HOWARD; SALVIN, OSBERT; OGLIVIE-GRANT, W. R.; SCLATER, P. L.; and others. Catalogue of Birds in the British Museum. Vols. I to XXVII.
Contains many records of specimens from the Hudson Bay region.
1876. RIDGWAY, ROBERT. Studies of the American Falconidae. <Bull. U. S. Geol. and Geog. Surv. Terr., Vol. II, Bull. 2, pp. 91-182.
Records specimens of *Nisus fuscus* (= *Accipiter velox*) from Moose Factory.
1877. COUES, ELLIOTT; and ALLEN, JOEL ASAPH. Monographs of North American Rodentia. =Vol. XI, Geological Survey of the Territories.
Contains some original matter based on material from Hudson Bay.
1877. COUES, ELLIOTT. Fur-bearing Animals: A Monograph of North American Mustelidae. =Misc. Pub. No. 8, U. S. Geological Survey of the Territories, 8vo, pp. i-xiv, 1-348. Washington.
Many specimens listed from Fort Churchill and other localities on Hudson Bay.
1878. STARBUCK, ALEXANDER. History of the American Whale Fishery from the earliest inception to the year 1876. <Rept. of Commissioner of Fish and Fisheries for 1875-1876. Appendix A, pp. 1-779.
Besides a few incidental allusions to whaling on Hudson Bay, a "Table showing returns of whaling-vessels sailing from American ports" gives (on p. 581 et seq.) the records of 47 voyages made to Hudson Bay, mainly from New England.
1879. BELL, ROBERT. Report on the country between Lake Winnipeg and Hudson's Bay. <Rept. Prog. Can. Geol. Survey, 1877-78, pp. 1cc-31cc, 1879.
On the physiography and geology of the region, with observations on timber, climate, etc.
1879. NOURSE, J. E. Narrative of the Second Arctic Expedition made by Charles F. Hall: His voyage to Repulse Bay, sledge journeys to the Straits of Fury and Hecla and to King William's Land. 1 vol., 4to, pp. 644. Washington.
Contains many notes on the game animals of the region.
1880. BELL, ROBERT. Report on Explorations on the Churchill and Nelson rivers, and around God's and Island Lakes, 1879. <Rept. Prog. Can. Geol. Survey, 1878-1879, pp. 1c to 72c, including Appendices I to VII. (1880.)
A geological and natural description of the region. App. II. List of plants collected. App. VI. Birds or eggs obtained. Other appendices on Fossils, Molluscs, Insects, etc.
1881. GILDER, WILLIAM H. Schwatka's Search. 8vo, pp. 1-316. New York.
An account of the overland journey made in 1879-80, by Lieut. Frederick Schwatka, from Daly Bay, near Chesterfield Inlet, Hudson Bay, to King William Land and return. Contains many notes on the game animals of the region.
1883. BELL, R. Notes on the Birds of Hudson's Bay. <Proc. Royal Soc. Canada, 1882, I, Sec. IV, pp. 49-54.
A running commentary on birds observed or taken, mainly by the writer, on or near Hudson Bay, with remarks on the migration of various northern birds.
1883. SCHWATKA, FREDERICK. A Musk-ox Hunt. <Century Magazine, September, 1883, pp. 671-679.
A popular account of musk-ox hunting during his overland journey between Daly Bay and King William Land.

1884. BAIRD, S. F.; BREWER, T. M.; and RIDGWAY, R. The Water Birds of North America. 2 vols., 4to. Boston.
Contains much original matter on birds from the Hudson Bay region.
1884. LANGILLE, J. HIBBERT. Our Birds in their Haunts: A popular treatise on the birds of eastern North America. 8vo., pp. 618. Boston.
Contains some original information furnished by a correspondent of the author regarding the ornithology of Hudson Bay.
1884. NOURSE, J. E. American Explorations in the Ice Zones. 1 vol., pp. 578. Boston. >Hall's Second Arctic Expedition, Chapter VII, pp. 199-268.
A concise account, prepared chiefly from official sources, of Hall's expedition in northern Keewatin and adjacent lands in 1864-1869, in search of records, relics, and other traces of Sir John Franklin's last expedition. The account contains many notes on the game animals of the region.
1884. RIDGWAY, ROBERT. Note on the *Anas hyperboreus*, Pall., and *Anser albatus*, Cass. <Proc. Biol. Soc., Wash., II, pp. 107-108, April 28, 1884.
Anas nivalis of Forster revived for the Hudson Bay snow goose, which is called "*Chen* (or *Anser*) *hyperboreus nivalis* (Forst.)."
1884. STEJNEGER, LEONHARD. Remarks on the Species of the Genus *Cepphus*. <Proc. U. S. Nat. Mus., VII, pp. 210-229.
Cepphus mandtii recorded from St. (=Ft.) George and Moose Factory, Hudson Bay.
1885. BELL, ROBERT. Observations on the Geology, Mineralogy, Zoology and Botany of the Labrador Coast, Hudson's Strait and Bay. <Rept. Prog. Can. Geol. Survey, 1882-3-4, pp. 5DD-62DD, including five appendices.
An account of an expedition sent to Hudson Bay by way of the Labrador Coast and Hudson Straits. Landings were made and more or less collecting was done in Hudson Bay at Nottingham, Mansfield, Digges, South Southampton and Marble islands, Fort Churchill, and York Factory. Appendix II: List and notes of Mammals of the vicinity of Hudson Bay and Labrador, by Dr. R. Bell. Appendix III: List and notes of Birds of the vicinity of Hudson Bay and Labrador, by Dr. R. Bell. Other appendices on plants, crustaceans, insects, etc.
1885. SETON, ERNEST E. T. The Swallow-tailed Flycatcher in Manitoba and at York Factory. <Auk, II, p. 218.
Quotes Bell's note of the occurrence of the species at York Factory.
1885. TURNER, LUCIEN M. List of the Birds of Labrador, including Ungava, Eastmain, Moose, and Gulf districts of the Hudson's Bay Company, together with the island of Anticosti. <Proc. U. S. Nat. Mus., VIII, pp. 233-254.
Several species recorded for the first time from Moose Factory, Ontario.
1886. BELL, ROBERT. Observations on the Geology, Zoology and Botany of Hudson's Strait and Bay made in 1885. <Annual Report Geological and Natural History Survey of Canada, I (new series), 1885, part DD, pp. 5DD to 27DD, including two appendices. (1886.)
On the physiography and geology of the west coast of Hudson Bay.
1886. SETON, ERNEST E. T. The Birds of Western Manitoba. <Auk, III, pp. 145-156, 320-329. Addenda, p. 453.
A number of species recorded from Norway House and many from Lake Winnipeg.
1887. CHAMBERLAIN, MONTAGUE. A Catalogue of Canadian Birds, with Notes on the Distribution of the Species. 1 vol., 8vo, pp. i-v, 1-143. St. John, N. B.
Quotes many notes, mainly from Bell, on birds of Hudson Bay region.

1887. FIELDEN, HENRY W. On the Zoology of Captain Markham's Voyage to Hudson's Bay in the summer of 1886. <Transactions of the Norfolk and Norwich Naturalists' Society, IV, pp. 344-353.
A report on observations made and specimens collected by Capt. Albert Markham during a voyage from Halifax to York Factory in 1886. Notes the occurrence of many species at Fort Churchill and York Factory.
1888. RAE, JOHN. Notes on some of the Birds and Mammals of the Hudson's Bay Company's Territories and the Arctic Coast. <Canadian Record of Science, III, No. 3, pp. 125-136.
Observations on the distribution and habits of a few species of mammals and birds of Hudson Bay and of the coast of Melville Peninsula and adjacent lands.
1889. COFE, EDWARD DRINKER. The Batrachia of North America. <Bulletin of the U. S. National Museum, No. 34.
Records *Rana palustris* and *R. cantabrigensis* from James Bay, and several species of salamanders from the same region.
1890. CLARKE, WILLIAM EAGLE. On a collection of birds from Fort Churchill, Hudson Bay. <Auk, VII, pp. 319-322.
A list, with some annotations, of a collection of birds taken by Dr. Gillespie, jr., at Fort Churchill, Hudson Bay, some time previous to 1845.
- 1890¹. RAE, JOHN. Notes on some of the Birds and Mammals of the Hudson's Bay Company's Territory, and of the Arctic Coast of America (communicated by G. J. Romanes). <Journ. Linn. Soc. London, Zool. XX, pp. 136-145, 1886 to 1890. (Read Feb. 16, 1888).
The same, with a few omissions and minor changes, as the article published in the Canadian Record of Science for 1888, above cited.
1890. DWIGHT, JONATHAN, JR. The Horned Larks of North America. <Auk, VII, pp. 138-158 (with map), 1890.
Otocoris alpestris recorded from Moose Fort [Moose Factory], Hudson Bay region.
1890. THOMPSON, ERNEST E. The Birds of Manitoba. <Proc. U. S. Nat. Mus., XIII, pp. 457-643.
Contains some references to birds from the Hudson Bay region.
1892. BENDIRE, CHARLES. Life Histories of North American Birds, with special reference to their breeding habits and eggs, with twelve lithographic plates. Smithsonian Contributions to Knowledge, Vol. XXVIII, or Special Bulletin No. 1, U. S. National Museum. 4to, pp. 446. Washington.
This portion of the work treats of the gallinaceous birds, pigeons, and birds of prey, and contains some original information concerning the ornithology of the Hudson Bay region.
1892. MEARNS, EDGAR A. A Study of the Sparrow Hawks (subgenus *Tinnunculus*) of America, with especial reference to the continental species (*Falco sparverius* Linn.) <Auk, IX, pp. 252-270.
Falco sparverius recorded from Moose Factory.
1893. NUTTING, C. C. Report on Zoological Explorations on the Lower Saskatchewan River. <Bulletin from the Laboratories of Natural History of the State University of Iowa. Vol. II, No. 3, Article IV, pp. 235-293. January, 1893.
A report on collections and observations made at Grand Rapids and Chemawawin, on the Lower Saskatchewan, during the summer of 1891.
1893. RHOADS, SAMUEL N. The Hudsonian Chickadee and its Allies, with remarks on the Geographic Distribution of Bird Races in Boreal America. <Auk, X, pp. 321-333. October, 1893.
Parus hudsonicus recorded from Moose Factory, James Bay.

1895. MERRIAM, C. HART. Synopsis of the American Shrews of the Genus *Sorex*. <N. Am. Fauna No. 10, pp. 57-98, Dec. 31, 1895.
Sorex sphagnicola recorded from Shamattawa River.
1895. SOUTHWELL, THOMAS. Notes on the Seal and Whale Fishery, 1894. <Zoologist, Third Series, XIX, pp. 91-95.
Note on white whales taken by whaling ship *Balaena* in Elwin Bay, Prince Regent Inlet, during August, 1894.
1896. BANGS, OUTRAM. A Review of the Weasels of Eastern North America. <Proc. Biol. Soc., Wash., IX, pp. 1-24, February 25, 1896.
Putorius vivosus recorded from Moose Factory and Fort Albany.
1896. BANGS, OUTRAM. A Review of the Squirrels of Eastern North America. <Proc. Biol. Soc., Wash., X, pp. 145-167, December 28, 1896.
Sciuropterus sabrinus recorded from Moose Factory.
1896. BENDIRE, CHARLES. Life Histories of North American Birds from the Parrots to the Grackles, with special reference to their breeding habits and eggs, with seven lithographic plates. Smithsonian Contributions to Knowledge, Vol. XXXII, or Special Bulletin No. 3, U. S. National Museum. 4to, pp. 518. Washington.
This portion of the work, which, though dated 1895, did not appear until 1896, treats of various families of North American birds, and contains some information concerning the ornithology of the Hudson Bay region not before published. The following families are included: Psittacidae, Cuculidae, Trogonidae, Alcedinidae, Picidae, Caprimulgidae, Micropodidae, Trochilidae, Cotingidae, Tyrannidae, Alaudidae, Corvidae, Sturnidae, and Icteridae.
1896. BISHOP, LOUIS B. Descriptions of a new Horned Lark and a new Song Sparrow, with remarks on Sennett's Nighthawk. <Auk, XIII, pp. 129-135, April, 1896.
Mentions two specimens of *Otocoris a. hoyti* from Depot Island, Hudson Strait (=Hudson Bay).
1896. TRUE, FREDERICK W. A revision of the American Moles. <Proc. U. S. Nat. Mus., XIX, pp. 1-112.
Condylura cristata recorded from Moose Factory, Ontario.
1897. COUES, ELLIOTT. A North American snipe new to the A. O. U. List. <Auk, XIV, p. 209, April, 1897.
Attention called to a specimen of *Gallinago major* from Hudson Bay in the British Museum.
1897. COUES, ELLIOTT. Status of *Helodromas ochropus* in the A. O. U. List. <Auk, XIV, pp. 210-211, April, 1897.
Attention called to a specimen from Hudson Bay in the British Museum.
1897. COUES, ELLIOTT. Status of the Redshank as a North American Bird. <Auk, XIV, pp. 211-212, April, 1897.
Attention called to a specimen of *Totanus calidris* said to be from Hudson Bay, described in Fauna Boreali-Americana.
1897. MILLER, GERRIT SMITH, JR. Revision of the North American Bats of the Family Vespertilionidae. =N. Am. Fauna No. 13, October 16, 1897.
Myotis lucifugus recorded from James Bay.
1897. TYRRELL, J. BURR. Report on the Doobaunt, Kazan and Ferguson Rivers and the North-West Coast of Hudson Bay and on two overland routes from Hudson Bay to Lake Winnipeg. <Ann. Rept. Geol. Surv. Canada, IX (new series), 1896, Part F. (1897.)
Chiefly geographical and geological. Notes on fauna of the region, pp. 164F to 167F, and *passim* throughout the report.

1898. ALLEN, J. A. Revision of the Chickarees, or North American Red Squirrels (Subgenus *Tamiasciurus*). <Bull. Am. Mus. Nat. Hist., XIV, pp. 249-298. [Author's edition issued July 22, 1898.]
Sciurus hudsonicus recorded from Hudson Bay.
1898. RUSSELL, FRANK. Explorations in the Far North. Being a Report on an Expedition under the Auspices of the University of Iowa during the years 1892, '93 and '94. Published by the University. 8vo., pp. 290. Iowa City.
Contains observations on natural history of Grand Rapids, at the mouth of the Saskatchewan River.
1898. TYRRELL, J. W. Across the Sub-Arctics of Canada. 8vo, pp. 280. New York.
A narrative of a journey of exploration by way of Athabasca Lake, Telzoa River, and Chesterfield Inlet to Hudson Bay, returning by way of Fort Churchill, York Factory, Oxford House, and Norway House. Contains many notes on the natural history of the region.
1899. HOWE, REGINALD HEBER, JR. North American Wood Frogs. <Proc. Boston Soc. Nat. Hist., vol. 28, No. 14, pp. 369-374. February, 1899.
Contains references to *Rana cantabrigensis* and *R. septentrionalis* from James Bay.
1899. PREBLE, EDWARD A. Revision of the Jumping Mice of the Genus *Zapus*. =N. Am. Fauna No. 15, August 8, 1899.
Zapus hudsonius recorded from James Bay and Fort Churchill.
1900. BAILEY, VERNON. Revision of American Voles of the Genus *Microtus*. =N. Am. Fauna No. 17, June 6, 1900.
Microtus xanthognathus recorded from Nelson River; *M. drummondi* from Fort Churchill.
1900. MACOUN, JOHN. Catalogue of Canadian Birds. Part I, Water Birds, Gallinaceous Birds and Pigeons. =Publication No. 692, Geological Survey of Canada. [Introduction dated March 26, 1900.]
Contains much original matter relating to the birds of the Hudson Bay region.
1900. MERRIAM, C. HART. Descriptions of Twenty-six new Mammals from Alaska and British North America. <Proc. Wash. Acad. Sci., II, pp. 13-30, March 14, 1900.
Dicrostonyx richardsoni described from Fort Churchill, Hudson Bay.
1900. SOUTHWELL, THOMAS. Notes on the Seal and Whale Fishery, 1899. <Zoologist, Fourth Series, IV, pp. 65-73.
Notes on walruses and musk-oxen obtained by the whale ship *Active*, from Dundee, in the northern part of Hudson Bay, in 1899. Contains also allusions to whales in northern Hudson Bay.
1901. ALLEN, J. A. The Musk-Oxen of Arctic America and Greenland. <Bull. Am. Mus. Nat. Hist., XIV, pp. 69-86. [Author's edition issued March 30, 1901.]
Main facts in regard to distribution of *Oribos moschatus* given.
1901. HOWE, REGINALD HEBER, JR. An additional note on the Genus *Macrorhamphus*. <Auk, XVIII, p. 272. July, 1901.
Specimens from Fort Churchill referred to *Macrorhamphus g. scolopaceus*.
1901. HOWELL, ARTHUR H. Revision of the Skunks of the Genus *Chincha*. =N. Am. Fauna, No. 20, August 31, 1901.
Chincha mephitis [= *Mephitis mephitis*] recorded from Moose Factory, Oxford House, and Pine Lake.
1902. BREWSTER, WILLIAM. An Undescribed Form of the Black Duck (*Anas obscura*). <Auk, XIX, pp. 183-188.
Refers the black duck of the Hudson Bay region to subspecies *rubripes*, and records specimens from Moose Factory, Fort Churchill and Severn River.

1902. OBERHOLSER, HARRY C. A Review of the Larks of the Genus *Otocoris*. <Proc. U. S. National Museum, XXIV, pp. 801-884. June, 1902.
Otocoris alpestris recorded from Moose Fort [Moose Factory], Ontario;
Otocoris alpestris hoyti recorded from three points in Keewatin—Devot Island, Fort Churchill, and Cape Eskimo, 'Northwest Territory.'

NOTE ON BOUNDARIES OF THE REGION TREATED.

The present report relates to the birds, mammals, and batrachians of the Province of Keewatin, in Canada. But though it has seemed best to thus limit by geographic boundaries the region treated, some notes from localities outside these boundaries have been included, where such a course has seemed desirable. Thus many references to the birds and mammals observed and collected on the voyages of Ross and Parry have been utilized. It is believed, however, that all the species thus included will be found to occur within the boundaries of Keewatin. A few old references to the occurrence of species on Hudson Bay can also be safely referred to Keewatin, since most of the early collections and observations were made on the west coast of the Bay. The lists also contain a few species which have been recorded only from the southern extremity of Hudson Bay, mainly at Moose Factory, a few birds seen by us only on the lower Red River, and a number of birds recorded from Grand Rapids, at the mouth of the Saskatchewan River. A few Old-World species, straggling individuals of which have been recorded from Hudson Bay, have also been included. Since each record speaks for itself, it has not been deemed necessary to indicate 'extralimital' species by placing them in a separate category or otherwise differentiating them from those seen or taken strictly within the geographical boundaries of Keewatin.

Additional work, especially in the southeastern part of the Province, will doubtless add a considerable number of birds and a few mammals to the list of species known to inhabit Keewatin. Thus a number of northern plains species will undoubtedly be found to occur regularly near the Manitoba border, and many birds which are known to occur at a much higher latitude to the westward will probably be found to breed regularly in southern Keewatin.

Among the numerous published notes relative to many species only those which best illustrate their geographic distribution or supplement our own observations have been selected.

NEW SPECIES.

The following six new species and subspecies of mammals are described in the present report:

<i>Microtus aphorodemus</i> .	<i>Lutreola vison lacustris</i> .
<i>Fiber zibethicus hudsonius</i> .	<i>Mustela americana abieticola</i> .
<i>Lepus arcticus canus</i> .	<i>Sorex (Microsorex) alnorum</i> .

In addition to these, three others which properly come within the scope of this report have been described since the completion of the trip:

<i>Phenacomys mackenzii</i> .	<i>Vulpes lagopus innuitus</i>
<i>Synaptomys (Mictomys) bullatus</i> .	

MAMMALS OF KEEWATIN.

Balæna mysticetus Linn. Greenland whale.

Formerly found as far south as Churchill River, according to Hearne, who says that three were killed there in the course of twenty years. They were more plentiful to the northward, and the Hudson's Bay Company carried on a whale fishery in the vicinity of Marble Island for several years, in the latter part of the eighteenth century, which, however, proved to be unprofitable and was abandoned.^a During the latter half of the nineteenth century American whalers frequently visited Hudson Bay and vicinity. Starbuck gives the records of forty-seven voyages to Hudson Bay by whaling vessels sailing mainly from New Bedford, Mass., and New London, Conn., between 1861 and 1874. These vessels brought home 21,810 barrels of whale oil and 353,740 pounds of whalebone.^b The bark *Pioneer*, which sailed from New London June 4, 1864, returned from Hudson Bay September 18, 1865, with a cargo of whale oil and whalebone worth \$150,000. This, it is claimed, is the best voyage on record. Detailed information in regard to whaling vessels sailing from other countries and in regard to American vessels sailing in recent years is not at hand, but Marble Island is still used to a considerable extent as a wintering post for whaling vessels.

J. C. Ross recorded Greenland whales from the western shore of Prince Regent Inlet, where they were found in considerable numbers. A few were also seen about Boothia.^c Captain Lyon saw many whales, probably of this species, near Duke of York Bay, Southampton Island.^d Southwell records that the whale ship *Active*, from Dundee, while in the northern part of Hudson Bay, in the summer of 1899, spoke an American vessel which had on board the produce of sixteen whales, presumably killed in the Bay.^e It is possible that other species occur in the region, but I find no specific reference to them.

Monodon monoceros Linn. Narwhal.

Said to be occasionally killed about the northern part of the Bay.^f During Parry's second voyage many were seen near Duke of York

^a Hearne, Journey * * * to the Northern Ocean, p. 392, 1795.

^b Report of the Commissioner of Fish and Fisheries, 1875-76, Part IV, p. 581 et seq., 1878.

^c Appendix to Ross's Second Voyage, p. xxiv, 1835.

^d Lyon's Private Journal, p. 48, 1824.

^e Zoologist, Fourth Series, IV, p. 71, 1900.

^f Rept. Prog. Can. Geol. Surv. 1877-78, p. 29c (1879).

Bay, on the north side of Southampton Island,^a and at other points in the upper part of Hudson Bay.

Delphinapterus catodon (Linn.). White Whale. Beluga.

Common all along the coast and seen daily whenever we were on the water. On July 13, while returning from Beacon Point, I saw a school of about a dozen white whales in Hayes River halfway between the mouth of the river and York Factory. They were passing out with the ebbing tide, having ascended the river a short distance during the flow, as is their custom, and were emitting a variety of sounds from a shrill scream to a hoarse snort or grunt.

The mouth of Churchill River is a favorite place for these whales, and at the time of our visit the Hudson's Bay Company kept several men constantly at work capturing them. The method generally employed is as follows: A large net is sunk to the bed of the river—usually at the mouth of some natural basin—and after a school has passed over it into the inclosed area it is raised, imprisoning some of the animals, so that when the tide falls they are at the mercy of their captors. The oil is extracted for export and the meat is used for food for the dogs. In former years white whales were shot from 'whale stands' maintained at the mouth of the Hayes and other rivers, but this method seems to be less in vogue at present.

A number of the animals, the largest about 14 feet in length, were rather hurriedly examined at the 'whale fishery' near the mouth of the Churchill July 30. Their color ranged from a deep blue-black to silvery white. It is usually stated that the dark ones are the young, but this is not invariably the case, since some, at least half grown, were nearly black, and others, 3 or 4 feet in length, were as white as the largest. An embryo about 7 inches long and nearly pure white was obtained at Churchill.

This species seems to abound in all parts of Hudson Bay, and has also been recorded from several localities to the northward.

Southwell reports that the whaling ship *Balaena* took 820 white whales in Elwin Bay, Prince Regent Inlet, during the month of August, 1894.^b

Rangifer caribou (Gmel.). Woodland Caribou.

The woodland caribou is found throughout the region traversed between Norway House and Hudson Bay. It seems to be more common toward the Bay, but is occasionally killed (usually in the winter) near Norway House. Mr. William Campbell, of Oxford House, reported the species much less common than formerly; it is said to have become scarcer in some localities, as the moose extends its range, apparently being driven out by that animal. On our way to the Bay

^aLyon's Private Journal, p. 44, 1824.

^bThe Zoologist (Third Series), XIX, p. 94, 1895.

we saw tracks of woodland caribou several times on Steel River, once coupled with the tracks of a wolf that had evidently been trailing the caribou, and on our return trip a caribou was killed on Steel River by a party which ascended a few days in advance of us.

Between York Factory and Fort Churchill a few small bands are found throughout the year on the 'Barrens.' Tyrrell saw them here early in the winter of 1893.^a We saw none, but noted a great many tracks on the 'Barrens' between Stony and Owl rivers July 19, and were told by some Indians we met that they had killed several within a week.

Dr. Milne informs me that he has seen them between Fort Churchill and Cape Churchill, and that the latter point is considered a good place for hunting them at any time of the year. He thinks these small bands form the "northern fringe of the bands which migrate to the coast in spring, the great majority of which in their journey cross to the south of Nelson River," an opinion which has weight from his fourteen years' residence at York Factory. A favorite crossing point on the Hayes River is about 40 miles above York Factory, though they sometimes cross much closer to that post. Their return movement occurs from about the middle of October to the last of November. During these semiannual movements the animals are much pursued, especially in the fall, when the weather is usually cold enough to preserve the meat for winter use.

Rangifer arcticus (Richardson). Barren Ground Caribou.

The presence of Barren Ground caribou was first noted August 3 at a point about 50 miles south of Cape Eskimo, where we saw their tracks on landing. During the next few days the Indians made several trips in quest of the animals, but found none, although comparatively fresh tracks were observed in every direction. While we were encamped about 25 miles south of Cape Eskimo August 10 to 13 we frequently heard wolves howling in pursuit of caribou, and occasionally saw a few of the latter, of which we killed two, a rather young doe and a buck about three years old.

The animals were evidently just commencing their usual fall journey to the southward. They showed a tendency to seek the vicinity of the shore on account of the protection gained from mosquitos and other insects, which were less numerous there, owing to the wind. Even under favorable conditions they were attended by swarms of insects, and when feeding were almost constantly moving.

Soon after leaving our camp on the morning of August 13 we saw several near the shore. A young buck on a point of land was approached as closely as the depth of water would permit—about 200 yards. He showed little fear, trotting along the shore abreast of our

^a Across the Sub-Arctics of Canada, p. 226, 1898.

boat for about a quarter of a mile. He would frequently stop and wade a short distance toward the boat, at short intervals spreading and contracting the white patch on his throat laterally into an oval disk, so abruptly as to give the appearance of flashes of light. He finally grew tired of following us and dropped behind. This was the last one seen.

James Clark Ross recorded reindeer from Cape Warrender, north shore of Barrow Strait, and from the coast of North Somerset,^a and observed them in great numbers on the Isthmus of Boothia.^b Dr. Rae observed them migrating northward about the 1st of March, near Repulse Bay,^c and found them on the west coast of Melville Peninsula as far as Fraser Bay.^d Lyon recorded them from Duke of York Bay, Southampton Island.^e Schwatka's party killed large numbers between Camp Daly and King William Land in 1879 and 1880.^f During the summer of 1893 the Tyrrell brothers, of the Canadian Geological Survey, saw on the shores of Carey Lake, about 450 miles northwest of Fort Churchill, a herd which they estimated to contain from one to two hundred thousand individuals.^g On their exploring trip northward through the interior of Keewatin, in 1894, they first met with Barren Ground caribou, near Ennadai Lake, on August 14. The animals were then moving southward in large numbers.^h

The southern range of Barren Ground caribou, on the west coast of Hudson Bay, may be said to be limited by Churchill River. Even in former years these caribou were seldom known to cross that river,ⁱ and they are still killed within a few miles of Fort Churchill. Farther inland they reach the south end of Reindeer Lake.^j

Description.—Adult male in summer pelage, killed on the Barren Grounds about 25 miles south of Cape Eskimo August 10: General color of upperparts and head dull brown; face dull reddish brown; legs dusky brown with an indistinct ashy stripe on inner side of fore leg, and of hind leg below the heel; a lateral stripe of dusky brown where the hairs of the belly and sides meet, separated from the color of upperparts by an indistinct ashy stripe; chest dusky; belly and ventral surface of tail white; a small white patch on rump, divided by a narrow stripe of brown extending from dorsal area to tip of tail. A white disk on throat 15 inches long and (when spread) about 10 inches

^a Parry's Third Voyage, Appendix, p. 94, 1826.

^b Appendix to Ross's Second Voyage, p. xvii, 1835.

^c Narrative of an Expedition to the Shores of the Arctic Sea, p. 93, 1850.

^d *Ibid.*, p. 149, 1850.

^e Lyon's Private Journal, p. 46, 1824.

^f Gilder, Schwatka's Search, Introduction, p. viii, and elsewhere, 1881.

^g Ann. Rept. Can. Geol. Surv., 1896, IX (new ser.), p. 165F (1898).

^h *Ibid.*, p. 19F (1898).

ⁱ Hearne, Journey * * * to the Northern Ocean, p. 225, 1795.

^j Tyrrell, Forest and Stream, XLIII, No. 4, p. 70, July 28, 1894.

wide, consisting of hairs 5 inches in length; an indistinct stripe of ashy extending from this white area forward to chin; feet around edge of hoof white; nose and edges of lips whitish; ears mainly ashy.

The winter skins seen were more or less suffused with white or hoary, which in some cases was the predominating color.

Alces americanus Jardine. Eastern Moose.

This species occurs in suitable places throughout the region traversed from Lake Winnipeg nearly to Hudson Bay. While ascending the Echimamish, which is a noted locality for moose, we frequently saw places where the animals had crossed the stream, and the bordering swamps were intersected by a network of their tracks. Many of the tracks in the bed of the stream were so recent that the mud had not yet settled; but no animals were seen, though we were constantly on the lookout for them. A young one was killed by a party of Indians at the outlet of the Echimamish a few days before we ascended the river, and the cranium of a female, probably killed during the preceding winter, was found at the middle dam. The extensive swamps below Robinson Portage are also much frequented by the animals, one of which was trailed for some distance by my Indian guides.

At Oxford House, 60 or 70 miles beyond Robinson Portage, the moose was formerly almost unknown, according to information received independently from several officers of the Hudson's Bay Company, but is extending its range toward Hudson Bay and is now frequently killed near that post. On Steel River, as we were ascending it September 1, we saw a fresh track at the mouth of a small stream a few miles below Fox River, and at York Factory I was shown a skin which had been brought from Shamattawa River, where the York Factory Indians now go regularly to hunt moose.

Farther inland the moose ranges to the northwest. I saw a head at Norway House from the vicinity of Split Lake, and J. B. Tyrrell met with moose on Stone River about 400 miles west of Fort Churchill.^a

Ovibos moschatus (Zimm.). Musk-Ox.

The musk-ox was first described from the region between Seal and Churchill rivers and formerly ranged in winter more or less regularly to about that latitude. Hearne saw its tracks within a few miles of Fort Churchill, and on his first journey toward the northwest met with it within a hundred miles of that place.^b Edward Sabine recorded musk-oxen from Melville Island, where they arrived in May from the southward. They crossed on the frozen sea, and recrossed it on leaving in September.^c Ross recorded them from Felix Harbor,

^a Ann. Rept. Can. Geol. Surv., 1896, IX (new ser.), 165F (1897).

^b Journey * * * to the Northern Ocean, p. 135, 1795.

^c Suppl. to Appendix to Parry's First Voyage, p. clxxxix, 1825.

Boothia.^a Dr. Rae found them in the vicinity of Repulse Bay,^b east of which they seem never to have been recorded. Frederick Schwatka found a herd between Wager and Back rivers in the winter of 1879.^c Tyrrell saw fresh skins in the possession of the Eskimos near the head of Chesterfield Inlet in the summer of 1893.^d

A skull that had been brought by Eskimos from the vicinity of the head of Chesterfield Inlet was obtained by us at Fort Churchill. The tips of the horns of this specimen, an adult male, curve forward in nearly parallel planes, instead of diverging, as is usually the case.

Through the kindness of Dr. Alexander Milne, of York Factory, I obtained what is probably the most southern authentic record of the occurrence of this animal. Several times during the summer of 1897 parties of Indians reported seeing a pair of musk-oxen on the 'Barrens' about halfway between York Factory and Fort Churchill. The male was finally killed in August and the head was brought by the Indians to York Factory. This pair had probably wandered beyond the limits of their normal range during the preceding winter, and for some reason failed to return northward.

The Eskimos who trade at Fort Churchill hunt the musk-ox in the Barren Grounds several days' journey northwestward from Cape Eskimo.

Sciuropterus sabrinus (Shaw). Hudson Bay Flying Squirrel.

Said to be found throughout the region traversed between Lake Winnipeg and Hudson Bay. It has been recorded by Bell from Nelson River House, on Churchill River,^e and by Bangs from Moose Factory.^f We obtained several hunters' skins at Norway House and one at Oxford House, and learned that the species is rather common on Shamattawa River. It sometimes becomes a pest to trappers on account of the frequency with which it is caught in traps set for martens and other fur-bearing animals.

Several winter skins from the vicinity of Norway House differ as follows from skins of *Sciuropterus s. macrotis* in corresponding pelage from New England: Upperparts slightly darker (less yellowish); tail with duskier color toward tip; face and cheeks darker; feet similar in color, but much more heavily furred; color beneath not noticeably different; hind foot (measured dry), *sabrinus*, 38–40 mm.; *macrotis*, about 36 mm. Breadth of tail with hairs spread naturally, *sabrinus*, 60–65 mm.; *macrotis*, about 45 mm. These specimens from Norway House and Oxford House can probably be considered typical *sabrinus*, which was described from Severn River. An imperfect skin in the

^a Ross's Second Voyage, p. 337, 1835.

^b Narrative of an Expedition to the Arctic Sea, p. 49, 1850.

^c Gilder, Schwatka's Search, p. 67, 1881.

^d Ann. Rept. Can. Geol. Surv., 1896, IX (new ser.), p. 165F (1897).

^e Rept. Prog. Can. Geol. Surv. 1882–3–4, App. II, p. 48DD (1885).

^f Proc. Biol. Soc. Wash., X, p. 163, 1896.

National Museum from Hudson Bay closely resembles those from Norway House, but is slightly more tinged with yellowish brown beneath. An albinistic specimen from Norway House is nearly white above, slightly tinged with light brown, with a brownish area on the middle of the back; the tail is very light brownish above, and lighter, about normal, beneath. No skulls from the Hudson Bay region are available for comparison.

Sciurus hudsonicus (Erxleben). Hudson Bay Red Squirrel.

We found the red squirrel abundant and generally distributed throughout the region to within a few miles of York Factory, where the trees dwindle to such an insignificant size as not to afford the animals a congenial home. At Fort Churchill I saw a specimen which had been secured a few miles up the river, where good-sized spruce trees occur and the animals are said to be fairly abundant. An adult male taken at Norway House June 18 is in nearly full winter pelage, the summer coat just beginning to appear in patches on the face and back, the lower parts still showing the heavy grayish vermiculations, and the red median dorsal stripe of the winter pelage being present. The tail is concolor with the back, and is edged with yellowish gray. All the other specimens taken at Norway House and at various points between that post and Oxford House late in June and early in July, and on the return trip between Steel River and Norway House during the first half of September, are in summer pelage and appear to represent two phases of color. By far the greater number are very dark reddish above, the red suffusion tingeing the lower parts quite appreciably in many cases; the tails are bordered with grayish or reddish indiscriminately.

Tamias striatus lysteri (Richardson). Northeastern Chipmunk.

A specimen collected by C. Drexler at James Bay is recorded in the U. S. National Museum catalogue. It can not now be found, but notes regarding it, made years ago by Dr. C. Hart Merriam, indicate that it is referable to the present form.

Eutamias neglectus (Allen). Lake Superior Chipmunk.

We obtained about a dozen specimens which were collected by Mr. William Campbell at Oxford House during July, August, and the early part of September. Chipmunks were reported to be rather common about Oxford Lake, but we failed to see any at that point, or at any other on our entire trip except the shore of Pine Lake, where we observed one September 13.

The specimens secured were preserved in formalin and skinned on our return in September. The average measurements of 6 are as follows: Total length 217; tail vertebrae 101; hind foot 31.^a

This series agrees essentially with a series taken by Gerrit S.

^aAll measurements are in millimeters unless otherwise stated.

Miller, jr., in September and the early part of October at Nepigon and Peninsula Harbor, Ontario, which are in the type region of *neglectus*. The Oxford House series shows some seasonal variation, those taken in July having grayer rumps than the September specimens.

Dr. Bell reported '*Tamias quadrivittatus*' to be common along the Nelson and Churchill rivers,^a but it is probable that it is not found on the lower portions of these rivers.

Spermophilus parryi (Richardson). Hudson Bay Spermophile.

Arctomys Parryi Rich., Appendix to Parry's Second Voyage, p. 316, 1825 (1827).

The name *empetra*, usually since 1877 applied to this species, was apparently based on a specimen of the Canadian form of *Arctomys monax* (see p. 47), and will have to be replaced by *parryi* of Richardson, based on specimens collected at Five Hawser Bay, Lyon Inlet, Melville Peninsula, on Parry's second voyage, which seems to be the next available name.

Ground squirrels have been stated to inhabit the coast of Hudson Bay south to Fort Churchill, but I ascertained that the animal does not occur on the coast south of a point about 25 miles below Cape Eskimo—about 150 miles to the northward of Fort Churchill. I was unable to find any in the vicinity of my camp near Thlewiaza River. On starting northward in search of them I was fortunate in securing as guide one of the most intelligent of the Eskimos of the region, who was perfectly familiar with the entire coast and who promised to take me to the nearest point at which the animals were to be found. We left camp near the Thlewiaza on the afternoon of August 8 and on the evening of the next day succeeded in reaching our objective point—the mouth of a stream which enters the sea at the head of a shallow bay thought to be about 25 miles south of Cape Eskimo. One of the animals was seen a few minutes after we landed, but they proved to be rather rare, though the Eskimo gave me to understand that farther north they were more common. They inhabited the scattered sandy ridges and hillocks, but with the exception mentioned none were seen abroad, and careful trapping during the next three days at all the burrows found yielded only four specimens. The apparent inactivity of the animals and the fact that most of the burrows were closed from the inside led me to conclude (somewhat hastily) that the animals had commenced to hibernate, but from the fact that they have been taken at points farther north much later in the season it is probable that such was not the case. The burrows usually had several entrances, and, judging from the amount of earth removed, were quite extensive.

The four specimens taken agree closely in color and may be thus described: Fur of back, sides, breast, and belly dusky plumbeous at

^aRept. Prog. Can. Geol. Surv. 1882-3-4, App. II, p. 48DD (1885).

base, on breast, belly, and sides tipped with rather bright rufous; legs, feet, and throat rufous to base of hairs, this color deepest on upper side of legs; sides and thighs more or less flecked with black hairs; fur on back from nape to base of tail with a broad zone of yellowish-brown, which forms the ground color, succeeded by a subterminal zone of yellowish gray and tipped with black. The black tips and the wholly black hairs which are interspersed through the fur predominate in places, causing the grayish zone of color to be broken up into more or less distinct spots; top and sides of head varying from light rufous to dark chestnut rufous, deepest on cheeks and top of head and interspersed with many black hairs; ears light rufous; hairs of upper side of tail dark gray at base, this color succeeded by a narrow zone of black, a narrow zone of dull yellowish, and a broad zone of black, and narrowly tipped with rufous; pencil of tail, comprising about a third of its length, nearly all black; most of under side of tail bright rufous.

The three males average: Total length 386.6; tail vertebræ 117; hind foot 64.3. The female measured: 392; 114; 57.

Arctomys monax empetra (Pallas). Canadian Woodchuck.

Mus empetra Pallas, Novæ Species Quad. e Glirium Ordine, p. 75, 1778.

The name *Mus empetra* of Pallas, usually of late years applied in a general way to the spermophiles inhabiting the Barren Grounds and the northern Rocky Mountains, was evidently based on a specimen of the Canadian woodchuck, as has been recognized by Sabine,^a Richardson,^b and others. Pallas cites (as *Marmota quebeckana*) the 'Quebec Marmot' of Pennant,^c qualifying the reference to Pennant's figure with the word *bona*. Pennant's 'Quebec Marmot,' apparently based on a live specimen in the possession of Mr. Brooks, is unquestionably a woodchuck.^d Forster's 'Quebec Marmot,'^e which Pallas also cites, is as certainly a spermophile. Pallas's description of *Mus empetra* follows his citations. Dr. C. Hart Merriam and I have gone carefully over this description with specimens of both *Arctomys* and *Spermophilus* from Hudson Bay before us, and he agrees with me that the description applies to the woodchuck. The description of the color of those parts which are most unlike in the two animals (the head and feet) applies unquestionably to the woodchuck, and the entire description fits that animal far better than it does the spermophile.

The 'wemusk,' as the animal is called in the Hudson Bay country.

^a Trans. Linn. Soc. London, XIII, p. 584, 1822.

^b Fauna Boreali-Americana, I, p. 147, 1829.

^c Synopsis of Quad., p. 270, pl. 24, fig. 2.

^d Pennant, Hist. Quad., 3d ed., 1793, p. 129, says: "It has lately been described by Pallas under the name of *Mus empetra*."

^e Phil. Trans., LXII, p. 378, 1772.

is apparently found throughout the region as far north as York Factory, but is said to be more common to the southward. A hunters' skin, taken near Oxford House in the spring of 1900, was obtained from Mr. William Campbell, who reported the animal as not common in the vicinity. At York Factory we obtained an immature specimen and a hunters' skin, taken on Hayes River. Several skins from Trout Lake, where the animals are said to be numerous, were also obtained.

The skins secured, representing immature individuals and adults of both sexes, vary but little in coloration. The prevailing color of the upperparts is rufous, the subapical zone of black being restricted and contributing little to the general color; the lower parts are rufous, this color varying somewhat in intensity; the tail is very dark brown or black, the hairs tipped with rufous; the feet are nearly black.

The only skull available for comparison was taken at Oxford House June 10, 1901. It is that of a female, and though the teeth are not much worn, the development of the occipital crest and the general appearance indicate maturity. It is much smaller than skulls of woodchucks of about the same age from Washington, D. C., and Maryland (the type locality of *monax*), and shows other differences as follows: Rostrum less deflected, the nasals flatter and more narrowed posteriorly; basal portion of zygomatic process of squamosal broader and flatter, its posterior edge, when viewed from above, being practically continuous with the general curve of the zygoma and lacking the conspicuous concavity usually seen in typical *monax*. The teeth are proportionally weaker, the incisors especially being more slender. This skull measures as follows: Occipito-nasal length 80; zygomatic breadth 55; breadth of rostrum immediately in front of zygoma 15; length of nasals 33; breadth of posterior end of nasals 7.

Allen recorded specimens of *Arctomys monax* from James Bay and Nelson River.^a

Castor canadensis Kuhl. Canadian Beaver.

Owing to persistent trapping, the beaver is becoming scarce throughout the region, but skins are annually traded at all the posts visited. We saw the remains of a beaver house between Pine and Windy lakes and a comparatively recent dam on a small stream which empties into Hayes River about 15 miles above York Factory.

A number of skins were seen at Fort Churchill. These had been taken on the Lower Churchill River. Several black pelts were among the furs at Norway House.

A fine large ligamentary skeleton was obtained at York Factory from Dr. Milne, who said that the animal it belonged to had been taken in the vicinity. Its measurements (approximate) are as follows:

^aMon. N. Am. Rod., p. 919, 1877.

Total length 1,000; tail vertebrae 380; hind foot 190. Skull: Occipito-nasal length 137; zygomatic breadth 99; interorbital constriction 25; length of nasals 51; breadth of nasals 24; length of upper molar series (crowns) 30.

Nine adult skulls of both sexes, collected in the vicinity of Oxford House, average as follows: Occipito-nasal length 131.3; zygomatic breadth 93.5; interorbital constriction 25; length of nasals 47.3; breadth of nasals 23.6; length of molar series (crowns) 28.2.

Dr. Bell reports that a family of beavers was found by Indians on North River, a stream that flows into the Bay about 15 miles above Fort Churchill.^a Hearne relates that the Indians who accompanied him on his first exploring trip killed beavers on Seal River, the mouth of which is about 40 miles north of Fort Churchill.^b The point at which Hearne seems to have crossed Seal River, and presumably where the beavers were taken, is not far from the Bay.

[*Mus musculus* Linn. House Mouse.

Referring to this species, Richardson says: "I have seen a dead mouse in the storehouse at York Factory."^c J. E. Gray records a specimen of the house mouse collected by Dr. Rae at York Factory, with the remark that it was probably introduced from Europe.^d The species does not seem to have ever become established, though individuals should apparently be landed occasionally with goods from England.

We trapped large numbers of mice about the various buildings, but took only the native species.]

Peromyscus canadensis umbrinus Miller. Clouded White-footed Mouse.

We found this form common and apparently quite generally distributed between Norway House and York Factory, and took specimens at the following localities: Norway House, Sea Falls, Echimanish River (Middle Dam and Painted Stone Portage), Robinson Portage, Pine Lake, Oxford Lake (south end), Oxford House, Trout Falls, Hill River (mouth of Fox River and near Rock Portage), Steel River, Hayes River, and York Factory.

I have compared this series with the type series of *P. canadensis umbrinus* from Peninsula Harbor, Ontario. The specimens of the type series are mainly in fall pelage, while most of our Keewatin specimens were taken during the summer; but enough are comparable

^aRept. Prog. Can. Geol. Surv. 1882-3-4, App. II, p. 49DD (1885.)

^bJourney from Prince of Wales Fort * * * to the Northern Ocean, p. 9, 1795.

^cFauna Boreali-Americana, I, p. 141, 1829.

^dRae's Narrative of an Expedition to the Shores of the Arctic Sea, Appendix, p. 199, 1850.

^eProc. Bost. Soc. Nat. Hist., 28, No. 1, p. 23, April, 1897.

to make it reasonably certain that they are all referable to the same form. In detailed measurements the two series agree very well.

Seven adults from Painted Stone Portage average: Total length 186; tail vertebræ 92; hind foot 20. Average of seven adults from Oxford House: 186, 92, 20. Average of seven adults from York Factory: 183, 91, 20.7. This mouse constitutes the house mouse of the region, and infests all the houses and stores within its range.

At York Factory almost all our specimens were taken in or about the post buildings; the animal seemed to be rare in the surrounding swamps.

[(?) *Neotoma drummondi* (Richardson). Drummond Wood-Rat.

A wood-rat received about 1860 from W. MacTavish, and supposed to have been taken at Fort Churchill,^a is in the U. S. National Museum. It was mounted for many years, but is now made into a study skin. The color has become so changed by exposure that no dependence can be placed on it, and the skull lacks the greater part of the braincase and is otherwise defective. Comparison of this imperfect specimen with specimens taken at Jasper House in the type region of *drummondi* shows no essential differences. As Jasper House seems to be the nearest point to Fort Churchill that the genus *Neotoma* has been recorded, and as the animal is unknown to the inhabitants of Fort Churchill, it seems most likely that the specimen came from some point in the interior, and was erroneously included in a lot of specimens from Hudson Bay.]

Phenacomys mackenzii Preble. Mackenzie Phenacomys.

Phenacomys mackenzii Preble, Proc. Biol. Soc. Wash., XV, p. 182, August 6, 1902. (Fort Smith, Mackenzie.)

Found only at Fort Churchill, where an adult female and two immature individuals were secured July 26 to 28. Two of these were taken on a dry hummock in the meadow west of the post, and the third in a grassy place among the rocks. The rostral portion of a skull, with a part of the skin attached, was found in a fissure among the rocks, where the animal had evidently been eaten by a weasel.

Evotomys gapperi (Vigors). Common Red-backed Mouse.

We found this species to be rather common throughout the region between Norway House and Hudson Bay, and took a large series embracing specimens from the following localities: Norway House, Sea Falls, Echimamish River, Robinson Portage, Pine Lake, near head of Oxford Lake, Oxford House, Knee Lake (near outlet and on island

^aIn a letter to Sir John Richardson, extracts of which were published, Professor Baird says: "From * * * our other northern collectors and correspondents we have already received many interesting specimens, though the best are still on the way. We have already had *Neotoma cinerea* from Fort Churchill." (Edin. New Phil. Journ. (new ser.), XIII, p. 164, 1861.)

near Narrows'), Swampy Lake, Hill River (at various points), Steel River, Hayes River, and York Factory. One was also taken by my brother on Churchill River, 15 miles above Fort Churchill. Mossy spruce woods seemed to be their favorite habitat, but we also frequently trapped them in deciduous or mixed woods, and occasionally in willow thickets in swamps. They inhabited the larger wooded islands in Knee Lake. On lower Hill River as well as on Steel and Hayes rivers we took only an occasional one, and at York Factory a week's trapping yielded but three, all of which were caught about the post buildings. None were found at Fort Churchill, or anywhere on the tundra, and several nights' careful trapping by my brother on Churchill River above the post yielded but one.

Of this series of nearly seventy specimens all but six are in the normal red-backed pelage. The exceptions may be briefly referred to. One, from Robinson Portage, has a few black hairs scattered over the back, perceptibly darkening the dorsal stripe. One, from Oxford Lake, taken September 12, has the dorsal stripe dusky, sides only slightly darker than normal, and belly yellowish white. One, taken on upper Hill River September 5, has the dorsal stripe dusky brown, the belly and sides about normal, and the back nearly concolor with sides; the dorsal stripe is indicated only by a slight admixture of red. Of the three specimens taken at York Factory, one is normal; another, probably in left-over winter pelage, differs from the average only in being slightly brighter. The third is yellowish white beneath, with nearly normal sides, and dorsal stripe indicated only by a slight darkening of the dorsal area. One, taken on Churchill River, 15 miles above Fort Churchill, has the dorsal area dull red and only faintly indicated, with dull-brown sides and ashy-brown lower parts. It is immature and measures: 133; 30; 20. A skin from Fort Churchill in the U. S. National Museum (No. 4206) has a seal-brown dorsal stripe, which extends forward nearly to the eyes, and dull, yellowish-brown lower parts and sides.

Three adults from Norway House average: Total length 134; tail vertebrae 39; hind foot 18. Four from Robinson Portage average: 135.5; 38; 18. Five from Knee Lake average: 138; 42; 19. Three from York Factory average: 141; 40; 19.

Microtus drummondi (Aud. and Bach.). Drummond Vole.

We found this vole rather common in suitable locations throughout the region between Norway House and Hudson Bay. It seemed most abundant in the partially cleared areas near the posts, and as it readily takes up a residence in the houses and stores, it becomes a decided pest. A large series was collected, including specimens from the following localities: Norway House, Echimamish River, Robinson Portage, Oxford House, Steel River, York Factory, Cape Churchill, and Fort Churchill.

This series averages a little larger than typical *drummondi*, but on the whole is fairly typical. Seven adults from Norway House average: Total length 152; tail vertebrae 42; hind foot 19. Seven from Oxford House average: 153; 47; 19. Seven from Fort Churchill (selected as being nearly typical of this form): 156; 40; 19.

Microtus aphorodemus sp. nov. Barren Ground Vole.

Type from Barren Grounds, about 50 miles south of Cape Eskimo, Keewatin (near mouth of Thlewiaza River). ♀ ad. (skin and skull), No. 106422, U. S. Nat. Mus., Biological Survey collection. Collected August 5, 1900, by Edward A. Preble. Original number, 3208.

General characters.—Similar to *Microtus drummondi*, but larger, with much larger and heavier skull.

Color.—Upperparts dark yellowish bister, as in *drummondi*, but usually with an admixture of yellowish-tipped hairs, imparting a coarse appearance to the pelage; adults varying beneath from nearly white to light plumbeous, sometimes tinged with light brownish. *Young*: Varying but little from adults, lighter in color than young of *drummondi*, especially beneath.

Skull.—Much larger than that of *drummondi*; rostrum proportionally heavier; molar series longer. Compared with that of *pennsylvanicus* the skull is much larger, less arched, and with more widely spreading zygomata; teeth about as in *pennsylvanicus*.

Measurements.—Type: Total length 190; tail vertebrae 50; hind foot 20. Average of six adults from type locality: 182; 49; 20.3. Average of four adults from near Hubbard Point: 181; 49; 20.2. Skull of type: Basal length 28; nasals 7.6; zygomatic breadth 16.5; mastoid breadth 12.6; alveolar length of upper molar series 7. Skull, No. 106274, ♀ ad. (largest in series): Basal length 29; nasals 8.5; zygomatic breadth 17; mastoid breadth 12.5; alveolar length of upper molar series 7.

Remarks.—I found these voles common on the Barren Grounds near the mouth of Thlewiaza River early in August, and collected a large series. They frequented patches of wild rye (*Elymus mollis*) on the sandy raised sea beaches near the shore, and burrowed extensively in the sand and to some extent in the semidecayed masses of seaweed which had accumulated at high-water mark. They were most active in the morning and evening, but were taken at all hours without difficulty in traps set in their well-worn trails. Their principal food seemed to be the culms of the wild rye. I found many cavities beneath boulders which they had utilized for storehouses and had filled with the stalks of this coarse grass, cut into short sections.

Along the coast north of Fort Churchill at several points where the wild rye grew luxuriantly I found abundant traces of these voles. A series of twenty-two was collected on a point about 10 miles north of Hubbard Point on the morning of August 16, while I was waiting for

the tide to come in that we might resume our journey southward. This series includes young and adults of all ages and both sexes, the females slightly predominating. Several females contained embryos which varied in number from seven to ten.

Ten specimens taken on the 'Barrens,' near Cape Churchill, August 25, are referable to this form, and the large series of *drummondii* taken at Fort Churchill includes some specimens that seem to incline toward *aphorodermus*.

Microtus xanthognathus (Leach). Chestnut-checked Vole.

This species was originally described from Hudson Bay. During our trip, though constantly on the lookout for the species, we saw no traces of voles which we could attribute to *xanthognathus* and secured no specimens.

Coues recorded *Arvicola xanthognathus* from Fort Churchill.^a The fact that the table in which this specimen is listed contains only skins with chestnut cheeks, as shown by the context, makes it evident that the identification is correct, a fact further supported by the length of the hind foot (1 inch). This specimen can not now be found. Bailey records *Microtus xanthognathus* from Nelson River.^b

Fiber zibethicus hudsonius subsp. nov. Hudson Bay Muskrat.

Type from Fort Churchill, Keewatin, Canada. ♂ ad. (skin and skull), No. 106881, U. S. Nat. Mus., Biological Survey collection. Collected August 9, 1900, by Alfred E. Preble. Original number, 3081.

General characters.—Rather small, about the size of *Fiber spatulatus*, but differing in color and cranial characters: smaller than and otherwise different from *Fiber zibethicus*.

Color.—Above, dull yellowish brown, darker on middle of back and head; fur of lower parts tipped with yellowish brown, throat yellowish white; middle of chin dusky; cheeks yellowish fawn. Compared with *spatulatus*, *hudsonius* is more yellowish brown, the back lacking the dusky tinge of *spatulatus*, and the sides are uniformly lighter.

Skull.—Smaller and more angular than in *Fiber zibethicus*, with highly developed interorbital crest and small molars, as in *spatulatus*, but differing from skull of *spatulatus* as follows: Bullæ more inflated; parieto-squamosal suture irregular; lateral face of zygoma, especially jugal, broader; nasals narrower anteriorly, but otherwise similar.

Measurements.—*Type*: Total length 539; tail vertebrae 225; hind foot 74. Average of four adults from Echimanish River: Total length 542.5; tail vertebrae 236.2; hind foot 75.7. Average of two adults from York Factory: Total length 556; tail vertebrae 246.5; hind foot 74.5. Skull of *type*: Occipito-nasal length 56; zygomatic breadth 38; interorbital breadth 6; greatest length of nasals 20; greatest breadth of nasals 9.5; length of upper molar series (crowns) 13.5.

^a Mon. N. Am. Rod., p. 201, 1877. (No. 8356 in table.)

^b N. A. Fauna, No. 17, p. 58, 1900.

Remarks.—This species is common and quite generally distributed throughout the region between Lake Winnipeg and Hudson Bay. Though its skin is worth but a few cents in trade, the abundance of the animal and the ease with which it is trapped cause it to be much sought for, and many thousands are annually taken.

While ascending the Echimamish we found muskrats abundant and tame, and we also saw many in the marshy lakes in the neighborhood of Robinson Portage. On account of the abundance of 'rats' these two localities are favorite trapping grounds of the Indian hunters. The sweet flag (*Acorus calamus*), a favorite food, abounds in the lakes below Robinson Portage, and the great number of muskrathouses seen there showed the locality to be a favorite resort. We saw many muskrats while we were descending Hill and Steel rivers. Here they live entirely in burrows in the banks, as the deep water and swift current render house building impracticable. Piles of mussel shells, showing where the animals had been feasting, were frequently noticed on the banks. The point of marsh below York Factory seemed to be the home of a considerable number of muskrats, but as it is frequently overflowed, they are said to seldom survive the winter. In the vicinity of Fort Churchill they were found in but one place—a stream entering the Churehill River a few miles above the post, and there they were rather uncommon.

A winter following a dry season is said to be very destructive to muskrats. On account of the low water the animals construct their burrows and houses correspondingly low and are often forced out by floods at a season when they are unable to procure food and have no protection from their enemies.

We collected specimens on the Echimamish, and at Robinson Portage, York Factory, and Fort Churchill. Young of the year in fresh pelage are darker than adults, but the entire series we collected shows much less rich brown than *zibethicus* from New England.

Synaptomys (Mictomys) bullatus Preble. Northern Lemming Vole.

Synaptomys (Mictomys) bullatus Preble, Proc. Biol. Soc. Wash., XV, p. 181, August 6, 1902. (Trout Rock, near Fort Rae, Mackenzie.)

We trapped only two specimens of this lemming vole—one at Norway House June 21 and one, a female with six embryos, in the swamps bordering Echimamish River June 25.

Lemmus trimucronatus (Richardson). Back Lemming.

We found this fine species at but one locality, near the mouth of Thlewiaza River, where it was common and where a series of about seventy, comprising adults and young of both sexes, was secured August 4 to 8. A succession of low, flat, boulder-covered areas, which lay between the shore and some shallow lagoons a few hundred yards inland, was occupied by the animals. The ground was dry and well

covered with short, thick grass, through which their runways extended in every direction. They burrowed extensively, sometimes beneath boulders, but as often in the sides of tiny terraces or from a flat surface. Their holes seemed to be connected in an endless labyrinth. We captured several by suddenly overturning some of the boulders, but most were taken in traps set in their well-trodden roads. They paid no attention to bait, but were readily caught in runway traps. When taken alive they showed considerable ferocity for animals of their size, snarling and biting vigorously. The breeding season seemed to be nearly over, but a few females contained from four to six embryos. The teats are eight in number, four inguinal and four pectoral.

No specimens of *Lemmus* from the vicinity of Point Lake, the type locality of *trimucronatus*, are available for comparison, but it is not likely that the Hudson Bay animal differs appreciably. A few specimens, in poor condition, from the Anderson River region, show no apparent differences.

Color of adults.—Fur everywhere plumbeous at base, on head and shoulders tipped with black and grayish in about equal proportion; lower parts and sides rusty ochraceous, this color extending forward on cheeks and lips and sometimes tingeing slightly the head and shoulders; lower part of back bright reddish brown, the fur very thick and long; tail usually distinctly bicolor, yellowish below, and dusky brown above; pencil about 9 mm. in length; feet dusky brown above, lighter below. In some of the half-grown specimens in fresh pelage the head and shoulders are considerably flecked with the color of the sides and there is an indistinct dusky stripe extending from between the ears to the middle of the back. Younger specimens are nearly unicolor throughout, the plumbeous fur tipped with yellowish brown.

Measurements.—One of largest specimens: Total length 160; tail vertebrae 22; hind foot 20. Average of ten adults: 151; 21.8; 20. Skull: Average of four adults: Basal length 30.6; zygomatic breadth 21.5; interorbital breadth 3.1; mastoid breadth 15.5.

Remarks.—*Arvicola trimucronatus* was recorded from Igloodik, Melville Peninsula, by Richardson,^a and was said by J. C. Ross to be common on the shores of Boothia Felix.^b

Dicrostonyx richardsoni Merriam. Richardson Lemming.

Dicrostonyx richardsoni Merriam, Proc. Wash. Acad. Sci., II, p. 26, March 14, 1900.

About 120 specimens of this interesting lemming were collected. These ranged in age from young a few days old to fully adult individuals. About 80 were taken, mainly by my brother, at Fort Churchill,

^a Appendix to Parry's Second Voyage, p. 311, 1825 (1827).

^b Appendix to Ross's Second Voyage, p. xiv, 1835.

the type locality of the species, and the remainder at two localities on the Barren Grounds, and on the 'Barrens' below Cape Churchill. Many burrows were untenanted and there was usually nothing in their appearance to indicate the fact. On this account trapping was found to be less satisfactory in securing specimens than digging. A few minutes' digging usually disclosed whether or not a burrow was occupied.

Gravelly ridges, the remains of old raised sea beaches, occur throughout the country bordering the Bay, and are found inland many miles from the present coast line. Richardson lemmings frequent mainly these ridges. Their burrows differ widely from those of *Lemmus* and *Microtus*. Each seemed to be distinct and occupied by only a single individual, except in the case of females accompanied by young. The hole sometimes has its entrance beneath a piece of driftwood or at the base of a dwarfed spruce. It usually proceeds at an angle of about 45° for a foot or so, and then extends nearly horizontally for 2 or sometimes 3 feet to the nest of grass and moss, which occupies a circular chamber 4 inches in diameter. A side gallery a foot or two in length usually branches off from the main burrow not far from the nest. This is without a terminal chamber and is evidently used as a place of refuge. In this retreat we usually found the owner of the burrow if he was at home.

The sand and gravel dug from the burrow is usually pushed out into a long pile extending sometimes 2 feet from the entrance. No runways are made, even when the burrows are near soft ground; the animals evidently range indiscriminately over the ground. The only food observed in the burrows was a few leaves of bear-berry (*Arctostaphylos uva-ursi*).

Three young at a birth seems to be the usual number. Every litter we found consisted of three, and in each pregnant female we secured were three embryos. The breeding season seemed to be nearly over, however, so that pregnant females were not common. One, captured on the Barren Grounds August 12, besides containing the usual three small embryos, was suckling three young.

Several young were kept for a few days by my brother. They were very readily tamed and took food (rolled oats and crumbs of bread) within a few hours of their capture, allowing him to hold them on his hand while they ate. They sat on their haunches and held the food in their fore feet like squirrels. These young lemmings were very gentle and interesting in their ways, but the old ones fought viciously when captured, and their sharp incisors and strong jaws made them somewhat formidable.

In the immediate vicinity of the post at Fort Churchill we found only a few lemmings, but the sandy ridges on the south side of the river and on the point near the ruins of Fort Prince of Wales proved

fruitful collecting grounds. At my two camps on the Barren Grounds south of Cape Eskimo they were abundant in their favorite locations; and on a long sandy ridge below Cape Churchill, where we landed on the afternoon of August 24, we found many burrows and captured about 20 lemmings. Only one was actually seen away from its burrow—a female which, when surprised by us some distance from her home, ran into a shallow deserted burrow for refuge. The animals seem mainly nocturnal in their habits, though a few were taken at the mouths of holes during the daytime. They are known by the natives of Churchill as 'Husky' or 'Huckey' (i. e., Eskimo) mice, because of their northern habitat.

Compared with skulls of *Dicrostonyx hudsonius* from the coast of Labrador, those of *D. richardsoni* exhibit the following conspicuous differences: Braincase broader; interparietal broader and squarish in outline (in *hudsonius* small and triangular); parietals broader; bullae much more inflated.

In color *D. richardsoni* is much darker than *hudsonius*, owing to a much greater proportion of chestnut- and brown-tipped hairs in the pelage. The specimens taken by us vary remarkably, but the grayest show more brown than any specimens of *hudsonius* examined.

Topotypes of *D. richardsoni* in summer pelage may be described as follows: Fur light plumbeous at base; that of back and sides tipped with chestnut or rich yellowish brown, occasionally with these colors and gray, sides usually lighter than back. A dusky stripe, rarely continuous but usually interrupted on face, extending from nose to tail; this stripe nearly obsolete in some very old specimens, but very distinct in young, and in some about half grown more than 5 mm. in width. Orifice of ears surrounded by black hairs tipped with chestnut. Lower parts varying from yellowish white to rich yellowish brown, variation according with the richness of color of upperparts: throat and chest always darker than rest of lower parts. Soles and forelegs lighter than rest of lower parts, usually nearly white; tail usually unicolor, yellowish white, but sometimes dusky above; pencil yellowish white.

The young vary but little in color. Those perhaps a week old are grayish brown above, with the very distinct dusky dorsal stripe; beneath practically naked, but with a trace of white down. Others a little older are grayish brown above, varying a little even in the same litter, in the same way as the adults, but in a less degree; beneath yellowish white, brownish between forelegs. Young half grown and larger resemble adults, but are generally grayer, and never show the extreme richness of coloring exhibited by adults.

Measurements.—Average of 10 adults: Total length 139.5; tail vertebrae 17.8; hind foot 18.4. One of the largest specimens: Total length 150; tail vertebrae 20; hind foot 20. Average of 8 adult skulls: Basal

length (ineisor to occipital condyle) 28.3; zygomatic breadth 19.2; interorbital breadth 4; mastoid breadth 14.4. A large skull measures: Basal length 29; zygomatic breadth 20; interorbital breadth 4; mastoid breadth 15.

This lemming has been several times recorded from this region, usually under the name *Arvicola hudsonius*. J. C. Ross reported it from Port Bowen, Prince Regent Inlet,^a and obtained specimens from Boothia Felix, where it was active throughout the winter;^b Richardson states that it inhabits Melville Peninsula;^c specimens were taken by Parry's party on Melville Island on June 13, on which date the pelage was turning brown;^d and Lyon observed it on Duke of York Bay, Southampton Island.^e Rae says, probably referring to this species:

Occasionally large numbers of lemmings are found drowned along the shores of James's Bay, but as they are generally seen after a very high tide, it is uncertain whether they are then migrating, or merely caught by the high tide on their native grounds.^f

Zapus hudsonius (Zimm.). Hudson Bay Jumping Mouse.

We took *Zapus* at Norway House, on Eehimamish River, at Robinson Portage, at Oxford House, on Steel River (near the mouth of the Shamattawa), and at York Factory. It was especially common in the grassy thickets about Oxford House, where the greater part of the series was taken. At York Factory our traps yielded but two specimens, and at Fort Churchill none, though at the latter place we obtained an imperfect skin from the natives. The last one taken was trapped on Steel River near the mouth of the Shamattawa August 31. At Oxford House, where these jumping mice had been very plentiful in July, we set out traps on September 10 and 11 in the same places as before, without success; but as heavy frosts had occurred for some time it is probable that the animals were hibernating. An adult female taken at Oxford House June 30 is suffused above with buffy clay color and is lighter and less bright than the others secured; but the series taken as a whole agrees essentially in color with a series from northern Minnesota, and no differences are noticeable in the skulls. Six adults from Oxford House average: Total length 209.3; tail vertebrae 126; hind foot 30.3. Two from York Factory average: 212; 129.5; 30. Embryos from five to eight in number were noted in several instances.

Zapus hudsonius was originally described from a specimen sent from Hudson Bay, probably from Severn River, by Mr. Graham. It has been recorded from James Bay and Fort Churchill.^g

^a Parry's Third Voyage. Appendix, p. 93, 1824.

^b Appendix to Ross's Second Voyage, p. xiv, 1835.

^c Fauna Boreali-Americana, p. 132, 1829.

^d Journal of Parry's (First) Voyage, p. 202, 1821.

^e Lyon's Private Journal, p. 47, 1824.

^f Journ. Linn. Soc. London, Zool., XX, p. 144, 1888.

^g Preble, N. A. Fauna, No. 15, p. 17, 1899.

Erethizon dorsatum (Linn.). Canada Porcupine.

The porcupine occurs throughout the region between Lake Winnipeg and Hudson Bay, but is nowhere abundant. In a country where the life of the native is a constant struggle for food, the ease with which this animal is taken is a sufficient reason for its scarcity.

According to Hearne, the porcupine was formerly found north of Churchill River, but was scarce.^a Bell says:

Mr. Isbister, of the Nelson River House on the Churchill, informs me that it was once abundant there. It is rare between Lake Winnipeg and Hudson's Bay, but an individual is occasionally found as far north as York Factory.^b

Forster recorded it from Severn River.^c Dr. Milne informed me that he had known it to occur but once at York Factory, but that it is reported by the Indians to be common in certain places about the headwaters of the Shamattawa.

Lepus americanus Erxleben. Hudson Bay Varying Hare.

This species is quite generally distributed throughout the region between Lake Winnipeg and Hudson Bay. Unmistakable evidences of its presence were observed all along our route. We obtained a pair of adults and two immature specimens at Oxford House early in July. At York Factory the animal was stated to be rather uncommon. Bell reports it to be common some years in the neighborhood of Fort Churchill.^d

An adult female taken at Oxford House July 1 is yellowish gray dorsally, much flecked with black, which predominates along center of back; color of sides extending down on upper part of thighs; head and face yellowish brown; outer side of legs yellowish fawn; inner side of legs dull white; upper side of feet dull white, slightly tinged with yellowish. A male taken at Oxford House July 3 has much less dusky on the back, and the back and sides are much suffused with grayish fawn. The measurements of these specimens are as follows: Male: Total length 430; hind foot 117; female: Total length 450; tail vertebrae 43; hind foot 133. Skull of female: Occipito-nasal length 74; zygomatic breadth 36; breadth across postorbital processes 25; length of nasals 30.5; breadth of nasals 26.5.

Lepus arcticus canus subsp. nov. Keewatin Arctic Hare.

Type from Barren Grounds near Hubbart Point, about 75 miles north of Fort Churchill, Keewatin. ♂ yg. ad. (skin and skull), No. 106860, U. S. Nat. Mus., Biological Survey collection. Collected August 17, 1900, by Edward A. Preble. Original number, 3347.

General Characters.—Differing from *Lepus arcticus* in assuming a

^a Journey * * * to the Northern Ocean, p. 381, 1795.

^b Rept. Prog. Can. Geol. Surv. 1882-3-4, App. II, p. 49DD (1885).

^c Phil. Trans., LXII, p. 374, 1772.

^d Rept. Prog. Can. Geol. Surv., 1882-3-4, App. II, p. 49DD (1885).

gray summer pelage; similar to *Lepus labradorius*, but differing slightly in color and in cranial characters.

Color.—Fur of upperparts light plumbeous at base, succeeded by a broad zone of yellowish fawn and a narrow zone of dusky and tipped with white; throat and rump light plumbeous without the fawn-colored zone and white tips; legs and feet white, but the light plumbeous of rump extending down a short distance on thighs; soles clay-color—probably stained; chin grayish white, lighter than throat; head grizzled fawn, brightest on nose and around eyes; nape grayish; occiput dusky; ears dusky grayish anteriorly, edged, except at tip and anteriorly toward the base, with white, dusky tips about 15 mm. long, mesial surface white; fur on inside of ears dusky, tipped with white. An imperfect winter skin obtained near York Factory has the entire fur pure white to base of hairs, except at extreme tips of ears, where the fur is black, becoming yellowish brown toward base.

Lepus labradorius presents a more bluish appearance than *Lepus arcticus canus*, as the plumbeous element of its pelage is more conspicuous. In *labradorius* the plumbeous extends down on outside of leg from thigh nearly to heel.

Skull.—No skulls of adult *arcticus* are available for comparison. Compared with skulls of *labradorius*, those of *canus* differ as follows: Bullæ flatter, rising but slightly above level of basioccipital; jugal broader. A skull of a fully adult animal obtained at Fort Churchill shows the cranial characters of the species better than the Hubbart Point specimens, which are younger. The Fort Churchill skin resembles very closely those taken north of that post.

Measurements.—Type: Total length 570; tail vertebrae 80; hind foot 154. A topotype: Total length 550; tail vertebrae 83; hind foot 155. Skull of adult from Fort Churchill: Greatest length 98; zygomatic breadth 50; breadth across postorbital processes 39; alveolar length of upper molar series 19.

Remarks.—These fine hares occur sparingly in summer throughout the Barren Grounds from Fort Churchill northward. A few breed near Fort Churchill, and one was obtained there August 12. In winter they migrate to a slight extent, reaching the neighborhood of York Factory and perhaps farther.

Though a few signs of this species were noted on a rocky area near my camp 50 miles south of Cape Eskimo early in August, I saw none of the animals themselves until the morning of August 17, when an opportunity was afforded for hunting over a number of low morainic ridges just below Hubbart Point. Tracks made during the previous night were found along the sandy beach, from which they led toward the ridges where I was sure the animals would be found. Carefully scanning the ground, which was covered with gray rounded boulders with occasional bunches of dwarfed willows, I hunted back

and forth over the ridges. Hundreds of Lapland longspurs flitted from boulder to boulder, but otherwise few signs of life were evident on the semi-barren tracts, and I had walked several miles before my attention was attracted by what at first appeared to be a boulder on which a small restless bird was perched. A second glance showed that the object was an Arctic hare whose ears, twitching slightly, completed the resemblance that had deceived me. Another was afterwards started from beneath a dwarfed willow near by. Both were secured and proved to be males, evidently young of the year, but full grown.

Lynx canadensis Kerr. Canada Lynx.

Found throughout the region between Lake Winnipeg and Hudson Bay, but not common in the vicinity of York Factory. The abundance of lynxes from season to season is said to depend on the abundance of rabbits. We obtained a summer skin from the vicinity of Island Lake and a number of skulls from Cross Lake and Oxford House. The skin is apparently that of an adult. It differs considerably from the winter pelage, and may be described as follows: General color on back and sides yellowish brown, the hairs tipped with light grayish brown; a median dorsal stripe reaching from between ears nearly to tail dusky brown, the hairs tipped with light brown; a few obscure spots on sides; beneath dirty yellowish white, with a few spots of dusky on chest and belly; head and neck colored like sides, but tips of hairs more whitish; 'chin beard' white, with a conspicuous black blotch; ears grayish, edged and tipped with black with a few white hairs intermixed; legs concolor with sides; tail yellowish brown above, indistinctly banded with whitish, lighter below and tipped with black.

The average measurements of six adult skulls from Oxford House are as follows: Occipito-nasal length (measured to anterior point of nasals) 123; zygomatic breadth 93.3; breadth of braincase 58.6.

Dr. Bell says:

This animal in its apparently erratic migrations does not reach the verge of the forest. A few skins are obtained at Fort George on the East-main coast and at York Factory. It has been occasionally rather numerous about Oxford House.^a

Hearne saw its tracks near Fort Churchill.^b

Canis albus (Sabine). Barren Ground Wolf.

Wolves were fairly common in the vicinity of our camp on the Barren Grounds 25 miles south of Cape Eskimo, and several were seen. They were dirty yellowish white in color, and were conspicuous on the barren ridges. Their howling frequently reached our ears, especially at night, when their wild cries seemed peculiarly in keeping with that

^a Rept. Prog. Can. Geol. Surv., 1882-3-4, App. 11, p. 49DD (1885).

^b Journey * * * to the Northern Ocean, p. 366, 1795.

lonely and desolate waste. Sometimes they were heard pursuing caribou. Owing to the limited time, I was unable to obtain specimens, though I saw many skins, mostly nearly pure white, at Fort Churchill, where they are traded by the Eskimos and Chippewyans.

The Barren Ground wolf has been recorded by the different Arctic expeditions from various points in northern Keewatin.

Canis occidentalis Richardson. Gray Wolf.

Gray wolves are found more or less commonly throughout the region between Lake Winnipeg and Hudson Bay, and numbers are traded at all the posts. We saw tracks in several places on Steel River, and a wolf was seen a few miles above Fort Churchill during our stay there. A skull of a female from the vicinity of Norway House was obtained from Mr. MacDonald, who informed me that the animal was one of a pair which for some time during the winter of 1900-1901 lived on small fish which they caught at a certain place in the river where ice did not form. Mr. Campbell, of Oxford House, informed me that during the winter of 1899-1900 several were killed within a few rods of the buildings.

Vulpes fulvus (Desmarest). Common Red Fox.

Foxes occur rather plentifully throughout the region between Lake Winnipeg and Hudson Bay. Many skins were seen in the store-houses of the company at Norway House, Oxford House, and York Factory. A few are collected at Fort Churchill. The 'cross' phase of pelage seems to predominate, and the normal or red phase to be next in abundance; but many black, or 'silver,' foxes are taken. Certain districts are said by the traders to produce black foxes almost exclusively; in others these are rarely taken. Large numbers of skins seen at the different posts exhibited every possible degree of variation from the normal red phase to almost pure black. A series of skulls, including specimens from Oxford House, Cross Lake, and Split Lake, was obtained from Mr. Campbell and Mr. MacDonald.

Vulpes lagopus innuitus Merriam. Continental Arctic Fox.

Vulpes lagopus innuitus Merriam, Proc. Biol. Soc. Wash., XV, p. 170, August 6, 1902.

We first met with this species July 19 on the 'Barrens' between Stony and Owl rivers, about 75 miles north of York Factory. Here, on a slightly elevated part of the tundra, we found a burrow occupied by a family of Arctic foxes. This burrow was typical—an underground labyrinth with several entrances. In the vicinity were scattered the bones and feathers of various birds, principally ptarmigans, and well-worn trails leading in various directions gave evidence of the activity of the mother fox in providing for her family. A young one was enticed from the depths of the burrow and secured. Its color may

be described as follows: Head, back, base of tail dorsally, and stripe extending down on outer side of legs, seal brown; face and legs seal brown, flecked with white; shoulders and thighs seal brown, flecked with fawn; sides and lower parts, including ventral surface of tail, light fawn, deepest on sides; proximal two-thirds of tail above, hair brown, strongly overlaid with fawn. The color of the adults is stated to be essentially the same as that of the young. On the Barren Grounds north of Fort Churchill tracks of Arctic foxes were frequently seen. Their dens were found at both of my camps south of Cape Eskimo, and an immature individual, which closely resembled the specimen above described, was trapped at the southernmost of these camps.

The Continental Arctic fox occurs throughout northern Keewatin and the adjacent islands of the Arctic Sea. In summer it seems to be found chiefly on the seacoast, and breeds on the west coast of Hudson Bay as far south at least as the vicinity of York Factory.^a It was recorded by Edward Sabine from the North Georgia Islands, where it remained throughout the year,^b and by J. C. Ross from Port Bowen.^c Richardson described a specimen in the blackish-brown phase, which was killed December 16, on Winter Island, Melville Peninsula.^d Lyon recorded the species from Duke of York Bay, Southampton Island.^e

In winter large numbers of these foxes pass down the coast of Hudson Bay. Many are still taken at Fort Churchill, though fewer than in former years. Dr. Milne informs me that at York Factory a few were taken every winter during his residence there, and that the species reaches Severn River, a fact formerly recorded by Hearne.^f I saw a skin which had been taken during the winter of 1899-1900 near a large lake about 75 miles north of Oxford House, and Mr. William Campbell informed me that he trapped one some years ago at the outlet of Oxford Lake.

The winter of 1900-1901 was remarkable for the great number of these animals which came southward, and for their wide dispersion in the interior. Mr. J. K. MacDonald, of Norway House, wrote me that on account of the light fall of snow the foxes followed up the rivers from the Bay to the vicinity of that post.

The normal phase of color seems to predominate throughout the region. Among the many winter skins seen at York Factory and Fort Churchill was only one 'blue' one—probably the winter pelage of the sooty phase—and the color is said to be of very rare occurrence in the region.

^aJoseph Sabine, Narrative of a Journey to the Shores of the Polar Sea, Appendix, p. 658, 1823.

^bSuppl. to Appendix Parry's First Voyage, p. clxxxvii, 1824.

^cParry's Third Voyage, Appendix, p. 92, 1826.

^dFauna Boreali-Americana, I, p. 89, 1829.

^eLyon's Private Journal, p. 46, 1824.

^fJourney * * * to the Northern Ocean, p. 364, 1795.

Ursus americanus Pallas. Black Bear.

Black bears are rather numerous throughout the region between Lake Winnipeg and Hudson Bay, and many skins are annually traded at all the posts. Toward the northward they become less common. One was seen near Robinson Portage by Mr. W. C. King, who passed this point a day or two ahead of us on his way toward York Factory. This bear was feeding on the piles of Mayflies (Ephemeridæ), which perish in myriads and are washed up on the shores in long 'wind-rows.' These are said to constitute a favorite food of the bear.

A number of skulls were obtained from Oxford Lake, where the black bear is rather common. On our return journey we obtained an immature skull at York Factory, and saw a bear's track on the banks of Steel River a few miles below the mouth of Fox River.

Dr. Bell killed a black bear on Churehill River, about 100 miles from its mouth.^a

Ursus richardsoni Swainson. Barren Ground Bear.

While at Fort Churchill I made inquiries in regard to the Barren Ground bear, but the official in charge, Mr. Alston, knew nothing of such a species. Dr. Bell, speaking of the Barren Ground bear, says:

In the barren grounds to the northwest of Hudson's Bay, I have been told that a large bear is found, which the Eskimo consider a variety of the polar bear, which has adopted a terrestrial life, and to which they have given the name of "blue" or "grey" bear. * * * This bear is found in the barren grounds south of Hudson's Strait.^a

While on his journey of exploration Hearne saw the skin of an enormous grizzled bear at the tents of the Indians on the Copper River.^b This was probably the skin of this species. If the animal extends its range to the vicinity of Hudson Bay it must be very rare.

Thalarectos maritimus (Phipps). Polar Bear.

We obtained several skulls at York Factory through the kindness of Dr. Milne and Mr. G. B. Boucher. While we were traveling between York Factory and Fort Churchill a party of Indians reported seeing a white bear, which swam out to sea on perceiving them. On August 9, below Cape Eskimo, while we were awaiting the rise of the tide so that we could land, we saw a polar bear on the tundra. He was rapidly quartering the rolling ground in search of food. A few days later another was seen several miles north of our camp. While traveling down the coast we saw several places where the animals had lain in the rank beach grass. Mr. Boucher killed a female and her two cubs on the coast between York Factory and Cape Tatnam about the middle of August.

^a Rept. Prog. Can. Geol. Surv., 1882-3-4, App. II, p. 51DD (1885).

^b Journey * * * to the Northern Ocean, p. 372, 1795.

Polar bears occur regularly all along the coast of Keewatin as far south at least as Severn River, and probably to the head of James Bay. Bell reports that a few have been seen at Moose Factory.^a The female 'dens up' in a snowdrift in the winter, brings forth her young about March, and soon afterwards leads them to the sea. The male is said to pass the winter at sea. The animals are frequently seen during late summer swimming in the Bay, and Bell records that one was killed by the captain of one of the Hudson's Bay Company ships in open water about the middle of the Bay.^b Polar bears have been met with by various expeditions to the north of Hudson Bay.

Lutra canadensis (Schreber). Canada Otter.

Otters seem to be found throughout the region, as we saw skins at all of the posts visited. They are not found in the immediate vicinity of Fort Churchill, but are said to be taken not far up the Churchill River. Hearne states, probably referring to the interior, that they used to frequent the rivers to the north of Churchill as far as latitude 62°.^c We frequently saw their tracks while we were ascending the upper part of Hill River, and the Indians often spoke of the abundance of otters in the vicinity. At York Factory we obtained the skin of a young one about the size of a small mink and dull dark brown in color.

Skulls composing a series recently obtained from Oxford House, Norway House, and Cross Lake are apparently not separable from skulls from Godbout, Quebec, assumed to be typical *canadensis*.

Mephitis mephitis (Schreber).^d Canada Skunk.

A large number of skins were seen in the storehouse at Norway House, and the animal is occasionally taken about Oxford House, where we obtained a hunters' skin.

While paddling up the channel between Windy and Pine lakes on September 12 we saw a skunk swimming across the stream a hundred yards in front of our canoe. On seeing us he redoubled his exertions, but we overtook and shot him just as he reached the shore. This was the only one seen on our trip. This specimen, as well as the Oxford House skin, has been recorded by Howell.^e

Dr. Bell gives the skunk as occurring on both sides of James Bay.^g Forster records one sent from Severn River by Mr. Graham.^f Howell records a specimen from Moose Factory.^h Among the large number of skins at Norway House were several which seemed to be referable to the Northern Plains skunk (*M. hudsonica*).

^a Rept. Prog. Can. Geol. Surv., 1882-3-4. App. II, p. 50DD (1885).

^b *Ibid.*, p. 50DD (1885).

^c Journey * * * to the Northern Ocean, p. 374, 1795.

^d See Science (new ser.), XVI, No. 394, p. 114, July 18, 1902.

^e N. A. Fauna, No. 20, p. 23, 1901.

^f Phil. Trans., LXII, p. 374, 1772.

Lutreola vison lacustris subsp. nov. Keewatin Mink.

Type from Echimamish River (near Painted Stone) Keewatin, Canada. ♂ yg. ad. (skin and skull), No. 106872, U. S. Nat. Mus., Biological Survey collection. Collected September 14, 1900, by Alfred E. and Edward A. Preble. Original number, 3518.

General characters.—Similar to *Lutreola vison* but larger; skull more angular.

Skull.—Compared with skulls of *vison* from the Adirondack Mountains and New England (assumed to be typical) a large series from Oxford House and the surrounding region differ as follows: More angular and much larger, those of males of *vison* hardly equaling those of females of *lacustris*; sagittal ridge highly developed; zygomatic strongly bowed outward; dentition heavier than in *vison*; bullæ large and rather flat, inner anterior corner produced toward pterygoids and ending in a rather acute angle.

Color.—Type: Upperparts very dark chocolate brown; underparts lighter; chin and a narrow, irregular, and partially broken stripe extending to lower part of breast, white; a little white between hind legs.

Measurements.—Type: Total length 560; tail vertebræ 190; hind foot 67. Adult female from Swampy Lake: 540; 180; 60. Average of five immature but well-grown individuals of both sexes: 549; 153; 64.8. Skull: Average of ten adults (probably males) from Oxford House: Occipito-nasal length 62.5; zygomatic breadth 41.25; inter-orbital constriction 11.9; breadth across postorbital processes 18.25; mastoid breadth 36.1.

Remarks.—Minks seem to be common and quite generally distributed throughout the region between Lake Winnipeg and Hudson Bay. They are annually traded at all the posts, and at all except Fort Churchill in large numbers. A few skins were seen in the storehouse at Fort Churchill, and Mr. Chapman, the resident missionary, saw a mink a few miles up Churchill River late in July. We trapped an adult female at Oxford House and another on the shore of Swampy Lake, and while traveling through the lakes on our return journey early in September shot several that were swimming across rivers or between the islands of the lakes. These were mainly immature. The Indians say that when traveling through the lakes at this season they always see minks, and that these are young of the year that are leaving the place of their birth and starting out for themselves. We were usually able to approach quite near before they took alarm and dived, and as they came to the surface within 15 or 20 yards they fell an easy prey.

The specimens composing the series show more white than is usual in *vison*, the average excess appearing in the type.

Putorius cicognani (Bonaparte). Bonaparte Weasel.

Weasels, or 'ermine,' as they are usually styled in the north, were reported as common throughout the region between Lake Winnipeg and the Bay, and many are caught in traps set for more desirable species. We failed to trap any while traveling through the district, but saw many skins at the trading posts and obtained a number of skulls from the natives at Oxford House. The skulls prove to be typical *cicognani*, and as two skins in the U. S. National Museum collection from Fort Albany, Hudson Bay, are referable to this form, the Bonaparte weasel is probably the common weasel of the region.

Two winter skins from York Factory seem referable to this species, but in the absence of skulls I find it impossible to decide whether they are nearest to *cicognani* or to *richardsoni*.

Putorius cicognani richardsoni (Bonaparte). Richardson Weasel.

This form probably replaces *cicognani* throughout the northern parts of the region as far north as the limit of trees and perhaps farther. An immature male taken on Churchill River a few miles above Fort Churchill is dark brown above, as in *cicognani*, and white beneath, very slightly tinged with yellow. The black on the tail occupies its terminal third, inclusive of the hairs. Another male, also immature, shot on the edge of the Barren Grounds below Hubbard Point August 17, resembles the Churchill River specimen, but is strongly tinged with sulphur yellow beneath.

Putorius arcticus Merriam. Tundra Weasel.

Weasels collected by Ludwig Kunlien at Cumberland Gulf in 1878 prove to be referable to this species, the type of which came from Point Barrow. This indicates that the range of the animal may extend across the northern part of the continent, and makes it probable that the following notes referring to *erminea* properly relate to *arcticus*. J. C. Ross mentions the occurrence of the animals on the shores of Boothia Felix. He states that they assumed their winter dress in September and turned brown again toward the end of May. Their tracks were seen at intervals throughout the winter, and the accompanying tracks of lemmings showed that the weasels were in pursuit of what was found to be their chief prey.^a They are also recorded from the west side of Baffin Bay,^b and were found on the east side of Melville Peninsula on Parry's second voyage.^c

Putorius rixosus Bangs. Bangs Weasel.

A specimen of this diminutive weasel from Moose Factory is in the U. S. National Museum collection, and has been several times recorded.

^aAppendix to Ross's Second Voyage, p. x, 1835.

^bAppendix to Ross's First Voyage, p. xliii, 1819.

^cLyon's Private Journal, p. 54 (and elsewhere), 1824.

I made inquiries of the fur traders in regard to the species, but none knew it. It is probable, however, that it is found throughout the southern part of the region, and that their ignorance of it results from its fur being considered valueless and consequently not offered in trade.

Forster recorded a small weasel sent from Hudson Bay by Mr. Graham, which was undoubtedly this species. Its total length is given as 7 inches, and that of its tail as about 1 inch.^a Bangs recorded a specimen from Fort Albany.^b

***Mustela americana abieticola* subsp. nov.** Hudson Bay Marten.

Type from Cumberland House, Saskatchewan. ♂ ad. (skin and skeleton), No. $\frac{19236}{34322}$, U. S. Nat. Mus. Collected February, 1890, by Roderick MacFarlane.

General characters.—Much larger than *Mustela americana*; dentition heavier.

Skull.—Much larger than in *M. americana* from the Adirondack Mountains and New Brunswick; more angular, the sagittal crest being more highly developed; zygomata more bowed outward posteriorly; dentition much heavier except last upper molar, which is usually about the same size.

Color.—Type in winter pelage: General color of body rich dark yellowish brown, darkest on middle of back; legs and tail darker, the latter almost black at tip; an irregular blotch and a small spot on chest, ochraceous; face and cheeks grayish brown; ears edged with whitish.

Measurements.—Type (estimated from cleaned skeleton): Total length 640; tail vertebrae 210; hind foot 95. Skull (average of six adults from Oxford House): Occipito-nasal length 78.9; zygomatic breadth 47.8; interorbital constriction 16.7; breadth across post-orbital processes 22.5; mastoid breadth 37.8.

Remarks.—The marten is fairly common throughout the region north to the tree limit, but is most abundant in the heavy spruce forests of the southern part. Many skins were seen at Norway House, Oxford House, and York Factory, and a few at Fort Churchill that were said to have been taken on lower Churchill River. A large series of skulls from Oxford House, Norway House, and Cross Lake, collected in the winter of 1900-1901, and a few from York Factory and Fort Churchill collected by our party, are in the Biological Survey collection. These differ from skulls of typical *americanus* to such a degree as to require subspecific separation. A fine skin and skeleton from Cumberland House in the U. S. National Museum has been selected as the type. This form approaches in some of its characters *Mustela a. actiosa* from Alaska, but though smaller has heavier dentition than that species and consequently more crowded molars.

^a Phil. Trans., LXII, p. 373, 1772.

^b Proc. Biol. Soc. Wash., X, p. 22, 1896.

Mustela pennanti Erxleben. Fisher.

Found sparingly throughout the southern part of the region. We saw many skins at Norway House and Oxford House. Dr. Milne, of York Factory, informed me that he had known of one fisher being taken about 60 miles east of York Factory, toward Cape Tatnam, and had on one occasion seen a track about 50 miles southeast of York Factory. Farther south more are taken; about thirty or forty are annually traded at Trout Lake and a few at Severn River.

Skulls from Oxford House and Cross Lake, collected during the winter of 1900-1901, resemble closely skulls from Godbout, Quebec, assumed to be typical *pennanti*.

Gulo luscus (Linn.). Hudson Bay Wolverine.

Edwards figured and gave a short account of the 'Quick Hatch or Wolverine' from an individual which was brought alive from Hudson Bay, and which lived for several years.^a This specimen formed the basis of Linnaeus's description of the species, which he named *luscus*, in allusion to the beast having lost an eye. The wolverine is still found throughout the region between Lake Winnipeg and Hudson Bay, but is rather rare in the southern districts, though a few skins were seen at all the posts visited. To the northward it is more abundant, its range extending over the Barren Grounds and some of the islands of the Polar Sea.

In Hearne's day the natives to the north of Fort Churchill killed many wolverines.^b Edward Sabine recorded a skull found on Melville Island on Parry's first voyage,^c and on his second voyage the remains of wolverines were found on Melville Peninsula.^d Wolverine were killed in midwinter near Felix Harbor and Victoria Harbor during Ross's second voyage.^e Skins are still obtained in the vicinity of Marble Island.

Odobenus rosmarus (Linn.). Atlantic Walrus.

Occasionally found about the northern part of the Bay, to which section it is probably confined. The body of one had been brought to Fort Churchill by the Eskimos and skinned there a few days before our arrival. A small quantity of walrus ivory, which forms one of the articles of trade, was seen at that post.

Dr. Bell says:

The walrus is killed by the Eskimo, principally about the entrance to Hudson's Straits and around the Belcher Islands. In former years this animal is reported to have been seen occasionally as far south as Little Whale River. On the opposite side of Hudson's Bay walruses are said to have been seen near Cape Henrietta Maria.^f

^aNat. Hist., II, pl. 103, 1747.

^bJourney * * * to the Northern Ocean, p. 372, 1795.

^cSuppl. to Appendix to Parry's First Voyage, p. clxxxiv, 1824.

^dAppendix to Parry's Second Voyage, p. 293, 1825 (1827).

^eAppendix to Ross's Second Voyage, p. viii, 1835.

^fRept. Prog. Can. Geol. Surv., 1877-78, p. 29c (1879).

The animal was formerly abundant at Walrus Island and other points to the north of Fort Churchill. Hearne relates that in 1767 while passing Sea Horse 'Island' he and his party "saw such numbers of those animals lying on the shore, that when some swivel guns loaded with ball were fired among them, the whole beach seemed to be in motion."^a

J. C. Ross recorded walrus from the northern part of Prince Regent Inlet.^b According to the same author they were unknown about Boothia, but abounded at Repulse Bay.^c Dr. Rae mentions seeing many on a small island near Whale Island, below Wager Bay.^d

Phoca hispida Schreber. Rough Seal.

A number of skins were seen at Fort Churchill and the animal was said to be rather common in the vicinity.

J. C. Ross reported the species from the seas on both sides of the Isthmus of Boothia,^e and from Port Bowen.^f

Phoca grœnlandica Erxleben. Harp Seal.

Dr. Bell gives this species as the commonest seal in all parts of Hudson Bay at all seasons.^g I saw no skins, but the species was reported at Fort Churchill. J. C. Ross reported it from the west side of the Isthmus of Boothia.^b

Cystophora cristata (Erxleben). Hooded Seal.

Dr. Bell reported this seal from Hudson Straits, where a few skins were seen in the possession of the Eskimos.^g Its range may extend to other parts of the Bay.

Erignathus barbatus (Erxleben). Bearded Seal.

An adult female was killed July 20 about 75 miles north of York Factory. Its total length was 2,300 mm. (about 7½ feet), and it was so heavy that we had great difficulty in getting it on board. Its general color is grayish; lighter, almost silvery on sides and head, darker on nape and middle of back.

We saw numbers of these seals both to the north and south of Fort Churchill, and the species probably reaches all parts of the Bay. The so-called 'clapmatch' lines, used in place of heavy rope for various uses, are made largely from the skins of this species in the region we

^a Journey * * * to the Northern Ocean, p. 388, 1795.

^b Appendix to Ross's Second Voyage, p. xxi, 1835.

^c Ibid, p. xxii, 1835.

^d Expedition to the Shores of the Arctic Sea, p. 180, 1850.

^e Appendix to Ross's Second Voyage, p. xix, 1835.

^f Appendix to Parry's Second Voyage, p. 94, 1825 (1827).

^g Rept. Prog. Can. Geol. Surv., 1882-3-4, App. II, p. 52DD (1885).

visited. A long line of surprising strength is made by cutting the skin of the animal in a spiral manner.

Dr. Bell saw skins of the bearded seal in the possession of the Eskimos in Hudson Strait in 1884, and a few of the animals were observed by his party. He also saw bearded seals on the Eastmain coast in 1877, and killed a large one at the mouth of Moose River.^a J. C. Ross reported the species to be found in summer on the shores of Boothia.^b

Phoca vitulina Linn. Harbor Seal.

Doubtless found in all parts of the Bay. We saw it in numbers all along the coast visited, especially at the mouth of Churchill River. We saw one August 28, several miles above York Factory, as we were ascending Hayes River. A specimen of a rather small female that measured 1,500 mm. in length was secured 50 miles south of Cape Eskimo August 14. Its general color is light yellowish, irregularly and obscurely spotted on the back with brownish.

Neosorex palustris (Richardson). Marsh Shrew.

This species is represented in our collection by a series of seven collected between Echimanish River and the upper portion of Hill River. We trapped them in the grassy margins of marshes or in wooded swamps. As this series shows considerable variation in color some of the specimens may be noted in detail. Four taken at Robinson Portage June 27 agree very closely in color—back dusky, very finely flecked with silvery white; beneath grayish white with a tinge of brown, grading insensibly on sides into color of upperparts; throat and chin noticeably lighter than remainder of lower parts, this light color sharply divided from the dusky of the face; inner surface of forelegs and fringes of feet silvery white; tail rather sharply bicolored nearly to tip; hind feet dark on outer side, lighter on inner side. A specimen taken on Hill River, near Swaupy Lake, September 5, agrees closely with the June specimens. One taken at Robinson Portage September 14 is evidently in winter pelage, the fur being very soft and full, and glossy black dorsally, much darker than the June specimens. One taken on Echimanish River September 15 agrees with the June specimens dorsally, but the ventral surface is strongly clouded with brownish. The skulls, compared with skulls from Minnesota and South Edmonton, Alberta, assumed to be typical *palustris*, show no differences of value.

The series shows little variation in size. The seven specimens average: Total length 157.3; tail vertebrae 72; hind foot 19.4. A specimen received from Mr. J. K. MacDonald, of Norway House, who obtained it from the Indians, is in full winter pelage. It resembles

^a Rept. Prog. Can. Geol. Surv., 1882-3-4, App. II, p. 52DD (1885).

^b Appendix to Ross's Second Voyage, p. xxi, 1835.

the specimen from Robinson Portage taken in September, except that the fur of the back is tipped with whitish. The species, it is stated, is locally called the 'beaver mouse,' from being found in the houses of the beaver.

Sorex personatus I. Geoffroy. Common Eastern Shrew

About twenty-five specimens were collected from various localities between Norway House and York Factory. These average lighter in color beneath and slightly larger than specimens of *personatus* in corresponding pelage from the Northeastern States. The males average a little darker dorsally than the females. Sometimes there is a distinct dark area on the back separated from the ashy of the lower parts by a lighter lateral stripe. Among my specimens this dark area seems to increase in intensity with age, and a very old male with excessively worn teeth from York Factory has a conspicuous tricolor pattern. This specimen has an abnormally short tail and measures: Total length 90; tail vertebræ 32; hind foot 12. Eight of the largest specimens average: 104.1; 40.6; 12.

King records a specimen of *Sorex forsteri* which was found near the mouth of Great Fish River.^a

Sorex (Microsorex) alnorum sp. nov. Keewatin Shrew.

Type from Robinson Portage, Keewatin, Canada. ♀ ad. (skin and skull), No. 107014, U. S. Nat. Mus., Biological Survey collection. Collected June 27, 1900, by Alfred E. and Edward A. Preble. Original number, 2662.

General characters.—Larger than *Sorex hoyi* with larger skull; lower parts not tinged with buffy.

Color.—Type: Upperparts sepia brown as in *S. hoyi*; lower parts ashy gray, not tinged with buffy; hind foot dusky on outer and whitish on inner half; tail dusky above, whitish below, becoming dusky toward tip. Compared with *Sorex (Microsorex) eximius* from Cook Inlet, Alaska, the type is slightly darker above and slightly grayer beneath.

Skull.—Compared with skulls of *S. hoyi* from Elk River, Minnesota, and Red River Settlement, Manitoba, the skull of the type is much larger: rostrum about the same; braincase much broader and higher, both actually and proportionally; mandible longer and slender; teeth more heavily pigmented. Compared with *Sorex (Microsorex) eximius* from Cook Inlet, *alnorum* has rostrum slightly broader, longer and higher; unicuspid more crowded.

Measurements.—Type: Total length 98; tail vertebræ 35; hind foot 12. Skull: Greatest length 16.5; width of braincase 7; length of mandible 10.

Remarks.—We found this species only at Robinson Portage, where the type was trapped, and on the Echimamish. At the latter point a

^aNarrative of a Journey to the Shores of the Arctic Ocean, II, p. 17, 1836.

Sorex was so eaten in the trap as to be unfit for a skin, but the skull was saved and proves referable to *Microsorex*. It was badly injured and is valueless for comparison, but it is assumed to belong to this species.

***Sorex richardsoni* Bachman.** Richardson Shrew.

This shrew is represented in our collection by a series of eleven specimens. Excepting one taken in June at Robinson Portage and one trapped on Swampy Lake, near its outlet, September 6, all are from Norway House, where the species was abundant. Four of these Norway House specimens, taken June 18 to 22, are still in the dark-backed winter pelage; all the others have the dorsal area less distinctly indicated. One taken at Norway House June 22 contained six embryos. The Swampy Lake specimen, which was trapped in spruce woods, has an abnormally long tail and measures: Total length 120; tail vertebrae 48; hind foot 14. The rest of the series average: 116.6; 41.5; 14.

Under the name *Sorex araneus*, Forster recorded a specimen sent from Hudson Bay, probably referable to the present species.^a

***Sorex sphagnicola* Coues.** Coues Shrew.

A shrew collected by Dr. Bell on Shamattawa River was referred to this species by Dr. C. Hart Merriam.^b *Sorex sphagnicola* is very imperfectly known, but is undoubtedly most nearly related to *richardsoni*.

***Condylura cristata* (Linn.).** Star-nosed Mole.

Dr. Bell speaks of this species as being common at Moose Factory.^c A specimen in the U. S. National Museum, collected at that post in 1881 by Dr. Walton Haydon, and one taken at Rupert House, James Bay, have been recorded by True.^d I have recently examined the Moose Factory specimen. It was kept in alcohol, but has spoiled in the fluid so that only the skull and part of the skeleton are intact. The skull resembles closely specimens from Pennsylvania and the Northern States.

***Myotis lucifugus* (Le Conte).** Little Brown Bat.

Two specimens from James Bay are recorded by Miller.^e We saw no bats of any kind during our trip.

^aPhil. Trans., LXII, p. 380, 1772.

^bN. A. Fauna, No. 10, p. 65, 1895.

^cRept. Prog. Can. Geol. Surv. 1882-3-4, App. 11, p. 48DD (1885).

^dProc. U. S. Nat. Mus., XIX, p. 84, 1896.

^eN. A. Fauna, No. 13, p. 63, 1897.

BIRDS OF KEEWATIN.

Colymbus holbœlli (Reinh.). Holbœll Grebe.

The Holbœll Grebe was first described by Reinhardt from Greenland. Joseph Sabine mentions having received specimens from Hudson Bay.^a MacFarlane took its eggs in the vicinity of Fort Anderson;^b and as the species is recorded from other northern points and breeds in Manitoba it probably occurs throughout the Hudson Bay region.

Colymbus auritus Linn. Horned Grebe.

Several grebes thought to belong to this species were seen near the mouth of Red River June 15, and a specimen was collected at Sea Falls, 20 miles north of Norway House, September 16.

Andrew Murray recorded the species from Trout Lake,^c and Dr. Bell has collected it at Fort Severn and York Factory, and found it breeding at Fort Churchill,^d from which point Clarke records a specimen in summer plumage.^e A specimen collected by Dr. Rae at Repulse Bay is recorded in the British Museum Catalogue.

Podilymbus podiceps (Linn.). Pied-billed Grebe.

Bell records a specimen from York Factory collected and presented to him by Dr. Matthews.^f This seems to be the only published record of the capture of the pied-billed grebe in the Hudson Bay region. Nutting records specimens taken at Chemawawin, Saskatchewan, an Indian village about 60 miles west of the mouth of the Saskatchewan, where the species was breeding abundantly.^g

Gavia imber (Gunn.). Loon.

We found this species rather common on the lakes and deeper parts of the rivers on our route between Norway House and York Factory, and its wild notes were heard nearly every night. Several were seen near the mouth of Churchill River July 30, and several more near North River July 31. On our return trip we saw one or more on nearly every lake between Oxford House and Norway House.

^a Franklin's Narrative of a Journey to the Polar Sea, Appendix, p. 692 (*Podiceps rubricollis*), 1823.

^b Proc. U. S. Nat. Mus., XIV, p. 415, 1891.

^c Edin. New Phil. Journ., (new ser.), IX, p. 231, 1859.

^d Proc. Royal Soc. Canada, 1882, I, Sec. IV, p. 49 (1883).

^e Auk, VII, p. 320, 1890.

^f Rept. Prog. Can. Geol. Surv., 1882-3-4, App. 111, p. 56DD (1885).

^g Nat. Hist. Bull. Univ. Iowa, II, p. 249, 1893.

King recorded the 'great northern diver' from the mouth of Back River,^a and Murray received a specimen from Severn House.^b The catalogue of birds in the U. S. National Museum collection contains the record of a specimen collected at Moose Factory in 1881 by Walton Haydon.

Gavia adamsi (Gray). Yellow-billed Loon.

Under the name *Colymbus glacialis*, James Clark Ross records three loons, which from his description were undoubtedly of this species, obtained about Boothia during (John) Ross's second voyage.^c In speaking of a loon given him by James Clark Ross, which had been procured in a very high latitude, and which had a yellow bill, Audubon probably refers to one of these specimens.^d

This record extends the previously recognized range of the species considerably to the eastward.

Gavia arctica (Linn.). Black-throated Loon.

Swainson and Richardson speak of this species as common on Hudson Bay,^e and Murray recorded it from Severn House.^f Clarke recorded an adult in summer plumage from Fort Churchill.^g Some of these records may refer to *pacifica*.

Gavia pacifica (Lawr.). Pacific Loon.

First seen on Hudson Bay about 25 miles north of York Factory July 17, and rather common northward. A fine adult male was secured at Fort Churchill July 25. On the Barren Grounds below Cape Eskimo, August 4 to 13, the species was abundant on the shallow ponds on the tundra, where the young are raised. The old birds were often seen flying to and from the Bay, where most of their food seemed to be secured. The howl of a wolf, or any unusual sound, was generally followed by a chorus of their wild, weird calls, lasting for several minutes. The species was last seen by us below Cape Churchill August 24.

Edwards's plate and description of the 'Speckled Diver, or Loon,'^h

^a Narrative of a Journey to the Shores of the Arctic Ocean, II, p. 21, 1836.

^b Edin. New Phil. Journ. (new ser.), IX, p. 231, 1859. Severn House does not appear on most maps. Thompson, who has had access to the maps and records of the Hudson's Bay Company in London, locates it "on Severn Lake, at 54° 5' north latitude and 92° 30' west longitude." (Proc. U. S. Nat. Mus., XIII, p. 463, 1890). In Stieler's Hand Atlas it is located at the same place. If this information is correct (as it probably is) Severn House should not be confounded with Fort Severn, the post at the mouth of Severn River, though it is barely possible that Murray's records refer to Fort Severn.

^c Appendix to Ross's Second Voyage, p. xlii, 1835.

^d Birds of America, VII, p. 291.

^e Fauna Boreali-Americana, II, p. 475, 1831.

^f Edin. New Phil. Journ. (new ser.), IX, p. 231, 1859.

^g Auk, VII, p. 320, 1890.

plainly represent this species. He gives the length of the bill to the angle as 3 inches, and the color of the hinder part of head and neck as light ash.^a Specimens from Winter Island, Melville Peninsula, and from Repulse Bay are recorded in the British Museum Catalogue.

Gavia lumme (Gunn.). Red-throated Loon.

First seen July 21 at Fort Churchill, where it was fairly common. It was abundant August 4 to 13 on the shallow ponds on the Barren Grounds below Cape Eskimo, where the old birds were feeding young that were still unable to fly. An adult male and a young one in the dusky downy plumage were collected 50 miles below Cape Eskimo August 4. At our camp 25 miles south of Cape Eskimo the species was more abundant than *G. pacifica*, and fully as noisy. While returning we saw two and shot one on Knee Lake September 9.

Cephus mandti (Licht.). Mandt Guillemot.

Two were seen on Hudson Bay about 50 miles south of Cape Eskimo August 3. One of these sat motionless on the water while the boat passed by within a few feet. On August 19 I saw one on Button Bay near Fort Churchill.

Two specimens from Melville Peninsula are recorded in the British Museum Catalogue.

Andrew Murray records the black guillemot (*C. grylla*) from Severn House,^b and Richardson states that it was very numerous off Melville Peninsula.^c In his narrative Dr. Rae speaks of finding it nesting on an island off Knaps River, Hudson Bay.^d These records of *grylla* probably refer to the present form.

Uria troile (Linn.). Murre.

Richardson describes a specimen collected at York Factory, Hudson Bay.^e

Uria lomvia (Linn.). Brünnich Murre.

Swainson and Richardson say that this species frequents Hudson Bay.^f A specimen from Hudson Bay, received from the Hudson's Bay Company, is recorded in the British Museum Catalogue. Though I have been unable to find any other record, there seems to be no reason that this murre should not occur there regularly. The species is recorded by Ross from Port Bowen, Prince Regent Inlet, where the birds arrived early in June.^g

^a Nat. Hist., III, pl. 146, 1750.

^b Edin. New Phil. Journ. (new ser.), IX, p. 231, 1859.

^c Appendix to Parry's Second Voyage, p. 377, 1825 (1827).

^d Narrative of an Expedition to the Shores of the Arctic Sea, p. 22, 1850.

^e Fauna Boreali-Americana, II, p. 477, 1831.

^f Ibid., p. 477, 1831.

^g Parry's Third Voyage, Appendix, p. 107, 1826.

Alle alle (Linn.). Dovekie.

This species is recorded as abundant in Baffin Bay, Davis Strait, and other parts of the Arctic seas, and it winters southward on the coast, hence it probably occurs, at least in migrations, about the northern part of Hudson Bay.

Megalestris skua (Brünn.). Skua.

Larus keeask of Latham,^a stated to inhabit Hudson Bay, and based on Hutehins's 'Esquimaux Keeask,'^b probably refers to the present species. Though it has apparently not since been recorded from Hudson Bay, the facts of its presence in Hudson Straits and its breeding at Lady Franklin Island, north of the straits, render its occurrence on the waters of the Bay probable.

Stercorarius pomarinus (Temm.). Pomarine Jaeger.

Several seen near the mouth of Churehill River July 21. They were pursuing the terns and small gulls with remarkable agility, evidently to rob them of their prey. A male was collected below Cape Eskimo, where the birds were common August 3 to 8. They were generally flying about over the tundra somewhat after the manner of a marsh hawk, frequently hunting in small, noisy companies; but sometimes several would be seen standing on a small knoll, apparently asleep. They were easily decoyed by the imitation of the cry of a bird in distress. Despite the frequency of melanism in this genus, I saw no black jaegers of any species, though my Indian guide reported seeing one at our camp 25 miles below Cape Eskimo.

Richardson records the species from Igloodik, Melville Peninsula.^c

Stercorarius parasiticus (Linn.). Parasitic Jaeger.

First met with about 50 miles north of York Factory, where several were seen, and a female was shot July 19. The species was common on the Barren Grounds below Cape Eskimo, August 4 to 13. In habits it resembles *S. pomarinus*.

Clarke records a melanistic specimen from Fort Churehill.^d

Stercorarius longicaudus Vieill. Long-tailed Jaeger.

Edwards's plate of the 'Arctic Bird' represents this species. In his description he says the tail feathers are 13 inches long.^e Dr. Bell records a specimen which was shot near York Factory by Dr. Matthews, who presented it to him.^f The catalogue of birds in the U. S. National Museum collection records a specimen of *S. richardsoni* taken at Fort

^a Index Ornithologicus, II, p. 818, 1790.

^b Latham, Synopsis, III, Part 2, p. 389, 1791.

^c Appendix to Parry's Second Voyage, p. 361, 1825 (1827).

^d Auk, VII, p. 320, 1890.

^e Nat. Hist., III, pl. 148, 1750.

^f Rept. Prog. Can. Geol. Surv., 1882-3-4, App. III, p. 56DD (1885).

Churchill by W. W. Kirkby. A specimen from Duke of York Bay is recorded in the British Museum Catalogue.

Pagophila alba (Gunn.). Ivory Gull.

Richardson describes a specimen of the ivory gull killed at Hudson Bay.^a This gull has also been recorded from Port Bowen and from other localities to the north of Keewatin.

Rissa tridactyla (Linn.). Kittiwake.

Sabine says this species abounds in Hudson Bay,^b and Richardson gives a description of one killed on Melville Peninsula in July.^c A specimen from the Savage Islands, Hudson Bay, is recorded in the British Museum Catalogue.

Larus glaucus Brünn. Glaucous Gull.

Doubtless found in all parts of Hudson Bay. It has been recorded from Melville Island, Felix Harbor, and other places in the Arctic regions, and has been found breeding in James Bay and at various points on the east coast of Hudson Bay.^d

Larus leucopterns Faber. Iceland Gull.

Undoubtedly occurs on Hudson Bay during migrations, since many winter on the Great Lakes, and Arctic expeditions have obtained specimens in Davis Strait and Baffin Bay and at Melville Island.

Larus marinus Linn. Great Black-backed Gull.

Common on the coasts of Greenland and Labrador and frequent in winter on the Great Lakes. It is, therefore, like the Iceland gull, very probably to be found, at least during migrations, inhabiting Hudson Bay.

Larus argentatus Brünn. Herring Gull.

Common on Lake Winnipeg, Hudson Bay, and all the intermediate lakes and larger rivers, and breeding throughout the region. It is usually very shy, however, as it is shot for food by the natives whenever opportunity offers. At Fort Churchill, where we collected a specimen July 28, the eggs are gathered in large numbers in May and packed in salt, to be eaten in the late autumn and early winter. On our return trip during the latter part of August and fore part of September, many birds in the dark, immature plumage, sometimes almost sooty, were seen.

Larus delawarensis Ord. Ring-billed Gull.

Gulls referred to this species were rather common in June and July on the inland waters from Lake Winnipeg to Hudson Bay and north-

^a Fauna Boreali-Americana, II, p. 419, 1831.

^b Franklin's Narrative of a Journey to the Polar Sea, Appendix, p. 695, 1823.

^c Fauna Boreali-Americana, II, p. 423, 1831.

^d Catalogue Canadian Birds, Part I, p. 34, 1900.

ward to the Barren Grounds. An immature female was collected on the Barren Grounds 50 miles below Cape Eskimo August 8.

Larus franklini Sw. and Rich. Franklin Gull.

A specimen of this gull from Hayes River, Hudson Bay, is recorded in the British Museum Catalogue. It breeds about Lake Winnipeg, and probably at other points in southwestern Keewatin.

Larus philadelphia (Ord). Bonaparte Gull.

Common on Lake Winnipeg June 15 to 17. Several were seen near the outlet of Swampy Lake July 7, and one was collected on Hayes River July 9. They were also common on Hudson Bay, especially in the vicinity of Fort Churchill, where immature birds were numerous July 25 to 30. On our southward trip we saw a few of these gulls on Knee Lake September 6.

The species is recorded from Severn House by Murray,^a and from several places on Hudson Bay by various other authors.

Rhodostethia rosea (Macgil.). Ross Gull.

The first known specimen of this beautiful species was killed at Alagnak, Melville Peninsula, by James Clark Ross, in June, 1823, during Parry's second voyage. Another was shot a few days later by another officer attached to the same expedition. These two birds served as the basis of Richardson's description of *Larus rossii*,^b but this name is antedated by *Larus roseus*, inadvertently bestowed by Macgillivray previously. J. C. Ross later recorded it from Boothia Felix.^c The species does not seem to have been since taken in the Hudson Bay region.

Xema sabinii (Sab.). Sabine Gull.

In the Zoological Appendix to Parry's Second Voyage, Richardson speaks of many specimens being procured at Winter Island, Melville Peninsula.^b J. E. Harting mentions a pair in breeding plumage obtained off Melville Peninsula and presented to the University Museum at Oxford by John Barrow.^d Fielden reports a specimen in full breeding plumage which was obtained by Captain Markham near York Factory in August, 1886.^e The catalogue of birds in the U. S. National Museum collection records a specimen (No. 13715) which was collected at Norway House by Robert Kennicott. The original description was based on a specimen from the west coast of Greenland.

^a Edin. New Phil. Journ. (new ser.), IX, p. 321, 1859.

^b Appendix to Parry's Second Voyage, p. 360, 1825 (1827).

^c Appendix to Ross's Second Voyage, p. xxxvi, 1835.

^d Proc. Zool. Soc. of London, p. 111, 1871.

^e Transactions Norwich Soc., IV, p. 351, 1887.

***Sterna caspia* Pallas.** Caspian Tern.

A specimen procured at Moose Factory by J. McKenzie is recorded by Turner,^a and Nutting records one taken near Grand Rapids, Saskatchewan, in the summer of 1891.^b As the species occurs in the interior as far as Great Slave Lake, it is probable that it regularly reaches southern Keewatin.

***Sterna hirundo* Linn.** Common Tern.

Common on Lake Winnipeg June 15 to 17, and seen on nearly all the lakes on our route to Hudson Bay. One was collected near Robinson Portage June 28. It may occur on Hudson Bay north to the Barren Grounds, in association with the Arctic tern, but was not identified with certainty this far north. It was recorded from Hudson Bay by Andrew Murray.^c

***Sterna paradisæa* Brünn.** Arctic Tern.

Common on Hudson Bay. A specimen was collected 50 miles north of York Factory July 19, and the species was seen daily at Fort Churchill. Young just able to fly were observed on the meadows bordering Button Bay July 31, and still smaller young on a sandy islet a few miles farther north August 1. When I started south from near Cape Eskimo August 13, the species had apparently commenced to migrate, and old and young were common on the Bay until we reached York Factory August 26. The catalogue of birds in the U. S. National Museum collection contains the record of an Arctic tern collected at Moose Factory in 1881.

***Hydrochelidon nigra surinamensis* (Gmel.).** Black Tern.

Abundant on the marshes at the mouth of Red River June 15. Many were seen June 24 on a marsh near Hairy Lake and many more June 27 at the north end of Robinson Portage, where two specimens were collected.

Murray recorded the species from Severn House and Moose Factory.^c

***Fulmarus glacialis* (Linn.).** Fulmar.

Stated by James Clark Ross to be peculiarly numerous in Hudson Bay, Davis Strait, and Baffin Bay.^d

***Phalacrocorax dilophus* (Swain.).** Double-crested Cormorant.

A single immature bird was taken near Pine Lake September 12. It was swimming about in some rapids and was easily approached.

^a Proc. U. S. Nat. Mus., VIII, p. 245, 1885.

^b Nat. Hist. Bull. Univ. Iowa, II, p. 252, 1893.

^c Edin. New Phil. Journ. (new ser.), IX, p. 231, 1859.

^d Appendix to Ross's Second Voyage, p. xxxviii, 1835.

We saw cormorants, probably referable to this species, on Lake Winnipeg in June, and our Indian guide said he had often seen them at Norway House.

***Pelecanus erythrorhynchos* Gmel.** White Pelican.

We saw several June 16 near Bull Head Point, Lake Winnipeg.

Forster recorded the species (as a variety of *P. onocrotalus*) from York Fort, Hudson Bay.^a Andrew Murray also recorded a specimen from Hudson Bay,^b though Blakiston says later that Mr. Murray was not sure where the specimen was killed.^c

***Merganser americanus* (Cass.)** Merganser.

A female, apparently with a brood of young in the vicinity, was seen near Sea Falls, about 20 miles north of Norway House, June 23. Several individuals were observed on Oxford Lake June 30. A female with moulting wing quills was taken on Hayes River a few miles above York Factory July 10. Though unable to fly, this bird dived so adroitly that we had some difficulty in securing it.

***Merganser serrator* (Linn.)** Red-breasted Merganser.

A number were killed for food by the Indians at our camp on the Barren Grounds 50 miles south of Cape Eskimo August 3 to 8. While ascending Hill River September 2 we observed a female accompanied by young unable to fly, and near Pine Lake September 13 we met with a flock of the birds and obtained from it several specimens.

This species is recorded by Murray from Trout Lake and Severn House;^b and a specimen collected at Repulse Bay by Dr. Rae is recorded in the British Museum Catalogue.

***Lophodytes cucullatus* (Linn.)** Hooded Merganser.

A female was collected by my brother, Alfred E. Preble, on Churchill River about 15 miles above Fort Churchill August 6.

The species was recorded by Murray from Trout Lake and Hudson Bay;^b and Bell saw the young going south on Nelson River in September.^d

***Anas boschas* Linn.** Mallard.

First seen near Pine Lake June 28, where a female followed by a brood of young was noted, and one of the brood collected. An adult female was taken near Oxford House July 3, and between this point and York Factory the species was several times observed. One was

^aPhil. Trans., LXII, p. 419, 1772.

^bEdin. New. Phil. Journ. (new ser.), IX, p. 231, 1859.

^cIbis, V, p. 151, 1863.

^dRept. Prog. Can. Geol. Surv., 1878-79, App. VI, p. 69c (1880).

seen on the marsh at Beacon Point, near York Factory, July 13, one on a small pond on the Barren Grounds north of Seal River August 18, and a female with a brood of unfledged young on Steel River August 31. During the first half of September the species was seen almost daily. A large flock was noted on Trout River September 9, and many were observed on the Echimanish September 14 and 15. During the first part of our journey, when we were going north, we saw several females with broods, and it was noticeable that the young, when startled, invariably took to the woods, where they easily concealed themselves. On our return we started up several large flocks, but more commonly found just three in a flock. The name given to this duck throughout the whole region visited is 'stock duck.' The catalogue of birds in the U. S. National Museum collection shows that specimens were collected at Moose Factory in 1881, and the bird undoubtedly occurs throughout the wooded portion of the region.

Anas obscura rubripes Brewst.^a Red-legged Black Duck.

An adult male was collected at Fort Churchill July 28 and another had been shot by an Indian a day or two previously.

Blakiston records a specimen received from York Factory.^b A specimen taken at Moose Factory and one from Cape Hope, Severn River, have been recorded by Brewster.^c The species is called throughout the region the '*black* stock duck' to distinguish it from the mallard.

Chaulelasmus streperus (Linn.). Gadwall.

One was taken near Cape Churchill August 24, but was not preserved. Bell collected the species on Hudson Bay.^d

Mareca americana (Gmel.). Baldpate.

Recorded by Murray from Hudson Bay.^e A specimen from Nelson River is recorded by Baird as being in the Smithsonian collection.^f Clarke records an adult male from Fort Churchill collected many years ago.^g

Nettion carolinensis (Gmel.). Green-winged Teal.

An immature male was preserved from a lot killed for food by Indians at Fort Churchill July 25. Several green-winged teals were seen in small ponds about 15 miles north of Seal River August 18, and large flocks were started up from ponds between Fort Churchill and

^aAuk, XIX, p. 184, 1902.

^bIbis, V, p. 146, 1863.

^cAuk, XIX, p. 187, 1902.

^dProc. Royal Soc. Canada, 1882, I, Sec. IV, p. 50 (1883).

^eEdin. New Phil. Journ. (new ser.), IX, p. 229, 1859.

^fBirds of North America, p. 784, 1858.

^gAuk, VII, p. 320, 1890.

Cape Churchill August 22. A small flock was seen between Robinson Portage and Echimamish River September 14.

The species is recorded from Severn River by Forster,^a and from York Factory by Dr. Bell.^b The British Museum Catalogue records a specimen from Repulse Bay collected by Dr. Rae.

Querquedula discors (Linn.). Blue-winged Teal.

A specimen from Repulse Bay, collected by Dr. Rae, is recorded in the British Museum Catalogue. Nutting found the species common and collected specimens at Chemawawin, Saskatchewan, in the summer of 1891.^c

Spatula clypeata (Linn.). Shoveller.

Andrew Murray received this species from Moose Factory and Trout Lake,^d and a specimen collected by James McKenzie at Moose Factory is recorded in the catalogue of birds in the U. S. National Museum. Seton, on the authority of Bell, records it from Lake Winnipeg.^e Nutting reported it common at Chemawawin, Saskatchewan, where he took specimens in 1891.^c

Dafla acuta (Linn.). Pintail.

First seen on the 'Barrens,' 50 miles north of York Factory, July 19, when an adult female was taken. Common on the meadows bordering Button Bay July 31. Hundreds were seen on the shallow ponds of the Barren Grounds, 50 miles below Cape Eskimo, August 4 to 8, and on our way back to Fort Churchill, August 13 to 19, numbers were seen whenever we landed. At Duck Point, Playgreen Lake, September 20, I saw one which had been shot by a hunter. Throughout the region the species is called the 'long-necked duck.'

Murray received the species from Trout Lake and Severn House,^d and Bell records a specimen from York Factory,^f and says the species breeds near Norway House.^b A specimen taken at Moose Factory in 1881 is recorded in the catalogue of birds in the U. S. National Museum collection.

Aix sponsa (Linn.). Wood Duck.

The wood duck is recorded from 'Hudson Bay,' Moose Factory, and Trout Lake by Andrew Murray.^g Two specimens collected at Moose

^a Phil. Trans., LXII, p. 419, 1772.

^b Rept. Prog. Can. Geol. Surv., 1878-79, App. VI, p. 69c (1880).

^c Nat. Hist. Bull. Univ. Iowa, II, p. 257, 1893.

^d Edin. New Phil. Journ. (new ser.), IX, p. 229, 1859.

^e Auk, III, p. 149, 1886.

^f Rept. Prog. Can. Geol. Surv. 1882-3-4, App. III, p. 55DD (1885).

^g Edin. New Phil. Journ. (new ser.), IX, p. 230, 1859.

Factory by James McKenzie are recorded in the catalogue of birds in the U. S. National Museum.

***Aythya americana* (Eyt.).** Redhead.

Nutting recorded this species and obtained specimens near Chema-wawin, Saskatchewan, in the neighborhood of which "countless numbers of the red-head breed."^a

***Aythya vallisneria* (Wils.).** Canvas-back.

Nutting obtained a specimen near the mouth of the Saskatchewan in the summer of 1891.^b

***Aythya marila* (Linn.).** Scaup Duck.

A specimen was taken August 22 from a large flock on a pond near the shore of the Bay about midway between Fort Churchill and Cape Churchill. These birds were moulting their wing quills, for which purpose they had evidently congregated on this pond, where they were safe from the attacks of predatory mammals.

***Aythya affinis* (Eyt.).** Lesser Scaup Duck.

The lesser scaup duck has been reported from a number of localities in the Hudson Bay region, though on account of its close resemblance to the greater scaup the accuracy of some of the records is doubtful. Baird recorded a specimen from Nelson River and considered Forster's record of *marila* from Severn River^c to refer to the present species.^d Murray records it from Severn House,^e and Bell reports it from Fort Churchill and York Factory.^f

***Clangula clangula americana* (Bonap.).** Golden-eye.

Rather common on the larger lakes between Norway House and Oxford House. At the latter place we took an adult male July 3, but did not shoot any more on our northward trip, although we saw a flock containing about 200 near the outlet of Knee Lake July 6, and daily noted a few on our way to York Factory. After this we did not meet with the species again until we reached Hill River on our return, September 5. Here we found many, and on Knee Lake September 6 noted a large flock, probably the same we had observed there two months before. We saw a few more on the Echinamish September 15, one of which we collected, and found a large flock on Hairy Lake.

Macoun records specimens taken at Fort Churchill,^g and Forster notes the occurrence of the species on Severn River.^h

^a Nat. Hist. Bull. Univ. Iowa, 11, p. 257, 1893.

^b Ibid., p. 258, 1893.

^c Phil. Trans., LXII, p. 413, 1772.

^d Birds of North America, p. 791, 1858.

^e Edin. New Phil. Journ. (new ser.), IX, p. 230, 1859.

^f Rept. Prog. Can. Geol. Surv. 1882-3-4, App. III, p. 55DD (1885).

^g Catalogue Canadian Birds, Part I, p. 95, 1900.

^h Phil. Trans., LXII, p. 417, 1772.

Clangula islandica (Gmel.). Barrow Golden-eye.

Bell intimates that this species, as well as the common golden-eye, is found on Hudson Bay.^a Seton, on the authority of R. H. Hunter, records it from Lake Manitoba, Shoal Lake, and the mouth of Red River, Manitoba.^b

Charitonetta albeola (Linn.). Buffle-head.

We saw an adult male on Red River, between Winnipeg and West Selkirk, June 14, and an immature bird on Hill River, near Swampy Lake, September 5.

The species is recorded by Forster from Severn River,^c by Murray from Severn House, Moose Factory, and Trout Lake,^d and by Clarke from Fort Churchill.^e It probably ranges throughout southern Keewatin.

Harelda hyemalis (Linn.). Old-squaw.

Though not observed by us, this species has been recorded from a number of localities on the west shore of Hudson Bay. Edwards figured a 'Long-tailed Duck from Hudson's Bay.'^f Forster recorded the species from Churchill River;^g and Richardson described specimens killed at Winter Island, Melville Peninsula, on Parry's second voyage.^h Rae speaks of finding this species breeding on an island off Knaps River,ⁱ and collected a specimen at Repulse Bay which is recorded in the British Museum Catalogue. Murray recorded the species from Severn House;^d Clarke, an adult pair in summer plumage from Fort Churchill;^j and Bell, a specimen from York Factory.^k

Histrionicus histrionicus (Linn.). Harlequin Duck.

Forster recorded a specimen from the Hudson Bay region;^l Blakiston says he examined one at York Factory;^m and the catalogue of birds in the U. S. National Museum collection records a specimen taken in James Bay August 3, 1860.

Camptolaimus labradorius (Gmel.). Labrador Duck.

Joseph Sabine includes *Anas labradoria* among the species which at that time were found on Hudson Bay and its vicinity, but which were

^a Proc. Royal Soc. Canada, 1882, I, Sec. IV, p. 50 (1883).

^b Auk, III, p. 328, 1886.

^c Phil. Trans., LXII, p. 417, 1772.

^d Edin. New Phil. Journ. (new ser.), IX, p. 230, 1859.

^e Auk, VII, p. 320, 1890.

^f Nat. Hist. III, pl. 156, 1750.

^g Phil. Trans., LXII, p. 418, 1772.

^h Appendix to Parry's Second Voyage, p. 373, 1825 (1827).

ⁱ Narrative of an Expedition to the Shores of the Arctic Sea, p. 22, 1850.

^j Auk, VII, p. 320, 1890.

^k Rept. Prog. Can. Geol. Surv., 1882-3-4, App. III, p. 55DD (1885).

^l Phil. Trans., LXII, p. 419, 1772.

^m Ibis, V, p. 149, 1863.

not obtained on Franklin's Expedition.^a An adult male, perhaps from Hudson Bay, was presented to the British Museum by the Hudson's Bay Company about the year 1835;^b and it is likely that a specimen to which no definite locality is assigned that is recorded in the British Museum Catalogue is this same bird.

Somateria mollissima borealis (C. L. Brehm). Northern Eider.

This species was obtained on Parry's second voyage at Winter Island, being recorded as *mollissima*;^c and Blakiston, writing of *S. mollissima*, speaks of having received specimens from Hudson Bay.^d A specimen collected by Dr. Rae at Repulse Bay is recorded in the British Museum Catalogue.

Somateria dresseri Sharpe. American Eider.

First seen in small numbers about 50 miles north of York Factory July 19, and rather common from there northward. Flocks of a hundred or more were often seen north of Fort Churchill, and a female with young two or three weeks old was observed August 3, 50 miles south of Cape Eskimo. The species is said to breed in large numbers on certain rocky islands north of Fort Churchill. Quantities of the eggs are gathered by Indians and Eskimos in late April and early May, and brought to Fort Churchill, where they are packed in salt for later consumption. The bird is called by the Indians 'Husky' (i. e., Eskimo) duck.

Two specimens, collected by Dr. Bell at Fort Churchill, are recorded by Macoun.^e

Somateria v-nigra Gray. Pacific Eider.

Murray recorded this species from Severn House.^f As the species occurs on Great Slave Lake, it should be occasionally found in Keewatin.

Somateria spectabilis (Linn.). King Eider.

Edwards figures this species from Hudson Bay, calling it the 'Gray-Headed Duck.'^g Linnaeus cites Edwards's figure in his description of *spectabilis*, but does not base his description exclusively on it. It was recorded by Blakiston, who speaks of having seen specimens from Hudson Bay,^h and by Richardson, who states that it was observed in numbers about Melville Peninsula on Parry's second voyage.ⁱ A

^a Franklin's Narrative of a Journey to the Polar Sea, Appendix, p. 698, 1823.

^b See Dutcher, Auk, VIII, p. 203, 1891.

^c Appendix to Parry's Second Voyage, p. 370, 1825 (1827).

^d Ibis, V, p. 150, 1863.

^e Catalogue Canadian Birds, Part I, p. 105, 1900.

^f Edin. New Phil. Journ. (new ser.), IX, p. 229, 1859.

^g Nat. Hist., III, pl. 154, 1750.

^h Ibis, V, p. 150, 1863.

ⁱ Appendix to Parry's Second Voyage, p. 373, 1825 (1827).

specimen from York Factory, collected by Dr. Bell, is recorded by Macoun.^a

Oidemia americana Swains. American Scoter.

Swainson based his description of this species on Hudson Bay specimens;^b a specimen collected by Dr. Rae at Repulse Bay is recorded in the British Museum Catalogue; Andrew Murray recorded the species from Trout Lake;^c Blakiston says that he "received specimens from the west coast of Hudson's Bay;"^d and an adult male is recorded from Fort Churchill by Clarke.^e

Oidemia deglandi Bonap. White-winged Scoter.

We observed this species twice on Knee Lake—a small flock on July 7 and a few on September 8 as we were returning. We also noted a few about fifty miles north of York Factory July 19. Many breed about the borders of small ponds throughout the interior, and large numbers are killed for food before they are able to fly.

Murray recorded the species from Trout Lake, Moose Factory, and Severn House.^c

Oidemia perspicillata (Linn.). Surf Scoter.

Rather common in Hudson Bay south of Cape Eskimo August 4 to 13. My brother took a specimen on Churchill River near Fort Churchill August 11, and we obtained another near Pine Lake September 13, as we were returning. On September 14 we saw several near Robinson Portage.

Edwards figured this species, which he called the 'Great Black Duck from Hudson's-Bay,'^f and on this figure Linnæus based his description of *Anas perspicillata*. The species has since been several times recorded from Hudson Bay by different writers, and a specimen from Repulse Bay, collected by Dr. Rae, is mentioned in the British Museum Catalogue.

Erisimatura jamaicensis (Gmel.). Ruddy Duck.

Blakiston speaks of having examined a specimen at York Factory, on Hudson Bay,^d and Bell records a specimen from the same place.^g The species seems to be of regular occurrence about Lake Winnipeg and other points in Manitoba, and probably in the adjacent parts of Keewatin.

^aCatalogue Canadian Birds, Part I, p. 108, 1900

^bFauna Boreali-Americana, II, p. 450, 1831.

^cEdin. New Phil. Journ. (new ser.), IX, p. 231, 1859.

^dIbis, V, p. 150, 1863.

^eAuk, VII, p. 320, 1890.

^fNat. Hist., III, pl. 155, 1750.

^gRept. Prog. Can. Geol. Surv., 1878-79, App. VI, p. 69c (1880).

Chen hyperborea nivalis (Forst.). Greater Snow Goose.^a

This bird was first described by Forster from Severn River, Hudson Bay.^b Swainson and Richardson speak of its occurrence at Albany Fort and York Factory;^c Murray records it from Moose Factory and Severn House;^d and Bell characterizes it as abundant at Fort Churchill and York Factory during migrations,^e and says that it began to arrive at the former place September 5.^f Barnston says that at Martin Falls, Albany River, the species was generally passing in large flocks about May 10.^g A specimen collected by Dr. Rae at Repulse Bay is recorded in the British Museum Catalogue; and one from Black Island, Lake Winnipeg, is recorded by Macoun.^h

Chen cærulescens (Linn.). Blue Goose.

Edwards figured the 'Blue-Winged Goose' from Hudson Bay,ⁱ and on this figure Linnaeus based his description of the species. A specimen from Repulse Bay is recorded in the British Museum Catalogue, and one taken at Moose Factory in August, 1860, by J. McKenzie, and one from Fort Churchill, appear in the catalogue of birds in the U. S. National Museum. It is said to be found principally about the southern part of the Bay, and according to Indian information breeds in northern Labrador.

Chen rossi (Cassin). Ross Snow Goose.

A specimen procured at Fort Churchill, Hudson Bay, is recorded by Macoun.^j The 'Horned Wavy' of Hearne is doubtless this species.

Anser albifrons gambeli (Hartl.). White-fronted Goose.

Edwards figured a specimen procured from Hudson Bay, which he called the 'Laughing-Goose.'^k Barnston says that this species is seldom seen in the southern part of Hudson Bay, but is less rare at York Factory, and is frequent at Fort Churchill.^l Blakiston received a specimen from Hudson Bay,^m and one from Repulse Bay, collected by Dr. Rae, is recorded in the British Museum Catalogue.

^aIn some of the cases cited the species has been recorded as *C. hyperborea*, but I have assumed that the eastern form is referred to.

^bPhil. Trans., LXII, pp. 413, 433, 1772.

^cFauna Boreali-Americana, II, p. 467, 1831.

^dEdin. New Phil. Journ. (new ser.), IX, p. 225, 1859.

^eRept. Prog. Can. Geol. Surv., 1878-79, App. VI, p. 69c (1880).

^fIbid., 1882-3-4, App., III, p. 55DD (1885).

^gEdin. New Phil. Journ., XXX, p. 254, 1841.

^hCatalogue Canadian Birds, Part I, p. 114, 1900.

ⁱNat. Hist., III, pl. 152, 1750.

^jCatalogue Canadian Birds, Part I, p. 115, 1900.

^kNat. Hist., III, pl. 153, 1750.

^lIbis, II, p. 257, 1860.

^mIbid., V, p. 141, 1863.

Anser fabalis (Lath.). Bean Goose.

Under the name *segetum*, Richardson mentions this species as one of the geese which are known to visit the Hudson Bay region, but are rarely seen, being accidental visitors.^a

Branta canadensis (Linn.). Canada Goose.

An island in the northern part of Lake Winnipeg, on which this bird is said to nest in considerable numbers, was pointed out to us. While descending Steel River July 9 we took a half-grown bird from a flock of five. These had probably come down Fox River, where the species is said to breed. Young geese unable to fly, probably of this species, were seen by Alfred E. Preble on Churchill River August 11. While ascending Steel and Hill rivers, August 31 to September 4, we saw one or two flocks daily. We shot one bird on Hill River September 4, but found its preservation impracticable.

Murray recorded the species from Moose Factory and Severn House,^b and Bell says it breeds on Churchill River.^c

In former times, when the posts on Hudson Bay supported a much larger population than at present, geese constituted a staple article of food, and this species and *B. c. hutchinsi* especially were shot in great numbers, both for immediate consumption and to be salted for winter. Barnston, from the number recorded at the different posts, estimated that at least 57,500 were annually killed on James Bay and the west coast of Hudson Bay.^d At present the demand for the birds is less and their numbers are diminished; hence fewer are killed.

Branta canadensis hutchinsi (Rich.). Hutchins Goose.

Several flocks of geese referred to this species were seen on the Barren Grounds near Hubbard Point August 16.

Dr. Rae saw a female with a brood of young near Neville Bay.^e Macoun records two specimens taken at Fort Churchill by Dr. Bell, and an egg obtained at Repulse Bay.^f The species has been recorded from other points in northern Keewatin.

Branta bernicla (Linn.). Brant.

Said by Swainson and Richardson to breed in great numbers on the coast and islands of Hudson Bay.^g A specimen from Repulse Bay, collected by Dr. Rae, is recorded in the British Museum Catalogue; and Dr. Bell records a specimen killed at York Factory.^h

^aAppendix to Parry's Second Voyage, p. 364, 1825 (1827).

^bEdin. New Phil. Journ. (new ser.), IX, p. 225, 1859.

^cRept. Prog. Can. Geol. Surv., 1878-79, App., VI, p. 69c (1880).

^dIbis, II, p. 258, 1860.

^eNarrative of an Expedition to the Shores of the Arctic Sea, p. 24, 1850.

^fCatalogue Canadian Birds, Part I, p. 120, 1900.

^gFauna Boreali-Americana, II, p. 469, 1831.

^hProc. Royal Soc. Canada, 1882, I, Sec. IV, p. 51 (1883).

Branta leucopsis (Bechst.). Barnacle Goose.

Said by Richardson to be rare and accidental in Hudson Bay.^a A specimen in the U. S. National Museum collection was obtained near Rupert House, James Bay, by Bernard R. Ross.^b

Olor columbianus (Ord.). Whistling Swan.

Whistling swans visit the western shores of Hudson Bay in great numbers in the spring and fall, and their assembled thousands are said to present a beautiful and imposing spectacle during their semiannual visits. The broad expanse of Churchill River near its mouth is a favorite place of resort. A specimen collected at Fort Churchill and presented by J. R. Spencer is recorded by Dr. Robert Bell,^c who also states that the species breeds on Nottingham Island, Hudson Bay.^d

Olor buccinator (Rich.). Trumpeter Swan.

Richardson describes a specimen killed on Hudson Bay.^e Barnston speaks of the breeding of swans near Eastmain Fort, on James Bay, and of eggs being brought to him from a nest on the banks of a lake near Norway House.^f His remarks probably refer to this species, as it has a more southern breeding range, especially in the interior, than *O. columbianus*.

Botaurus lentiginosus (Montag.). Bittern.

We saw several flying over the marsh at the mouth of Red River June 15, heard the notes of one near Norway House June 19, and saw one near Sea Falls June 23. At Beacon Point, near York Factory, I started one from the marsh July 13. On our return trip we saw several near Oxford House September 10, and on the Echimannish September 15.

The species is recorded from Severn River by Forster,^g and from Fort Churchill by Clarke.^h

Ardetta exilis (Gmel.). Least Bittern.

Under the name *Botaurus minor* Dr. Robert Bell records this species from York Factory,ⁱ and later says, "Of the least Bittern (*Ardetta exilis* Gray) I have specimens from Manitoba and York Factory."^j It has been taken near Winnipeg, but can scarcely reach Keewatin except as a straggler.

^a Appendix to Parry's Second Voyage, p. 364, 1825 (1827).

^b Baird, Brewer, and Ridgway, Water Birds of North America, I, p. 475, 1884.

^c Rept. Prog. Can. Geol. Surv., 1878-79, App. VI, p. 70c (1880).

^d Rept. Prog. Can. Geol. Surv., 1882-3-4, p. 30DD (1885).

^e Fauna Boreali-Americana, II, p. 464, 1831.

^f Ibis, II, p. 253, 1860.

^g Phil. Trans., LXII, p. 401, 1772.

^h Auk, VII, p. 320, 1890.

ⁱ Rept. Prog. Can. Geol. Surv., 1878-79, App. VI, p. 68c (1880).

^j Proc. Royal Soc. Canada, 1882, I, Sec. IV, p. 51 (1883).

Ardea herodias Linn. Great Blue Heron.

One noted on Red River, near Lake Winnipeg, June 15.

Edwards figured a specimen from Hudson Bay, calling it the 'Ash-colour'd Heron from North America.'^a His figure formed the principal basis for Linnæus's description of *Ardea herodias*. Turner records a specimen collected at Moose Factory, James Bay, August 29, 1860, by James McKenzie.^b This specimen is recorded in the catalogue of birds in the U. S. National Museum, but can not now be found.

Grus americana (Linn.). Whooping Crane.

Edwards figured the 'Hooping-Crane from Hudson's-Bay.'^c His figure formed a partial basis for Linnæus's description of *Ardea americana*. Hearne says: "This bird visits Hudson's Bay in the spring, though not in great numbers. They are generally seen only in pairs, and that not very often."^d

Grus canadensis (Linn.). Little Brown Crane.

Noted several times on the Barren Grounds 25 miles south of Cape Eskimo, usually in companies of four or five. The distorting effect of the atmosphere sometimes gave them a strange appearance as they stood or walked about on some distant hillock.

Edwards's 'Brown and Ash-colour'd Crane,' figured from a Hudson Bay specimen,^e formed the basis of Linnæus's description of *Ardea canadensis*. Forster recorded the species from Severn River,^f Murray from Trout Lake,^g and Richardson from Igloodik, Melville Peninsula.^h It was seen at Montreal Island, near the mouth of Great Fish River, and recorded by King.ⁱ

Rallus virginianus Linn. Virginia Rail.

Dr. Bell records from York Factory a specimen presented by Dr. Matthews.^j Nutting found it common about Chemawawin, Saskatchewan, and secured specimens.^k

Porzana carolina (Linn.). Sora.

Edwards figured a sora rail from Hudson Bay,^l calling it the 'Little American Water Hen,' and the species is recorded from Severn House

^aNat. Hist., III, pl. 135, 1750.

^bProc. U. S. Nat. Mus., VIII, p. 245, 1885.

^cNat. Hist., III, pl. 132, 1750.

^dJourney * * * to the Northern Ocean, p. 422, 1795.

^eNat. Hist., III, pl. 133, 1750.

^fPhil. Trans., LXII, p. 409, 1772.

^gEdin. New Phil. Journ. (new ser.), IX, p. 225, 1859.

^hAppendix to Parry's Second Voyage, p. 353, 1825 (1827).

ⁱNarrative of a Journey to the Shores of the Arctic Ocean, II, p. 21, 1836.

^jRept. Prog. Can. Geol. Surv., 1882-3-4, App. III, p. 55DD (1885).

^kNat. Hist. Bull. Univ. Iowa, II, p. 262, 1893.

^lNat. Hist. III, pl. 144, 1750.

by Andrew Murray,^a from Fort Churchill by Clarke,^b and from York Factory by Bell.^c Macoun records it from Moose Factory, James Bay, where Spreadborough found it breeding.^d It undoubtedly breeds throughout the region.

Porzana noveboracensis (Gmel.). Yellow Rail.

During the afternoon of July 13, while collecting on the marsh at Beacon Point, near York Factory, I flushed five yellow rails, securing three, two males and a female. The males were discovered by following up the source of their notes, which, though rather low, have a penetrating quality that makes them distinctly audible at a distance of several hundred yards. A metallic cluck, five or six times repeated, constituted their call. It was given thus: First two notes uttered with scarcely an interval between them, then a pause of about a second, then three, or occasionally four, notes exactly like the first two. The birds flushed were in open, grassy places where I was usually able to approach near and, guided by the note, to start them almost from beneath my feet. I heard about a dozen, but was unable to flush more than five, for the others, which were in bushy portions of the marsh, seemed to hear me and take alarm before I could get near, and would cease calling.

Hutchins wrote a short account of the habits of the yellow rail as observed by him at the mouth of Severn River,^e and Bell has recorded the species from Fort George, on the east coast of the Bay.^f

Fulica americana Gmel. Coot.

Abundant in the marsh at the mouth of Red River June 15, and not again noted until we reached the same marsh on our return September 21, when many were seen. We were told it occurs about some of the marshy lakes north of Lake Winnipeg.

Crymophilus fulicarius (Linn.). Red Phalarope.

The red phalarope was fairly common on the shallow ponds below Cape Eskimo August 3 to 8, at which time they were feeding downy young. An adult male and a young bird in the down were collected August 6.

Edwards figured a specimen brought from Hudson Bay by Mr. Isham.^g His figure formed a partial basis for Linnaeus's description of *Tringa fulicaria*. Clarke records an adult pair in summer plumage

^a Edin. New Phil. Jour., (new ser.), IX, p. 225, 1859.

^b Ark, VII, p. 321, 1890.

^c Proc. Royal Soc. Canada, 1882, I, Sec. IV, p. 51 (1883).

^d Catalogue Canadian Birds, Part I, p. 140, 1900.

^e MS. quoted by Richardson, Swainson, Thompson, Macoun, and others.

^f Nat. Hist., III, pl. 142, 1750.

from Fort Churchill;^a and a specimen, collected at Repulse Bay by Dr. Rae, is noted in the British Museum Catalogue. King observed the species near the mouth of Great Fish River.^b

Phalaropus lobatus (Linn.). Northern Phalarope.

First seen on the marshes about 50 miles north of York Factory July 19, where a male was taken whose abdominal bareness showed that it had recently been sitting on eggs. The birds were present in numbers, and when I left the marshes, about an hour after sunset, were still active and noisy. The species was common at Fort Churchill July 21 to August 21, and abundant on the Barren Grounds below Cape Eskimo August 3 to 8, where an immature bird was collected. While returning down the coast of the Bay August 14 to 26 we saw the species daily, but after leaving York Factory did not again meet with it.

Macoun records it from an island in James Bay, where about a dozen, evidently breeding, were observed by Spreadborough June 16, 1896.^c

Steganopus tricolor Vieill. Wilson Phalarope.

Murray records *Phalaropus lobatus* (Ord) from Severn House.^d *Phalaropus lobatus* of Ord is supposed to be referable to *S. tricolor*, and as the species regularly reaches Lake Winnipeg, its occurrence at Severn House is not improbable.

Philohela minor (Gmel.). Woodcock.

Recorded by Dr. Bell, who says "I saw one specimen of the woodcock at York Factory in the end of August."^e The woodcock may regularly reach southern Keewatin, but its presence as far north as York Factory must be merely accidental.

Gallinago delicata (Ord). Wilson Snipe.

Several seen on a marsh between Oxford and Back lakes, near Oxford House, September 10, and three or four started beside the Ecnimamish September 14.

Two specimens in summer plumage are recorded by Clarke from Fort Churchill,^a and a specimen said to have been collected by Dr. Rae at Repulse Bay is listed in the British Museum Catalogue. The catalogue of birds in the U. S. National Museum collection shows that the species was taken at Moose Factory in 1881.

^a Auk, VII, p. 321, 1890.

^b Narrative of a Journey to the Shores of the Arctic Ocean, II, p. 21, 1836.

^c Catalogue Canadian Birds, Part I, p. 146, 1900.

^d Edin. New Phil. Jour. (new ser.), IX, p. 225, 1859.

^e Rept. Prog. Can. Geol. Surv., 1878-79, App. VI, p. 70c (1880).

Gallinago major (Gmel.). Greater Snipe.

A snipe sent to the British Museum many years ago from 'Hudson's Bay,' and which served as the type of Swainson's *Scelopar leucurus*,^a is identified by Dr. Sharpe as *Gallinago major*, and so recorded in the British Museum Catalogue.^b

Macrorhampus scolopaceus (Say). Long-billed Dowitcher.

Abundant on the meadows bordering Button Bay near Fort Churchill, July 31. The species was then moving southward, and, with the exception of a few individuals seen about 50 miles below Cape Eskimo August 3, was not again noted. Two specimens were collected. These have been examined by Reginald Heber Howe, jr., in connection with his study of the genus, and he considers them practically typical *scolopaceus*.^c

Micropalama himantopus (Bonap.). Stilt Sandpiper.

A male bird was shot on the mud beside a small pool on the tundra, about 50 miles north of York Factory, July 19. It was in company with a pectoral sandpiper which was killed by the same shot. It is probably a bird of the year, and has dusky back and crown, the feathers of which are edged with rusty brown, those of wing-coverts being edged with pale buffy; lower parts buffy, very faintly spotted on sides and flanks; superciliary stripe, cheeks and throat buffy whitish, very faintly spotted with brown. Several more individuals were noted on August 12 about 25 miles south of Cape Eskimo.

Richardson describes one from Hudson Bay,^d and a specimen collected by Dr. Rae at Repulse Bay is recorded in the British Museum Catalogue.

Tringa canutus Linn. Knot.

A specimen from Melville Peninsula is described by Richardson.^e One from Repulse Bay, collected by Dr. Rae, and one from 'Hudson Bay' are recorded in the British Museum Catalogue.

Tringa maritima Brünn. Purple Sandpiper.

Recorded by Richardson from Winter Island, Melville Peninsula, where it was obtained in June,^f and by James C. Ross, who says it arrived at Port Bowen, Prince Regent Inlet, early in June.^g Richardson gives a description of a specimen from Hudson Bay;^h and one

^a Fauna Boreali-Americana, II, p. 501, 1831.

^b See Coues, Auk, XIV, p. 209, 1897.

^c See Howe, Auk, XVII, p. 272, 1901.

^d Fauna Boreali-Americana, II, p. 381, 1831.

^e Ibid., p. 387, 1831.

^f Appendix to Parry's Second Voyage, p. 354, 1825 (1827).

^g Narrative of Parry's Third Voyage, Appendix, p. 101, 1826.

^h Fauna Boreali-Americana, II, p. 382, 1831. From the date of collection, July 29, 1822, it is almost certain that it was collected in the vicinity of York Factory.

collected by Dr. Rae at Repulse Bay is recorded in the British Museum Catalogue.

Tringa maculata Vieill. Pectoral Sandpiper.

First seen on the marshes about 50 miles north of York Factory July 19, where the species was rather common, and where a male was shot. Common on the meadows bordering Button Bay July 31, and abundant on the Barren Grounds south of Cape Eskimo August 3 to 13. Several seen near Oxford House September 10.

A specimen collected by Dr. Rae at Repulse Bay is recorded in the British Museum Catalogue, and the catalogue of birds in the U. S. National Museum collection records a specimen taken at Moose Factory in 1881 by Walton Haydon.

Tringa fuscicollis Vieill. White-rumped Sandpiper.

Rather common on the meadows bordering Button Bay July 31, where a specimen was collected. A number were noted on the Barren Grounds below Cape Eskimo August 3 to 8.

Tringa bairdi (Coues). Baird Sandpiper.

Macoun says: "Spreadborough saw three on a small island in James Bay on June 16, 1896, and believes they were breeding."^a

The species probably occurs regularly in western Keewatin

Tringa minutilla Vieill. Least Sandpiper.

First met with at Fort Churchill, where adult birds accompanied by young were seen on the meadows July 26 and an immature bird was taken. Large numbers were observed on the shores of Button Bay July 31, and immense flocks were seen on the Barren Grounds south of Cape Eskimo August 3 to 13, though at the latter date their numbers had greatly diminished. The species was noted at nearly every place at which we landed on the way back to Fort Churchill, August 13 to 19; and it was doubtless present in flocks of small sandpipers seen between Fort Churchill and York Factory, though it was not again positively identified.

Tringa alpina Linn. Dunlin.

Blakiston speaks of having seen a specimen from Hudson Bay,^b and the American Ornithologist Union Check List records it as accidental on the west side of Hudson Bay, though I have been unable to discover on exactly what information the record is based.

Tringa alpina pacifica (Coues). Red-backed Sandpiper.

First seen on the beach about 50 miles north of York Factory July 19, where numbers were observed and several specimens were taken. The birds seemed to be just commencing their southward migration.

^a Catalogue Canadian Birds, Part 1, p. 162, 1900.

^b Ibis, V, p. 132, 1863.

They were seen in large numbers wherever we landed on the coast north of Fort Churchill, were present by thousands on the Barren Grounds south of Cape Eskimo August 3 to 13, and were still seen, though in diminishing numbers, wherever we landed on the way back to York Factory.

Ereunetes pusillus (Linn.). Semipalmated Sandpiper.

Rather common at Fort Churchill, where adults and young were taken on the meadows July 25. Common along the coast north of Fort Churchill, and seen in immense flocks on the Barren Grounds south of Cape Eskimo. As with the red-backed sandpipers, we found the species common on the beach wherever we landed on our return down the coast to York Factory August 13 to 26.

One taken at Moose Factory in 1881 is registered in the catalogue of birds in the U. S. National Museum collection.

Calidris arenaria (Linn.). Sanderling.

A number were seen at my camp 25 miles south of Cape Eskimo on the morning of August 13. They were flying southward with other species.

A specimen from Repulse Bay, collected by Dr. Rae, is recorded in the British Museum Catalogue, and Clarke records an adult in summer plumage from Fort Churchill.^a According to Swainson and Richardson, Hutchins reported that the species bred on Hudson Bay as low as the fifty-fifth parallel.^b

Limosa fedoa (Linn.). Marbled Godwit.

Edwards figured a specimen brought from Hudson Bay by Mr. Isham.^c His figure formed the basis of Linnaeus's description of *Scolopax fedoa*. Murray recorded the species from Hudson Bay,^d and a specimen from Hayes River is recorded in the British Museum Catalogue. The catalogue of birds in the U. S. National Museum collection records a specimen from Moose Factory.

Limosa hæmastica (Linn.). Hudsonian Godwit.

We first met with this species on the beach about 50 miles north of York Factory July 19, where a number were seen and two were taken. It was common on the Barren Grounds south of Cape Eskimo August 4 to 8, and several were seen between Fort Churchill and Cape Churchill August 22, and below Cape Churchill August 24.

Edwards figured a specimen brought from Hudson Bay by Mr. Isham, calling it the 'Red-breasted Godwit,'^e and on his figure Lin-

^a Auk, VII, p. 321, 1890.

^b Fauna Boreali-Americana, II, p. 336, 1831.

^c Nat. Hist., III, pl. 137, 1750.

^d Edin. New Phil. Journ. (new ser.), IX, p. 225, 1859.

^e Nat. Hist., III, pl. 138, 1750.

næus based his description of *Scolopax hæmastica*. Forster recorded the species from Churchill River,^a and Murray from Severn House.^b A specimen collected by Dr. Rae at Repulse Bay is recorded in the British Museum Catalogue.

Totanus melanoleucus (Gmel.). Greater Yellow-legs.

One was seen at Oxford House July 3 and one on upper Hill River July 7. I saw several on the beach near York Factory July 13, and at Fort Churchill July 24. The species was very common on the shores of Button Bay July 31, and about 50 miles below Cape Eskimo August 4 to 8, and was noted wherever we landed on the way back to Churchill. While ascending Hayes River August 29 and 30 we observed a great many, usually in flocks of about a dozen, but after passing the mouth of the Shamattawa, which is in reality the main river, we saw none for several days. Steel and Hill rivers, which compose the other branch of Hayes River, are not so well adapted to the habits of the species and it seems probable that most of the yellow-legs, and probably other sandpipers, migrate up the Shamattawa, where low, sandy shores more often occur. We saw two or three on Knee Lake September 7, one at Oxford House September 10, and several on Playgreen Lake September 17 to 20.

The catalogue of birds in the U. S. National Museum collection contains the record of a specimen taken at Moose Factory in 1881.

Totanus flavipes (Gmel.). Yellow-legs.

First met with June 27 at Robinson Portage, where a pair were seen on the marsh and the male was collected. They probably had a nest in the vicinity, as they were very uneasy and frequently alighted on neighboring dead trees. The species was common at Fort Churchill July 22 to 30, and abundant at Button Bay July 31, and 50 miles below Cape Eskimo August 3 to 8. A few were noted on Hayes River August 30.

The species is recorded by Andrew Murray from Severn House,^b and the catalogue of birds in the U. S. National Museum collection records a specimen taken at Moose Factory in 1881.

Totanus totanus (Linn.). Common Redshank.

The only evidence that this is a North American species is a description by Swainson and Richardson of a specimen from Hudson Bay of '*Totanus calidris*, the Redshank or Gambet,' which they said existed in the British Museum.^c The species occupies a place in the 'Hypothetical List' of the American Ornithologists' Union Check List on the strength of this record.

^aPhil. Trans., LXII, p. 411 (*Scolopax lapponica*), 1772..

^bEdin. New Phil. Journ. (new ser.), IX, p. 225, 1859.

^cFauna Boreali-Americana, II, p. 391, 1831. (See also Coues, Auk, XIV, p. 211, 1897.)

Helodromas solitarius (Wils.). Solitary Sandpiper.

We met with this species only while descending the Echimamish, where several were seen September 14 and 15 and one was taken.

A specimen collected at Repulse Bay by Dr. Rae is recorded in the British Museum Catalogue, and A. McKenzie took one at Moose Factory. The species probably occurs throughout the region.

Helodromas ochropus (Linn.). Green Sandpiper.

Swainson and Richardson described a specimen of *Totanus ochropus*, the 'White-tailed Tattler,' from Hudson Bay.^a This specimen is recorded in the British Museum Catalogue.

Heteractitis incanus (Gmel.). Wandering Tattler.

Bell says: "I obtained a specimen of the Wandering Tattler (*Heteroecus brevipes*, Vieill.), supposed to be a western species, on the Eastmain Coast.^b

Bartramia longicauda (Bechst.). Bartramian Sandpiper.

Several were seen and one was shot on the Barren Grounds 50 miles below Cape Eskimo August 8, and several more were noted 25 miles farther north August 10 to 13.

Tryngites subruficollis (Vieill.). Buff-breasted Sandpiper.

I saw a number on the higher parts of the tundra 25 miles south of Cape Eskimo August 10 to 13, and noted others (collecting two) August 24 on some sandy ridges, the remains of old shore lines, below Cape Churchill. The birds had a soft, plaintive call, and were rather tame and unsuspecting.

A specimen taken by Dr. Rae at Repulse Bay is recorded in the British Museum Catalogue.

Actitis macularia (Linn.). Spotted Sandpiper.

This widely distributed species is found throughout the region as far north at least as Fort Churchill. It was common on Red River June 14, and seen daily between Norway House and York Factory June 23 to July 10. A deserted nest was found on the rocky island that constitutes Rock Portage, at the lowest of the Hill River rapids. While we were descending Steel and Hayes rivers, July 9 and 10, one or more pairs of this species were almost constantly in sight, and young ones unable to fly were often seen running along the shelving banks. The species was not seen on the shores of Hudson Bay, but we collected a specimen on Churchill River, near Fort Churchill, July 25, and my brother found it rather common on the same stream, about 20 miles from its mouth, early in August. While ascending

^aFauna Boreali-Americana, II, p. 392, 1831.

^bProc. Royal Soc. Canada, 1882, I, Sec. IV, p. 51 (1883).

Hayes, Steel, and Hill rivers on our return, August 28 to September 3, we found that many were still lingering there, and I saw several at Duck Point, Playgreen Lake, on September 20. The catalogue of birds in the U. S. National Museum collection contains the record of a specimen taken at Moose Factory in 1881 by Walton Haydon.

Numenius hudsonicus Lath. Hudsonian Curlew.

First observed about 50 miles north of York Factory, where a number were seen and one was shot July 19. Another was shot at Fort Churchill July 28. Quite a number were seen on the shores of Button Bay July 31, and to the north of that place on the following day. We saw a few daily while we were encamped on the Barren Grounds south of Cape Eskimo, August 10 to 13; and noted a few more below Hubbard Point August 18, between Fort Churchill and Cape Churchill August 22, and below the cape August 24. The birds were usually seen at low tide, when they flew about in small companies over the broad boulder-strewn flats in search of feeding grounds, uttering a loud, clear whistle. During high tide they resorted to the tundra and were less observable.

Latham based his description of this species mainly on a specimen received from Mr. Hutchins, probably from Severn River.^a Murray recorded the species from Severn House.^b

Numenius borealis (Forst.). Eskimo Curlew.

This species was first described by Forster from a specimen taken at Albany Fort, Hudson Bay.^c It is recorded by Dr. Bell as abundant at Fort Churchill in August, 1879.^d

Squatarola squatarola (Linn.). Black-bellied Plover.

A specimen in winter plumage, evidently a bird of the year, was killed on a small rocky island in Swampy Lake September 5.

Forster recorded the species from Severn River;^e Richardson from Melville Peninsula, where he says it breeds;^f and Bell from York Factory.^g Clarke recorded two adults in summer plumage from Fort Churchill.^h

In former years the various plovers, particularly this species and the golden plover, were much hunted at the various posts on the Bay, especially during their southward movement in August. -

^a Index Ornithologicus, II, p. 712, 1790. (See also Latham, Syn. Suppl., I, p. 243, 1787.)

^b Edin. New Phil. Journ. (new ser.), IX, p. 225, 1859.

^c Phil. Trans., LXII, pp. 411, 431, 1772.

^d Rept. Prog. Can. Geol. Surv., 1878-79, App. VI, p. 69c (1880).

^e Phil. Trans., LXII, p. 412, 1772.

^f Appendix to Parry's Second Voyage, p. 352, 1825 (1827).

^g Rept. Prog. Can. Geol. Surv., 1882-3-4, App. III, p. 55DD (1885).

^h Auk, VII, p. 321, 1890.

Charadrius dominicus Müll. Golden Plover.

I found this species moving southward in small flocks at a point 50 miles south of Cape Eskimo August 4 to 8, and also, though in diminished numbers, 25 miles to the northward, August 10 to 13. A specimen was taken at the first point. It has the black of the lower parts varied by a number of whitish feathers, which predominate on the throat and the sides of the chest.

This species was recorded by J. C. Ross from Port Bowen, Prince Regent Inlet, where it arrived the middle of May;^a by Murray from Trout Lake,^b and by Bell from York Factory.^c Clarke recorded an adult in summer plumage from Fort Churchill.^d The catalogue of birds in the U. S. National Museum collection contains the record of a specimen taken at Moose Factory in 1881 by Walton Haydon.

Ægialitis vocifera (Linn.). Killdeer.

Several were seen on the grassy meadows about midway between Fort Churchill and the mouth of Churchill River on July 24. Though shy, they seemed very solicitous and probably had young in the vicinity.

Ægialitis semipalmata Bonap. Semipalmated Plover.

First noted as we were descending Hayes River July 10. Here, on a sandy island about 25 miles above York Factory, the birds were breeding and downy young were running about. We saw a number of old birds at Beacon Point, York Factory, July 13, and six days later, on landing at a spot 50 miles farther north, found the species common. At Fort Churchill it was abundant, and we collected, on July 24, both adults and downy young. As I passed up the coast, July 30 to August 8, it continued rather common; and it was still represented, though sparingly, at the northernmost point of the trip, about 25 miles south of Cape Eskimo, during my four days' stay there (August 10 to 13). On our return trip it had evidently migrated, as we saw nothing of it.

Andrew Murray recorded the species from Trout Lake and Severn House;^e and a specimen from Repulse Bay, collected by Dr. Rae, is recorded in the British Museum Catalogue.

Ægialitis meloda circumcincta Ridgw. Belted Piping Plover.

Under the name *Charadrius melodus*, King records a bird, probably referable to the present form, which he shot on Lake Winnipeg, near the northern end, while he was traveling between the mouth of the Sas-

^a Parry's Third Voyage, Appendix, p. 102, 1826.

^b Edin. New Phil. Journ. (new ser.), IX, p. 229, 1859.

^c Rept. Prog. Can. Geol. Surv., 1882-3-4, App. III, p. 55DD (1885).

^d Auk, VII, p. 321, 1890.

^e Edin. New Phil. Journ. (new ser.), IX, p. 225, 1859.

katchewan and the outlet of the lake.^a This specimen is described by Richardson in the appendix to Captain Back's narrative.^b Specimens referable to *circumcincta* have since been taken on Lake Winnipeg on several occasions.

Arenaria morinella (Linn.). Ruddy Turnstone.

The first turnstones we met with were feeding on the beach at the 'whale fishery,' Fort Churchill, July 30. On August 1 we again noted the species a few miles north of Fort Churchill, and August 10 to 13 observed many small flocks about 25 miles south of Cape Eskimo. On August 14 I took a specimen just after starting down the coast on my return, and from Fort Churchill to York Factory, August 21 to 26, we saw many flocks daily. Whenever the birds perceived our boat they would approach and circle about it very slowly, sometimes coming within a few yards of us. Whether they mistook the boat for a rock on which they designed to alight, or were impelled merely by curiosity, I could not tell.

Under the specific name of *interpres* this bird has been recorded by Forster from Severn River,^c by Bell from York Factory,^d and by Clarke from Fort Churchill.^e Swainson and Richardson say it breeds on Hudson Bay,^f as it probably does to the northward. The British Museum contains a specimen from Repulse Bay, collected by Dr. Rae.

Canachites canadensis (Linn.). Hudsonian Spruce Grouse.

A pair in worn breeding plumage were collected at Oxford House July 3. A flock was started as we were ascending Hayes River, August 30, and others were seen on Hill River September 3 and 4. A female that was shot September 4 was preserved, and also an adult male of several that were killed on the Echimanish, September 14 and 15.

Linnaeus based his description of *Tetrao canadensis* on Edwards's figures of a male and female from Hudson Bay, probably from the west coast;^g Forster recorded the species from Severn River;^h Murray received it from Trout Lake;ⁱ Bell reported it from York Factory;^j and a specimen from Fort Churchill is recorded by Clarke.^e Speci-

^a Narrative of a Journey to the Shores of the Arctic Ocean, II, p. 229, 1836.

^b Narrative of the Arctic Land Expedition to the Mouth of the Great Fish River, App., p. 509, 1836.

^c Phil. Trans., LXII, p. 412, 1772.

^d Rept. Prog. Can. Geol. Surv., 1878-79, App. VI, p. 68c (1880).

^e Auk, VII, p. 321, 1890.

^f Fauna Boreali-Americana, II, p. 371, 1831.

^g Nat. Hist., II, pl. 71, female, 1747; III, pl. 118, male, 1750.

^h Phil. Trans., LXII, p. 389, 1772.

ⁱ Edin. New Phil. Journ. (new ser.), IX, p. 224, 1859.

^j Rept. Prog. Can. Geol. Surv., 1882-3-4, App. III, p. 55DD (1885).

mens collected at Moose Factory are recorded in the catalogue of birds in the U. S. National Museum collection, and the species doubtless ranges throughout the wooded portions of Keewatin.

Bonasa umbellus togata (Linn.). Canadian Ruffed Grouse.

We heard grouse drumming on the Echimanish during the night of June 24, and near the south end of Oxford Lake June 30. We did not note the species again until September 8, on our return trip, when a female was taken on Knee Lake. While making a portage on Trout River, September 9, I heard a grouse drumming, and entering the thicket soon located the bird on its drumming stand, a low rock, and shot it. Within a few minutes, as I carried the dead body on my hand toward our embarking place, I noticed that its wings had become raised over the back until they were nearly in contact and were firmly fixed in that position, apparently owing to the contraction of the muscles of the wings, which had been exercised so violently. As the body cooled the wings dropped to their normal position. Near the south end of Oxford Lake, September 11, a few were seen, and near Hairy Lake, September 15, several were shot, a male and a female of which were preserved.

Forster recorded the species from Albany Fort and Severn River,^a and Bell reported it rare as far north as York Factory.^b

Lagopus lagopus (Linn.). Willow Ptarmigan.

First seen and a fine pair shot on the tundra about 50 miles north of York Factory. Specimens were also taken July 24 in the vicinity of Fort Churchill, where the species was rather common. While encamped on Churchill River, about 15 miles above Fort Churchill, early in August, Alfred E. Preble observed them in considerable numbers. They were rather common on the Barren Grounds south of Cape Eskimo August 3 to 13, where two immature specimens were secured.

Forster recorded this species from Severn River,^c and Swainson and Richardson state on the authority of Hutchins that 10,000 were captured in a single season at that place.^d James C. Ross recorded it from Port Bowen, Prince Regent Inlet, where it remained as late as November 16, and returned about the middle of March.^e Barnston states that it arrived at Martin Falls, on Albany River, about October 20,^f and that it began to assume its summer plumage about March 20, at which time also it departed northward.^g In the interior of Keewatin this species regularly goes south in winter as far at least as Norway

^a Phil. Trans., LXII, p. 393, 1772.

^b Rept. Prog. Can. Geol. Surv., 1878-9, App. VI, p. 68c (1880).

^c Phil. Trans., LXII, p. 390, 1772.

^d Fauna Boreali-Americana, II, p. 351, 1831.

^e Parry's Third Voyage, Appendix, p. 99, 1826.

^f Edlin. New Phil. Journal, XXX, p. 256, 1841.

^g Ibid., p. 253, 1841.

House, and forms a welcome addition to the winter bill of fare at the Hudson Bay posts. Definite data are lacking regarding the southern limit of its breeding range on the west coast of Hudson Bay, but on the east coast it breeds as far south as James Bay, where Spreadborough found it nesting at a point a short distance north of Fort George.^a

Lagopus rupestris (Gmel.). Rock Ptarmigan.

First described by Gmelin, who based the name on Pennant's 'Rock Grouse' from Hudson Bay.^b We did not meet with the species, as its summer home lies to the north of the region visited. The people of Fort Churchill say it occurs at that post regularly in winter, and Clarke has recorded from there a pair in winter plumage.^c Swainson and Richardson, quoting Hutchins's manuscript, say that the species reaches York Factory and Fort Severn in very severe winters.^d J. C. Ross says that the species left Port Bowen, Prince Regent Inlet, in October and returned in March.^e Dr. Rae saw a rock ptarmigan with a brood of young near Cape Fullerton,^f and specimens collected by him at Repulse Bay are recorded in the British Museum Catalogue.

Pediœcetes phasianellus (Linn.). Sharp-tailed Grouse.

Two males in worn breeding plumage were taken at Norway House June 18, and downy young at Oxford House early in July. We did not again note the species until September 14, when we saw a pair on the upper Eehimamish. It was common at Norway House September 16 to 19, and a specimen in fall plumage was taken at that point. The tracks of a large flock were seen on the sandy shore at Duck Point, Playgreen Lake, September 19.

Edwards figured and described a specimen from Hudson Bay, calling it the 'Long-Tailed Grouse from Hudson's Bay,'^g and this figure and description formed the basis of Linnæus's description of *Tetrao phasianellus*. Forster recorded it from Albany Fort and Severn River,^h and Murray from Trout Lake.ⁱ J. B. Tyrrell saw it near York Factory.^j The catalogue of birds in the U. S. National Museum collection contains the record of one taken at Moose Factory in 1881.

^aMacoun, Catalogue Canadian Birds, Part I, p. 206, 1900.

^bArct. Zool., II, p. 312, 1785.

^cAuk, VII, p. 321, 1890.

^dFauna Boreali-Americana, II, p. 354, 1831.

^eParry's Third Voyage, Appendix, p. 99, 1826.

^fNarrative of an Expedition to the Shores of the Arctic Sea, p. 29, 1850.

^gNat. Hist., III, pl. 117, 1750.

^hPhil. Trans., LXII, pp. 394, 425, 1772.

ⁱEdin. New. Phil. Journ. (new ser.), IX, p. 224, 1859

^jAnn. Rept. Can. Geol. Surv., 1896 (new ser.), IX, p. 165F (1897).

Ectopistes migratorius (Linn.). Passenger Pigeon.

Forster received a specimen from Severn River.^a Swainson and Richardson, quoting Hutchins's manuscript, say that a flock visited York Factory in 1775 and stayed two days.^b James Clark Ross relates that while he was crossing Baffin Bay July 31, 1829, on Ross's second voyage, a passenger pigeon flew on board.^c Dr. Bell saw small flocks on the upper part of Nelson River early in September, 1878.^d Macoun records a small breeding colony found on Waterhen River, northern Manitoba, on June 23, 1881.^e Turner records specimens collected at Moose Factory, August 16, 1860, by C. Drexler.^f Macoun records a set of eggs taken at the same place in June, 1888, by Mr. Miles Spence,^g and Clarke records an adult pair taken at Fort Churchill many years ago.^h Barnston, writing in 1840, states that the migratory pigeon was frequently seen during August at Martin Falls, on Albany River, but disappeared about September 10.ⁱ

Zenaidura macroura (Linn.). Mourning Dove.

While descending Red River from Winnipeg to West Selkirk, June 14, we saw several birds of this species. It is probable that it regularly reaches southern Keewatin.

Circus hudsonius (Linn.). Marsh Hawk.

We saw five marsh hawks during our trip—the first, June 13, as we were descending Red River; the next, July 13, at Beacon Point, York Factory; another, August 19, at Fort Churchill; another, August 24, below Cape Churchill, and the last, August 29, on lower Hayes River. Those observed August 19 and 24 were immature birds and were secured.

Edwards figured and described this bird, which he called the 'Ring-tail'd Hawk,' from a Hudson Bay specimen.^j His figure and description form the basis of Linnaeus's description of *Falco hudsonius*. Murray recorded the species from Moose Factory and Severn River.^k

Accipiter velox (Wils.). Sharp-shinned Hawk.

One was seen at Norway House June 19, one at Oxford House early in July, and one as we were ascending Hill River September 3.

Richardson described a specimen from Moose Factory under the

^a Phil. Trans., LXII, p. 398, 1772.

^b Fauna Boreali-Americana, II, p. 363, 1831.

^c Appendix to Ross's Second Voyage, p. xxix, 1835.

^d Rept. Prog. Can. Geol. Surv., 1878-79, App. VI, p. 70c (1880).

^e Catalogue Canadian Birds, Part I, p. 216, 1900.

^f Proc. U. S. Nat. Mus., VIII, p. 245, 1885.

^g Catalogue Canadian Birds, Part I, p. 217, 1900.

^h Auk, VII, p. 322, 1890.

ⁱ Edin. New Phil. Journ., XXX, p. 255, 1841.

^j Nat. Hist., III, pl. 107, 1750.

^k Edin. New Phil. Journ. (new ser.), IX, p. 221, 1859.

name of *Accipiter pennsylvanicus*.^a Fielden records one taken by Captain Markham near York Factory in August, 1886.^b

Accipiter cooperi (Bonap.). Cooper Hawk.

A Cooper hawk darted into a flock of Canada grouse which we flushed while ascending Hayes River August 30, and though it did not succeed in capturing any it terrorized them so completely that we were unable to approach them.

Accipiter atricapillus (Wils.). Goshawk.

Richardson gives a description of a goshawk killed at York Factory, accompanied by a figure presumably drawn from the same bird.^c Baird recorded one collected on Nelson River,^d and Clarke an adult female collected at Fort Churchill many years ago.^e

Buteo borealis (Gmel.). Red-tailed Hawk.

A number were seen July 8 and 9 as we descended Hill and Steel rivers, where they were undoubtedly nesting. They flew from tree to tree in advance of the canoe, with squeals of protest at our intrusion. When we were returning we saw several on Hill River September 3.

Dr. Bell recorded the species from Fort Churchill.^f

Buteo lineatus (Gmel.). Red-shouldered Hawk.

Bell recorded a specimen from York Factory, collected and presented by Dr. Matthews.^g

Buteo swainsoni Bonap. Swainson Hawk.

An adult specimen (sex not noted) in the dark plumage, collected at Moose Factory in 1881 by W. Haydon, is in the U. S. National Museum collection.

Buteo platypterus (Vieill.). Broad-winged Hawk.

A specimen taken at Moose Factory in 1862 by J. McKenzie is recorded by Turner.^h

Archibuteo lagopus sancti-johannis (Gmel.). Rough-legged Hawk.

Two were seen at Swampy Lake September 5, swooping about over the wooded shores, evidently at play. A specimen collected early in August at Norway House was presented to us by J. K. MacDonald of that post.

^aFauna Boreali-Americana, II, p. 46, 1831.

^bTransactions Norwich Society, IV, p. 349, 1887.

^cFauna Boreali-Americana, II, p. 43, 1831.

^dBirds of North America, p. 16, 1858.

^eAuk, VII, p. 322, 1890.

^fRept. Prog. Can. Geol. Surv., 1878-79, App. VI, p. 67c (1880).

^gIbid., 1882-3-4, App. III, p. 54DD (1885).

^hProc. U. S. Nat. Mus., VIII, p. 244, 1885.

This species is recorded by Murray from Severn House and Trout Lake,^a and an apparently immature specimen, collected at Fort Churchill many years ago, is recorded by Clarke.^b

Aquila chrysaëtos (Linn.). Golden Eagle.

We saw several of these birds as we were passing through Hell Gate Gorge June 28, and noticed at least two of their nests on its rocky walls.

Edwards figured a specimen from Hudson Bay,^c and Linnæus based his description of *Falco canadensis* on Edwards's figure. Sir John Franklin, who passed through Hell Gate Gorge in October, 1819, speaks of a nest of the brown fishing-eagle on one of the projecting cliffs.^d

Haliaëetus leucocephalus (Linn.). Bald Eagle.

We were informed that white-headed eagles were occasionally seen near Fort Churchill and nested in the vicinity, and we obtained the upper mandible of one that had been killed there. Mr. Campbell, of Oxford House, reported having seen the species near Oxford Lake.

Falco islandus Brünn. White Gyrfalcon.

The residents of Fort Churchill spoke of a white hawk, probably this species, which is sometimes seen there.

Richardson described a mature bird from Hudson Bay;^e Murray recorded *F. caudicans* from York Factory;^a Ridgway described a specimen from Moose Factory;^f and a specimen collected by Dr. Rae at Repulse Bay, is recorded in the British Museum Catalogue.

Falco rusticolus gyrfalco (Linn.). Gyrfalcon.

Forster described *Falco sacer*, probably identical with *gyrfalco*, from a specimen taken at Severn River;^g Bell records a specimen (as *Falco sacer*) from York Factory;^h and Clarke records two specimens from Fort Churchill.^b

Falco peregrinus anatum (Bonap.). Duck Hawk.

One was seen on the Barren Grounds below Cape Eskimo about August 5.

The species is recorded by Murray from Trout Lake and Severn House,ⁱ and by Bell from York Factory,^h and also from Marbie

^a Edin. New Phil. Journ. (new ser.), IX, p. 221, 1859.

^b Auk, VII, p. 322, 1890.

^c Nat. Hist., I, pl. 1, 1743.

^d Franklin's Narrative of a Journey to the Polar Sea, p. 39, 1823.

^e Fauna Boreali-Americana, II, p. 28, 1831.

^f Land Birds of North America, III, p. 112, 1874.

^g Phil. Trans., LXII, pp. 383, 423, 1772.

^h Rept. Prog. Can. Geol. Surv., 1878-79, App. VI, p. 67c (1880).

ⁱ Edin. New Phil. Journ. (new ser.), IX, p. 271, 1859.

Island, where an adult and two young birds were killed September 1.^a An adult male collected at Fort Churchill many years ago is recorded by Clarke.^b The catalogue of birds in the U. S. National Museum collection contains the record of a specimen taken at Moose Factory in 1881.

Falco columbarius Linn. Pigeon Hawk.

A pigeon hawk which was moulting from the brownish plumage to that of the more mature bird was shot at a portage on Hill River July 7. From its actions and those of its mate, which was seen with food in its talons, it was probably nesting in the vicinity, but a careful search failed to locate the nest. Another bird was taken at Fort Churchill July 25, and on our return trip we saw one on Hill River September 1, and one at Oxford House September 10.

Richardson described a specimen shot at York Factory September 4, 1822;^c Forster recorded the species from Severn River;^d Baird from Nelson River;^e and Bell from between Norway House and Fort Churchill.^f

Falco richardsoni Ridgw. Richardson Merlin.

Nutting records this species from Grand Rapids, Saskatchewan, where a male was secured in the summer of 1891.^g

Falco sparverius Linn. Sparrow Hawk.

We saw one while descending Red River June 14, one at Sea Falls, 20 miles north of Norway House, June 23, and several while ascending Hayes and Steel rivers August 30 to September 1. On September 15 we again noted the species at Sea Falls.

Baird recorded a specimen from Nelson River;^e Bell reported the species at York Factory;^f and Mearns lists a specimen from Moose Factory.^h

Pandion haliaëtus carolinensis (Gmel.). Osprey.

At Robinson Portage June 26 we saw a pair, and on the shore of Windy Lake, June 29, another that had a nest containing good-sized young. While returning we saw one bird at York Factory August 27, one on Hill River September 4, one on Trout River September 9, and a number about Windy Lake September 12.

Bell reported several nesting along the Churchill and Grass rivers.^f

^a Rept. Prog. Can. Geol. Surv., 1882-3-4, App. III, p. 54DD (1885).

^b Auk, VII, p. 322, 1890.

^c Fauna Boreali-Americana, II, p. 361, 1831.

^d Phil. Trans., LXII, p. 382, 1772.

^e Birds of North America, p. 10, 1858.

^f Rept. Prog. Can. Geol. Surv., 1878-79, App. VI, p. 67c (1880).

^g Nat. Hist. Bull. Univ. Iowa, II, p. 269, 1893.

^h Auk, IX, p. 262, 1892.

Asio wilsonianus (Less.). Long-eared Owl.

Thompson, quoting Hutchins's manuscript, says that this species was found at Severn Settlement, presumably Fort Severn, where Hutchins resided.^a

Asio accipitrinus (Pall.). Short-eared Owl.

Rather common and quite generally distributed throughout the region wherever favorable ground occurs. One was seen at Beacon Point, near York Factory, July 13, and two were taken at Fort Churchill. One was seen on the Barren Grounds south of Cape Eskimo August 4, and one at Oxford House September 10.

Murray recorded the species from Trout Lake Station,^b and Bell from York Factory and Fort Churchill.^c The catalogue of birds in the U. S. National Museum collection contains the record of one taken at Moose Factory in 1881 by Walton Haydon.

Syrnium varium (Barton).^d Barred Owl.

Strix varius Barton, Frag. Nat. Hist. Penna., p. 11, 1799.

Syrnium nebulosum authors (not *Strix nebulosa* Forster, Phil. Trans., LXII, pp. 386, 424, 1772, which is based on the great gray owl.

Several specimens of the barred owl taken at Moose Factory are recorded in the catalogue of birds in the U. S. National Museum. Nutting records the species from Chemawawin, Saskatchewan.^e

Scotiaptex nebulosum (Forst.). Great Gray Owl.

Strix nebulosa Forst., Trans. Phil. Soc. London, LXII, pp. 386, 424, 1772. (Severn River.)

Strix cinerea Gmel., Systema Naturæ, I, p. 291, 1788; and of authors.

Forster based the name *Strix nebulosa* on a specimen of the great gray owl sent by Mr. Graham from Severn River, Hudson Bay.^f His description, in part, is as follows:

Strix capite laevi, corpore fusco, albido undulatum striato, remige sexto longiore apice, nigricante.

Description.—Rostrum fusco flavum, mandibula superius magis flava.

Oculi magna iridibus flavis. * * *

Pectus albidum maculis longitudinalibus transversisque fuscis.

Abdomen album superius uti pectus maculis longitudinalibus sed inferius striis transversis notatum.

Latitudo pedum quattuor.

^a Proc. U. S. Nat. Mus., XIII, p. 540, 1890.

^b Edin. New Phil. Journ. (new ser.), IX, p. 222, 1859.

^c Rept. Prog. Can. Geol. Surv., 1878-79, App. VI, p. 67c (1880).

^d *Strix nebulosa* Forster plainly having been based on the great gray owl, the name *Strix varius* Barton seems to be the next name available for the barred owl. The barred owls will, therefore, stand as follows:

Syrnium varium (Barton), Frag. Nat. Hist. Penna., p. 11, 1799.

Syrnium varium allenii (Ridgw.), Proc. U. S. Nat. Mus., III, p. 8, March, 1880.

Syrnium varium helveolum (Bangs), Auk, XVIII, p. 299, 1901.

^e Nat. Hist. Bull. Univ. Iowa, II, p. 270, 1893.

^f The fact that Forster's description of *Strix nebulosa* refers to the great gray owl was brought to my attention by Mr. R. Ridgway.

Blakiston received two specimens from York Factory,^a and Turner has recorded the species from Moose Factory, where a specimen was collected by J. McKenzie.^b Seton records it as resident in the woods about Lake Winnipeg.^c

Nyctala tengmalmi richardsoni (Bonap.). Richardson Owl.

A specimen collected at Repulse Bay by Dr. Rae is recorded in the British Museum Catalogue. Fielden records the species from near York Factory, where it was obtained by Captain Markham in 1886.^d It probably occurs throughout the Hudson Bay region.

Nyctala acadica (Gmel.). Saw-whet Owl.

Strix passerina, recorded by Forster from Hudson Bay, probably from Severn River,^e is in all likelihood referable to this species. Turner recorded a specimen, which is still in the National Museum, collected at Moose Factory by J. McKenzie.^b

Megascops asio (Linn.). Screech Owl.

George Barnston, writing in 1840, mentions "The small owl (Scops)" as being heard in April at Martin Falls, Albany River.^f

Bubo virginianus arcticus (Swains.). Arctic Horned Owl.

The characteristic notes of the great horned owl were heard during the night of September 11, while we were encamped near the south end of Oxford Lake, September 13 at Robinson Portage, and the next day on the Echimamish.

The catalogue of birds in the U.S. National Museum collection records two specimens of the great horned owl collected at Moose Factory by J. McKenzie. One of these has been examined and is referable to this form. Clarke recorded a specimen probably referable to this form collected many years ago at Fort Churchill.^g Fielden records a fine specimen obtained near York Factory in 1886 by Captain Markham.^d

Nyctea nyctea (Linn.). Snowy Owl.

We did not meet with this species but saw wings at several posts, and learned from a young man at Fort Churchill that he had seen a snowy owl late in July.

Forster early recorded it from Churchill River,^e and the reports of

^a Rept. Prog. Can. Geol. Surv., V, p. 50, 1863.

^b Proc. U. S. Nat. Mus., VIII, p. 243, 1885.

^c Auk, III, p. 155, 1886.

^d Transactions Norwich Society, IV, p. 349, 1887.

^e Phil. Trans., LXII, p. 385, 1772.

^f Edin. New. Phil. Journ., XXX, p. 253, 1841.

^g Auk, VII, p. 322, 1890.

various Arctic expeditions note its occurrence at several points to the north and northwest of Hudson Bay. Its presence throughout the region in winter is attested by various observers.

Surnia ulula caparoch (Müll.). Hawk Owl.

The Little Hawk Owl^a of Edwards, from Hudson Bay, formed the basis of Müller's *Strix caparoch*. Forster recorded the hawk owl, under the name *Strix funerea*, from Severn and Churchill rivers;^b Murray received it from Trout Lake and Severn House;^c Swainson and Richardson mention a specimen from York Factory;^d and one collected by Dr. Rae at Repulse Bay is recorded in the British Museum Catalogue. The catalogue of birds in the U. S. National Museum collection contains the record of a specimen taken by Walton Haydon at Moose Factory in 1881.

Ceryle alcyon (Linn.). Belted Kingfisher.

We found the belted kingfisher common throughout the region between Norway House and Oxford House. A large clay bank on the shore of Oxford Lake near Oxford House, which we passed June 30, was perforated by the nesting holes of a numerous colony of bank swallows. In this bank were also several larger holes, which were probably those of kingfishers, judging from the anxiety manifested by at least four pairs of kingfishers that were flying about. During our return trip we saw several kingfishers on Steel and Hill rivers early in September, on Trout River September 9, and on the Echimamish September 14.

Clarke recorded an adult male from Fort Churchill,^e and several have reported the species from York Factory. The catalogue of birds in the U. S. National Museum collection contains the record of a specimen taken at Moose Factory in 1881 by Walton Haydon.

Dryobates villosus leucomelas (Bodd.). Northern Hairy Woodpecker.

Forster recorded *villosus* from Severn River,^f and Bell reported it from York Factory,^g both probably referring to the present form. An adult male of this species from Fort Churchill is recorded by Clarke.^e It is likely the bird ranges throughout the wooded portion of the region.

Dryobates pubescens medianus (Swains.). Downy Woodpecker.

A specimen collected at Moose Factory by Walton Haydon is in the U. S. National Museum. The downy woodpecker undoubtedly ranges throughout southern Keewatin.

^a Nat. Hist., II, pl. 62, 1747. (See Stejneger, Auk, I, p. 362, 1884.)

^b Phil. Trans., LXII, p. 385, 1772.

^c Edin. New Phil. Journ. (new ser.), IX, p. 221, 1859.

^d Fauna Boreali-Americana, II, p. 94, 1831.

^e Auk, VII, p. 322, 1890.

^f Phil. Trans., LXII, p. 388, 1772.

^g Rept. Prog. Can. Geol. Surv., 1882-3-4, App. III, p. 54DD (1885).

Picoides arcticus (Swains.). Arctic Three-toed Woodpecker.

We collected two males in a tract of burnt spruce woods at Norway House June 19, and while ascending Hayes River August 30 saw another in spruce woods.

Baird recorded a pair from Hudson Bay obtained from John Gould.^a Fielden recorded a specimen obtained near York Factory in August, 1886.^b The catalogue of birds in the United States National Museum collection records a specimen taken at Moose Factory in 1881 by Walton Haydon.

Picoides americanus Brehm. Striped-backed Three-toed Woodpecker.

Forster recorded this species from Severn River;^c Murray received one from Severn House;^d Baird recorded a male from Hudson Bay,^e supposed to be the one figured by Audubon, and Clarke recorded several adults of both sexes collected at Fort Churchill many years ago.^f

Sphyrapicus varius (Linn.). Yellow-bellied Sapsucker.

An adult female collected at Fort Churchill more than fifty years ago is recorded by Clarke.^g The U. S. National Museum collection contains a specimen taken at Moose Factory in 1881 by Walton Haydon.

Ceophlæus pileatus abieticola Bangs. Northern Pileated Woodpecker.

Thompson, quoting Hutchins's manuscript, reported this species from Albany River,^h Baird recorded a specimen from Nelson River,ⁱ and the catalogue of birds in the U. S. National Museum collection records four specimens collected at Moose Factory in 1862.

Colaptes auratus luteus Bangs. Northern Flicker.

We found flickers rather common throughout the region between Lake Winnipeg and Hudson Bay, and saw several at Fort Churchill July 25.

Forster recorded this species from Albany Fort;^j Murray from Trout Lake and Hudson Bay;^k and others have recorded it from different points in the region covered by our observations. The catalogue of birds in the U. S. National Museum collection contains the record of a specimen taken at Moose Factory in 1881 by Walton Haydon.

^aBirds of North America, p. 98, 1858.

^bTransactions Norwich Society, IV, p. 348, 1887.

^cPhil. Trans., LXII, p. 388 (*P. tridactylus*), 1772.

^dEdin. New Phil. Journ. (new ser.), IX, p. 223 (*A. tridactylus*), 1859.

^eBirds of North America, p. 100, 1858.

^fAuk, VII, p. 322, 1890.

^gIbid., p. 322, 1890.

^hProc. U. S. Nat. Mus., XIII, p. 551, 1890.

ⁱBirds of North America, p. 107, 1858.

^jPhil. Trans., LXII, p. 387, 1772.

^kEdin. New Phil. Journ. (new ser.), IX, p. 223, 1859.

Antrostomus vociferus (Wils.). Whip-poor-will.

Bell says: "The Whippoorwill was not seen nor heard north of Norway House,"^a implying its occurrence at that point. Bendire, probably referring to the same record, says: "As far as I have been able to ascertain, this species reaches the extreme northern limits of its range on the north shore of Lake Winnipeg, near Norway House."^b

The species probably occurs regularly in extreme southern Keewatin.

Chordeiles virginianus (Gmel.). Night-hawk.

Rather common at Norway House June 17 to 23, and several seen at Robinson Portage June 27, Oxford Lake June 30, and about the shores of Knee Lake July 5. They seemed to frequent entirely the districts which had been swept by fire. As we saw none on our return early in September, they had undoubtedly migrated by that time.

Murray recorded the species from Trout Lake.^c Bell reported it from York Factory,^d and a specimen collected years ago at Fort Churchill is recorded by Clarke.^e Edward Sabine recorded one that was picked up dead on Melville Island.^e The catalogue of birds in the U. S. National Museum collection contains the record of a specimen taken at Moose Factory in 1881 by Walton Haydon.

Muscivora forficata (Gmel.). Scissor-tailed Flycatcher.

Bell recorded a "specimen of *Milvulus forficatus* in the Government Museum shot at York Factory in the summer of 1880."^f The species has also been reported from Manitoba.^g It evidently occurs only as a rare straggler.

Tyrannus tyrannus (Linn.). Kingbird.

The catalogue of birds in the U. S. National Museum collection records a specimen collected at Moose Factory July 11, 1881, by Walton Haydon. Nutting found the species abundant at Grand Rapids, at the mouth of the Saskatchewan.^h It should occur regularly in southern Keewatin.

Sayornis phœbe (Lath.). Phœbe.

A pair had a nest beneath the wharf at Norway House, and several more nests were observed on June 28 as we were passing through Hell Gate Gorge. They were placed on the face of cliffs overhanging the water, and contained young nearly ready to fly. Though the bird

^a Rept. Prog. Can. Geol. Surv., 1878-79, App. VI, p. 68c (1880).

^b Life Hist. N. A. Birds (U. S. Nat. Mus. Special Bull. 3), p. 146, 1895 (1896).

^c Edin. New Phil. Journ. (new ser.), IX, p. 222, 1859.

^d Auk, VII, p. 322, 1890.

^e Suppl. to Appendix, Parry's First Voyage, p. xciv, 1824.

^f Proc. Royal Soc. Canada, 1882, I, Sec. IV, p. 52, (1883).

^g Seton, Auk, II, p. 218, 1885.

^h Nat. Hist. Bull. Univ. Iowa, II, p. 271, 1893.

should occur throughout southern Keewatin, I find no published records of its occurrence in the Province.

Contopus borealis (Swains.). Olive-sided Flycatcher.

Observed but once, on July 4, in a swamp bordering Trout River, between Oxford House and Knee Lake. The bird was perched on a tall dead tree, uttering at intervals its characteristic note.

Murray recorded the species from Hudson Bay.^a

Empidonax trailli alnorum Brewst. Alder Flycatcher.

Flycatchers referred to *alnorum* were several times observed by us at Norway House, and while we were ascending the Echimanish, but various causes, including their extremely wary habits, conspired to prevent their collection.

Empidonax minimus Baird. Least Flycatcher.

A nest containing well-incubated eggs was collected near the south end of Oxford Lake on the morning of June 30. The female parent was secured at the same time. I have compared this bird with most of the specimens in the large series in the U. S. National Museum collection, and it proves to have a smaller bill than any of them.

Turner recorded a specimen collected by C. Drexler at Moose Factory.^b

Otocoris alpestris (Linn.). Horned Lark.

An adult male horned lark, collected at Moose Factory June 18, 1863, and now in the U. S. National Museum collection, has been several times recorded. This specimen proves, on examination, to be referable to the typical form.

Otocoris alpestris hoyti Bishop. Hoyt Horned Lark.

We first met with this form on the 'Barrens' about 50 miles north of York Factory July 19, and found it common from there north as far as we went, especially at Fort Churchill, where adult birds and a young one not long from the nest were taken July 24 to 26. A specimen was collected 50 miles south of Cape Eskimo August 4. During our return we saw many horned larks on the clearing at Norway House, September 16 to 19, feeding in company with Lapland longspurs.

Bishop has recorded specimens of this form from Depot Island, 'Hudson Strait' [Hudson Bay].^c J. C. Ross took a specimen near Felix Harbor, Boothia.^d Richardson recorded a specimen taken July 10,

^a Edin. New Phil. Journ. (new ser.), IX, p. 223, 1859.

^b Proc. U. S. Nat. Mus., VIII, p. 242, 1885.

^c Auk, XIII, p. 132, 1896.

^d Appendix to Ross's Second Voyage, p. xxvi, 1835.

1822, near Cape Wilson, Melville Peninsula;^a and Murray received specimens from York Factory and Severn House.^b Forster recorded horned larks from Albany Fort,^c but in the absence of specimens, it is impossible to decide whether *alpestris* or *hoyti* is referred to.

Pica pica hudsonia (Sab.). Magpie.

Forster recorded the magpie from Albany Fort under the name *Corvus pica*.^d Thompson, quoting Hutchins's manuscript, says that one was caught in a marten trap at York Factory;^e and Joseph Sabine, who described *hudsonia* from Cumberland House, speaks of having had a specimen from Hudson Bay in his possession some time before.^f Fielden records a specimen procured at York Factory.^g

Cyanocitta cristata (Linn.). Blue Jay.

Several were seen in the groves of *Quercus macrocarpa* at West Selkirk on the morning of September 22. According to Chamberlain, the species has been taken at Moose Factory.^h Russell records it from Grand Rapids.ⁱ

Perisoreus canadensis (Linn.). Canada Jay.

This species was reported about Norway House, and was seen nearly every day on our journey between there and York Factory. Specimens were collected on the Echinamish, at Oxford House, and at York Factory; and Alfred E. Preble saw several near Fort Churchill.

Murray recorded the species from Severn House,^j and Clarke an adult from Fort Churchill.^k The catalogue of birds in the U. S. National Museum collection records a specimen taken at Moose Factory in 1881 by Walton Haydon.

Corvus corax principalis Ridgw. Northern Raven.

We saw several between Robinson Portage and Pine Lake June 28, and while descending Hill River July 8 noticed a pair flying about the face of a high clay bank. Except for one seen at Fort Churchill July 30, we did not again note the species.

James Clark Ross speaks of a pair which wintered at Port Bowen, Prince Regent Inlet.^l Bell reported this species as breeding through-

^a Appendix to Parry's Second Voyage, p. 343, 1825 (1827).

^b Edin. New Phil. Journ. (new ser.), IX, p. 398, 1859.

^c Phil. Trans., LXII, p. 398, 1772.

^d Ibid., p. 387, 1772.

^e Proc. U. S. Nat. Mus., XIII, p. 565, 1890.

^f Franklin's Narrative of a Journey to the Polar Sea, Appendix, p. 671, 1823.

^g Transactions Norwich Society, IV, p. 348, 1887.

^h Catalogue Canadian Birds, p. 75, 1887.

ⁱ Explorations in the Far North, p. 264, 1898.

^j Edin. New Phil. Journ. (new ser.), IX, p. 222, 1859.

^k Auk, VII, p. 322, 1890.

^l Parry's Third Voyage, Appendix, p. 97, 1826.

out the region between Norway House and Forts Churchill and York.^a

Corvus americanus Aud. Crow.

A few seen about Lake Winnipeg and Norway House, and small numbers noted nearly every day between Norway House and York Factory. They were rather common at York Factory July 10 to 17. A few were seen about the mouth of Churchill River July 30, and another was noted 50 miles south of Cape Eskimo on the morning of August 14. On our return trip they were several times met with.

Murray recorded the crow from Trout Lake and Hudson Bay.^b

Xanthocephalus xanthocephalus (Bonap.). Yellow-headed Blackbird.

Recorded by Murray from Hudson Bay.^c Nutting found it breeding abundantly at Chemawawin, Saskatchewan.^d

Agelaius phœniceus (Linn.). Red-winged Blackbird.

Common in the Red River Valley, and abundant about the marshes below Robinson Portage, where two specimens were collected June 27. A number were seen near Oxford House July 4, in the marsh between Oxford and Back Lakes.

Recorded by Murray from Hudson Bay.^b

Sturnella magna neglecta (Aud.). Western Meadowlark.

A number seen along Red River between Winnipeg and West Selkirk June 14. Specimens procured at Winnipeg have been examined and prove referable to this form.

Icterus galbula (Linn.). Baltimore Oriole.

One seen flying across Red River, about midway between Winnipeg and West Selkirk, June 14.

Bell records a specimen from York Factory, collected and presented by Dr. Matthews.^e

Scolecophagus carolinus (Müll.). Rusty Blackbird.

Several seen and a female taken June 25, near the head of the Echimamish, where they were undoubtedly breeding. One was taken from a large flock at Fort Churchill July 26. While encamped on Churchill River, about 15 miles above Fort Churchill, Alfred E. Preble found the species abundant, and took several specimens August 8. We found the species common as we ascended Hill River September 3 to 5, and saw several between Oxford and Windy lakes September 12. It was very common along the Echimamish September 14 and 15.

^aRept. Prog. Can. Geol. Surv., 1878-79, App. VI, p. 67c (1880).

^bEdin. New Phil. Journ. (new ser.), IX, p. 222, 1859.

^cIbid., p. 222, 1859.

^dNat. Hist. Bull. Univ. Iowa, II, p. 274, 1893.

^eRept. Prog. Can. Geol. Surv., 1882-3-4, App. III, p. 54DD (1885).

Forster recorded it from Severn River,^a his record being probably the earliest notice of the bird, which was then undescribed. Murray received specimens from Severn House and Trout Lake,^b and Bell reported it from York Factory.^c The catalogue of birds in the U. S. National Museum collection contains the record of specimens taken at Moose Factory in 1881 by Walton Haydon.

Scolecophagus cyanocephalus (Wagl.). Brewer Blackbird.

Common in the Red River Valley, between Winnipeg and West Selkirk, June 14. Nutting records this species and *S. carolinus* from the lower Saskatchewan, where both apparently breed.^d

Quiscalus quiscula æneus (Ridgw.). Bronzed Grackle.

Several seen near Sea Falls and on the lower Echimamish June 24; rather common June 26 and 27 at Robinson Portage, where two specimens were collected; common at Oxford House June 30 to July 4; and a single bird seen on upper Hill River July 7. On the return trip several were seen on Trout River, near Oxford House, September 9.

Bell reported *Q. purpureus* from York Factory,^e and Clarke recorded an adult male from Fort Churchill, collected many years ago.^e The catalogue of birds in the U. S. National Museum collection contains the record of a specimen taken at Moose Factory in 1881 by Walton Haydon.

Coccothraustes vespertinus (Coop.). Evening Grosbeak.

Thompson, on the authority of R. H. Hunter, reports that this species was seen in autumn, winter, and early spring at Big Island, Lake Winnipeg.^f

Pinicola enucleator leucura (Müll.). Pine Grosbeak.

A male was seen perched on a tree overhanging Hill River, near the mouth of Fox River, July 8. The species was reported to us by the residents of Fort Churchill.

Edwards figured a pair of these birds brought from Hudson Bay by Mr. Isham, who informed him that they wintered there.^g Forster recorded it from Severn River;^h Murray recorded it from Severn House;^h Bell reported that it was frequently seen on the Churchill in the latter part of July;ⁱ Clarke recorded adults of both sexes, collected

^aPhil. Trans., LXII, p. 400, 1772.

^bEdin. New Phil. Journ. (new ser.), IX, p. 223, 1859.

^cRept. Prog. Can. Geol. Surv., 1878-79, App. VI, p. 68c (1880).

^dNat. Hist. Bull. Univ. Iowa, II, p. 274, 1893.

^eAuk, VII, p. 322, 1890.

^fProc. U. S. Nat. Mus., XIII, p. 584, 1890.

^gNat. Hist., III, pls. 123 and 124, 1750.

^hPhil. Trans., LXII, p. 402, 1772.

ⁱRept. Prog. Can. Geol. Surv., 1878-79, App. VI, p. 70c (1880).

at Fort Churchill many years ago;^a and Fielden recorded a specimen obtained near York Factory in 1886.^b The catalogue of birds in the U. S. National Museum collection contains the record of a specimen taken at Moose Factory in 1881 by Walton Haydon.

Carpodacus purpureus (Gmel.). Purple Finch.

The song of the purple finch was several times heard early on the morning of June 16 at Bull Head Point, Lake Winnipeg, where the steamer stopped for wood.

Turner recorded the species from Moose Factory,^c and Walton Haydon collected specimens there in 1881.

Loxia curvirostra minor (Brehm). Red Crossbill.

A small flock was seen at our camp on the Echimamish June 25.

Forster recorded two specimens of '*Loxia curvirostra*' from Severn River.^d

Loxia leucoptera Gmel. White-winged Crossbill.

Murray received this species from Hudson Bay, Severn House, and Trout Lake;^e Baird recorded a specimen in the U. S. National Museum from Nelson River;^f and adults of both sexes from Fort Churchill were recorded by Clarke.^g

Acanthis hornemanni (Holb.). Greenland Redpoll.

Clarke recorded two adults collected many years ago at Fort Churchill.^h Murray's record of *Linota borealis* from Severn House may be referable to the present form or to *exilipes*.^e

Acanthis hornemanni exilipes (Coues). Hoary Redpoll.

Three specimens from York Factory and one from Fort Churchill, collected in July, are referable to this form.

Acanthis linaria (Linn.). Redpoll.

Eight specimens, including one in juvenal plumage, were collected July 12 to 16 at York Factory, where the birds were abundant, and a very bright male was taken at Fort Churchill July 23.

Forster recorded this species from Severn River.^g

Acanthis linaria holbœlli (Brehm). Holbœll Redpoll.

A specimen (No. 89311) taken at Moose Factory in 1881 by Walton Haydon, and now in the U. S. National Museum collection, seems to be a typical example of this form.

^a Auk, VII, p. 322, 1890.

^b Transactions Norwich Society, IV, p. 348, 1887.

^c Proc. U. S. Nat. Mus., VIII, p. 239, 1885.

^d Phil. Trans., LXII, p. 402, 1772.

^e Edin. New Phil. Journ. (new ser.), IX, p. 223, 1859.

^f Birds of North America, p. 428, 1858.

^g Phil. Trans., LXII, p. 405, 1772.

Spinus pinus (Wils.). Pine Siskin.

Nutting records the pine siskin from Grand Rapids, Saskatchewan, where two specimens were taken.^a It probably occurs throughout southern Keewatin, but I find no published records.

Passerina nivalis (Linn.). Snowflake.

Edwards figured the 'Snow-Bird' from Hudson's-Bay,^b and on this figure Linnaeus partially based his description of *Emberiza nivalis*. Forster recorded migrants from Severn River;^c Richardson says the species breeds on Melville Peninsula,^d and records it as usually arriving at Fort Churchill from March 26 to April 6, and being very rarely seen in midwinter; Dr. Rae saw young near Neville Bay;^e Swainson and Richardson speak of its breeding about Chesterfield Inlet;^f Murray received specimens from Hudson Bay, Severn House, and Trout Lake;^g Bell reported it from York Factory;^h Clarke from Fort Churchill;ⁱ the British Museum Catalogue has a record of one collected by Dr. Rae at Repulse Bay; and the catalogue of birds in the U. S. National Museum collection records a specimen taken at Moose Factory in 1881 by Walton Haydon.

Calcarius lapponicus (Linn.). Lapland Longspur.

Rather common 10 miles north of Fort Churchill, on the shores of Button Bay, where an immature bird was taken July 31. Abundant on the Barren Grounds south of Cape Eskimo August 4 to 13, at which time the old birds were moulting and were almost invariably destitute of tail feathers. They were seen in great numbers near Hubbart Point August 17, and were common at Norway House September 19, where one was secured. At the latter point they were feeding in company with horned larks.

Forster recorded the species from Severn River;^j Murray received specimens from Trout Lake and Severn House;^g Clarke recorded adults and young collected at Fort Churchill;ⁱ and two specimens collected at Repulse Bay by Dr. Rae are mentioned in the British Museum Catalogue. The catalogue of birds in the U. S. National Museum collection contains the record of a specimen taken at Moose Factory in 1881 by Walton Haydon.

^a Nat. Hist. Bull. Univ. Iowa, II, p. 275, 1893.

^b Nat. Hist., III, pl. 126, 1750.

^c Phil. Trans., LXII, p. 403, 1772.

^d Appendix to Parry's Second Voyage, p. 344, 1825 (1827).

^e Narrative of an Expedition to the Shores of the Arctic Sea, p. 24, 1850.

^f Fauna Boreali-Americana, II, p. 246, 1831.

^g Edin. New Phil. Journ. (new ser.), IX, p. 222, 1859.

^h Rept. Prog. Can. Geol. Surv., 1878-79, App. VI, p. 68c (1880).

ⁱ Auk, VII, p. 322, 1890.

^j Phil. Trans., LXII, p. 404, 1772

***Calcarius pictus* (Swains.).** Smith Longspur.

Rather common on the meadows at Fort Churchill July 23 to 30. They were quite tame, but were hard to see on the mossy hillocks, their coloring rendering them very inconspicuous. Often the first intimation I had of their proximity was their note, consisting of several sharp chips uttered in rapid succession. Three adult males and a young male just from the nest were taken. The young male, which was secured July 24, may be described as follows: Back dusky, the feathers edged with deep buff and whitish; feathers of head and neck dusky, mostly edged with buff, collar of adult being indicated by white edgings; wing quills strongly edged with brown, coverts tipped with white; lower parts buffy, about as in adults, chest conspicuously streaked with black, and sides marked with obscure spots of dusky; white markings of head plainly indicated.

Murray recorded specimens from Severn House;^a and a specimen collected by Dr. Rae at Repulse Bay is recorded in the British Museum Catalogue.

***Poœcetes gramineus* (Gmel.).** Vesper Sparrow.

Nutting reports the vesper sparrow common at Grand Rapids, Saskatchewan, where specimens were taken in the summer of 1891.^b

***Ammodramus sandwichensis savanna* (Wils.).** Savanna Sparrow.

Common throughout the region wherever suitable ground occurred, especially in the vicinity of the posts. At Norway House June 22 we found young just beginning to fly, and took several specimens of these and the old birds. We collected other specimens at Oxford House June 30 to July 4, and at York Factory, where they were especially common on the marsh at Beacon Point. We collected two more at Fort Churchill and two in the juvenal plumage at my camp 50 miles south of Cape Eskimo August 4 to 8. The last were taken in traps set for voles. The catalogue of birds in the U. S. National Museum collection contains the record of a specimen taken at Moose Factory in 1881 by Walton Haydon.

***Ammodramus bairdi* (Aud.).** Baird Sparrow.

Nutting records a specimen taken at Grand Rapids, Saskatchewan, in the summer of 1891.^c

***Zonotrichia querula* (Nutt.).** Harris Sparrow.

A number of specimens, including adults of both sexes and young just from the nest, were collected, July 23 to 30, at Fort Churchill, where the birds were rather common. They frequent the scattered patches of

^aEdin. New Phil. Journ. (new ser.), IX, p. 223, 1859.

^bNat. Hist. Bull. Univ. Iowa, II, p. 275, 1893

^cIbid., p. 275, 1893.

dwarfed spruce that grow in the small valleys and ravines intersecting the extensive expanse of precipitous ledges along Churchill River in the vicinity of the post. They undoubtedly nest among these spruces, but no nests attributable to the species were found. We heard no song, but they had a loud metallic chip which was audible and easily recognized at a distance of several rods. Young just from the nest, taken July 24 and 25, may be thus described: Upperparts dusky black, the feathers edged with deep buffy and brown, the black predominating on crown, the brown on hind neck, and the black and brown about equally divided on back; outer wing quills edged with deep buffy, inner with brown; tail feathers edged and tipped with whitish; sides of head and lower parts buffy; chest and side streaked with black, which is most conspicuous on sides of chest and forms a prominent malar stripe; upper throat grayish white, with fine dusky markings.

Several were seen in a thicket bordering upper Hayes River August 30, and the species was rather common in a fire-swept tract between Robinson Portage and the Echinamish September 14.

Zonotrichia leucophrys (Forst.). White-crowned Sparrow.

First seen at York Factory, where it was abundant and where a small series, including adults of both sexes and young birds not long from the nest, was taken July 12 to 14. About the post at Fort Churchill it was extremely abundant July 23 to 30, but after passing that point we saw no more of it until we had repassed the post on our return and were ascending Hayes River August 30, when we observed a number in a thicket bordering the river.

This species was first described by Forster from Severn River, Hudson Bay. He also received it from Albany Fort, where it was said to breed;^a and Murray received it from Severn House.^b It probably breeds throughout the northern wooded portions of Keewatin, being confined mainly to the Hudsonian zone.

Zonotrichia albicollis (Gmel.). White-throated Sparrow.

Abundant throughout the region between Norway House and York Factory. It was especially numerous in the extensive tracts which had been devastated by fire, where its simple but beautiful song lent a charm to the gloomy surroundings. A few were noted, one of which was collected, at York Factory in July; and on our return trip a few were seen at Oxford Lake September 11.

Murray reported the species from Hudson Bay,^b and Clarke recorded an adult pair from Fort Churchill.^c It was taken at Moose Factory

^a Phil. Trans., LXII, p. 403, 426, 1772.

^b Edin. New Phil. Journ. (new ser.), IX, p. 223, 1859

^c Auk, VII, p. 322, 1890.

in 1881 by Walton Haydon. Its breeding range in Keewatin is probably nearly co-extensive with the forest, though it is rare in that part that lies in the Hudsonian zone.

Spizella monticola (Gmel.). Tree Sparrow.

First seen at York Factory, where the species was rather common and a young bird not long from the nest was taken July 12. It was abundant at Fort Churchill July 24 to 30, and we took a series at that point. Many were noted on the Barren Grounds, 50 miles south of Cape Eskimo, August 4 to 8. On our return trip several were seen at Duck Point, Playgreen Lake, September 19.

Murray received specimens from Severn House;^a and a specimen collected by Dr. Rae at Repulse Bay is recorded in the British Museum Catalogue. The catalogue of birds in the U. S. National Museum collection contains the record of a specimen taken at Moose Factory in 1881 by Walton Haydon.

Spizella socialis (Wils.). Chipping Sparrow.

A few chipping sparrows were seen about the post at Norway House, one of which was collected. We also met with them about the post buildings at Oxford House, and saw one or two on an island in Knee Lake July 5. It was peculiarly pleasant to meet with this friendly little bird in these wild northern forests; and it was interesting to note that it showed no absence of that social trait to which its name is due, but was usually found nesting near dwellings.

Spizella pallida (Swains.). Clay-colored Sparrow.

Nutting records three specimens, evidently taken on the lower Saskatchewan.^b The species probably barely reaches southwestern Keewatin.

Junco hyemalis (Linn.). Slate-colored Junco.

A specimen was taken June 20 at Norway House, where the species was common; another was secured July 3, one of a number seen in the spruce and tamarack woods about Oxford House, and the species was again observed while we were ascending Steel River, September 1.

Specimens were received from Severn River by Forster, who, supposing the species to be undescribed, renamed it *Fringilla hudsonia*.^c Two specimens are recorded from Fort Churchill by Clarke.^d Specimens were taken at Moose Factory in 1881 by Walton Haydon.

Melospiza melodia (Wils.). Song Sparrow.

Common at Norway House and in the shrubbery about the clearing at Oxford House, and a number observed about Knee Lake July 5

^aEdin. New Phil. Journ. (new ser.), IX, p. 223, 1859.

^bNat. Hist. Bull. Univ., Iowa, II, p. 275, 1893.

^cPhil. Trans., LXII, pp. 406, 428, 1772.

^dAuk, VII, p. 322, 1890.

and 6. Not noted between Kuee Lake and York Factory on our inward trip, though we found the species rather common on Hill River when we ascended it early in September.

Melospiza lincolni (Aud.). Lincoln Sparrow.

Rather common July 13 to 16 at York Factory, where three specimens were collected.

Melospiza georgiana (Lath.). Swamp Sparrow.

A few were seen in the shrubby woods back of the post at Oxford House, and an adult was taken July 3. At York Factory, where the species was rather common, two young, not long from the nest, were taken July 13 and 16.

Passerella iliaca (Merr.). Fox Sparrow.

First noticed on the afternoon of July 10, when its beautiful song was heard in the willow thickets bordering Hayes River a few miles above York Factory. While at York Factory we found fox sparrows fairly common in willow thickets, and took a pair July 16.

Zamelodia ludoviciana (Linn.). Rose-breasted Grosbeak.

We heard the song of this bird while descending Red River, a few miles below Winnipeg, June 14. King took one near the north end of Lake Winnipeg in the summer of 1835.^a

Progne subis (Linn.). Purple Martin.

Edwards figured a bird brought from Hudson Bay by Mr. Isham, calling it the 'Great American Martin'.^b Linnaeus based his description of *Hirundo subis* on Edwards's figure.

Petrochelidon lunifrons (Say). Cliff Swallow.

Forster recorded a specimen sent from Severn River as 'Hirundo No. 35'.^c This is probably the earliest notice of the species, which was not formally described until many years afterward. Baird records a specimen taken at Moose Factory May 27, 1860;^d and Barnston mentions the species as arriving at Martin Falls, Albany River, by May 15.^e

Hirundo erythrogastra Bodd. Barn Swallow.

On the morning of August 13, while I was encamped at the mouth of a river on the Barren Grounds, about 25 miles south of Cape Eskimo, a barn swallow that had evidently been following the course of the stream flew past the camp. When it reached the Bay it turned southward and soon disappeared from sight down the coast.

^a Narrative of a Journey to the Shores of the Arctic Ocean, II, p. 225, 1836.

^b Nat. Hist., III, pl. 120, 1750.

^c Phil. Trans., LXII, p. 408, 1772.

^d Review of American Birds, p. 290, May, 1865.

^e Edin. New Phil. Journ., XXX, p. 254, 1841.

Tachycineta bicolor (Vieill.). Tree Swallow.

A few seen on lower Red River June 15, and two at Norway House June 19. Common between Norway House and Oxford House, and many nests observed in deserted holes of woodpeckers in trees at the water's edge, June 23 to 30. Common also at Oxford House, and noted on Steel River July 9. On our return through their haunts early in September we saw none. The catalogue of birds in the U. S. National Museum collection records specimens taken at Moose Factory, and the species probably ranges throughout southern Keewatin.

Riparia riparia (Linn.). Bank Swallow.

A small colony was found on Red River, a few miles below Winnipeg, June 14, and a large one in a high clay bank on the shore of Oxford Lake, near Oxford House, June 30. Several colonies were seen July 10 on Hayes River, a few miles above York Factory. The catalogue of birds in the U. S. National Museum collection records a specimen taken at Moose Factory in 1881 by Walton Haydon.

Ampelis garrulus Linn. Bohemian Waxwing.

Three were observed by Alfred E. Preble in the stunted spruce woods near Fort Churchill July 25.

Tyrrell speaks of seeing a flock "in a grove of birch trees near the shore of Theitaga Lake, on their breeding grounds."^a This lake is situated about 300 miles slightly north of west of Fort Churchill.

Ampelis cedrorum (Vieill.). Cedar Waxwing.

Recorded by Baird from Moose Factory, where it was collected by Drexler August 26, 1860.^b Walton Haydon took specimens at the same place in 1881. Nutting found it breeding abundantly at Grand Rapids and Chemawawin, Saskatchewan.^c

Lanius borealis Vieill. Northern Shrike.

Two specimens were taken at Fort Churchill, where the birds were rather common July 23 to 30, and one was taken and another noted near Painted Stone Portage September 14.

Forster recorded *Lanius excubitor*, referring to the present species, from Severn River;^d Murray received specimens from Trout Lake and Severn House;^e and Bell reported it from York Factory.^f The species was collected at Moose Factory in 1881 by Walton Haydon.

Vireo olivaceus (Linn.). Red-eyed Vireo.

Abundant about Lake Winnipeg, at Norway House, and between Norway House and Oxford House. In the vicinity of Oxford House

^a Ann. Rept. Can. Geol. Surv., 1896 (new ser.), IX, p. 165F (1897).

^b Review of American Birds, p. 408, May, 1866.

^c Nat. Hist. Bull. Univ. Iowa, II, p. 277, 1893.

^d Phil. Trans., LXII, p. 386, 1772.

^e Edin. New Phil. Journ. (new ser.), IX, p. 223, 1859.

^f Rept. Prog. Can. Geol. Surv., 1878-79, App. VI, p. 68c. (1880).

its song was heard almost continually. After leaving that point we saw nothing more of the bird.

Vireo philadelphicus (Cass.). Philadelphia Vireo.

A peculiar vireo song heard on Hill River July 8 was probably the song of this species, but I was unable to secure the bird.

Baird recorded the species from Moose Factory, where specimens were taken June 2, 1860, by C. Drexler.^a Walton Haydon took specimens at the same place in 1881.

Vireo solitarius (Wils.). Blue-headed Vireo.

One (a male) taken at Oxford House July 3, and one heard singing in a swamp bordering Knee Lake July 5.

Mniotilta varia (Linn.). Black and White Warbler.

Recorded by Turner from Moose Factory, where Drexler took specimens May 13 and 31, 1860.^b Nutting reported one specimen from Grand Rapids, Saskatchewan.^c

Helminthophila celata (Say). Orange-crowned Warbler.

One was taken in a willow thicket at York Factory July 16, and the species was again noted near Pine Lake September 13, and at Duck Point, Playgreen Lake, September 19.

Helminthophila peregrina (Wils.). Tennessee Warbler.

Two females taken at Oxford House July 3. The species was fairly common at York Factory, where specimens were taken July 13, 14, and 16. Baird recorded specimens from Fort George and Moose Factory, collected by C. Drexler in 1860,^d and the species was taken at Moose Factory in 1881 by Walton Haydon.

Dendroica tigrina (Gmel.). Cape May Warbler.

Recorded by Turner from Moose Factory, where one was taken May 28, 1860, by Drexler.^e The collection of the U. S. National Museum contains other specimens from the same place.

Dendroica æstiva (Gmel.). Yellow Warbler.

Rather common at Norway House, Oxford House, and York Factory. Specimens taken at these three points have a slightly darker crown than is usual in eastern examples, but are referable to the typical form.

Specimens taken at Fort Churchill many years ago are recorded by Clarke,^f and the catalogue of birds in the U. S. National Museum col-

^a Review of American Birds, p. 341, May, 1866.

^b Proc. U. S. Nat. Mus., VIII, p. 236, 1885.

^c Nat. Hist. Bull. Univ. Iowa, II, p. 277, 1893.

^d Review of American Birds, p. 179, April, 1865.

^e Proc. U. S. Nat. Mus., VIII, p. 237, 1885.

^f Auk, VII, p. 322, 1890.

lection records a specimen taken at Moose Factory in 1881 by Walton Haydon. The species probably breeds throughout the wooded portions of Keewatin.

***Dendroica coronata* (Linn.).** Myrtle Warbler.

One was seen, in company with kinglets and chickadees, in the spruce woods bordering Hill River, September 2.

According to Turner, Drexler took the species at Moose Factory.^a Clark records specimens from Fort Churchill.^b

***Dendroica maculosa* (Gmel.).** Magnolia Warbler.

One or two seen at Norway House, and one taken at Oxford House July 3.

Turner recorded the species from Moose Factory,^a where specimens were also taken in 1881 by Walton Haydon, and the British Museum Catalogue records one collected by G. Barnston on Albany River.

***Dendroica castanea* (Wils.).** Bay-breasted Warbler.

One was taken at Oxford House July 3.

Turner recorded the species from Moose Factory, where it was taken June 2, 1860, by Drexler.^a

***Dendroica striata* (Forst.).** Black-poll Warbler.

At Oxford House, June 30 to July 4, they were rather common and a female was collected. On July 10 we noticed a pair in a thicket that bordered Hayes River, a few miles above York Factory, and on arriving at that post we again found the birds rather common. At Fort Churchill, where they were also common, we took another specimen July 24. It proved to be a young one not long from the nest and still in the speckled plumage.

This species was first described by Forster from Severn River,^c and was recorded by Murray from Trout Lake.^d

***Dendroica blackburniæ* (Gmel.).** Blackburnian Warbler.

This species is recorded by Murray from Severn House and Trout Lake under the name *Sylvicola parus*.^d

***Dendroica palmarum* (Gmel.).** Palm Warbler.

One was seen on a small willow-covered island in Hill River September 4.

Clarke recorded an adult specimen from Fort Churchill.^b

^aProc. U. S. Nat. Mus., VIII, p. 237, 1885.

^bAuk, VII, p. 322, 1890.

^cPhil. Trans., LXII, pp. 406, 428, 1772.

^dEdin. New. Phil. Journ. (new ser.), IX, p. 222, 1859.

Dendroica palmarum hypochrysea Ridgw. Yellow Palm Warbler.

Turner recorded a specimen taken at Moose Factory in July, 1860, by Drexler,^a and Baird records one (under the name *palmarum*) taken at Fort George, on the east coast of James Bay, in 1861.^b

Seiurus aurocapillus (Linn.). Oven-bird.

A specimen taken at Moose Factory by Walton Haydon in the summer of 1881 is recorded in the catalogue of birds in the U. S. National Museum.

Seiurus noveboracensis notabilis (Ridgw.). Grinnell Water-Thrush.

We saw our first water-thrush at Painted Stone Portage. It was close to the edge of the water and was running through the undergrowth which fringed the foot of a cliff. On the afternoon of the same day, June 26, we noted another at Robinson Portage, and on June 30 a third at Oxford Lake. When we arrived at Oxford House we found the species rather common, and from there to York Factory, as we descended the rivers, its sprightly song was heard daily. A pair seen at a portage on Hill River July 7 were feeding young just from the nest. Three specimens were taken in the marshy woods about York Factory, where the species was common July 11 to 17, and one was taken August 8 by Alfred E. Preble on Churchill River about 15 miles above Fort Churchill. These prove to be intermediate between *noveboracensis* and *notabilis*, but nearer to *notabilis*.

Murray received the species from Severn House.^c

Geothlypis philadelphia (Wils.). Mourning Warbler.

Nutting records a specimen from the lower Saskatchewan (exact locality not stated) that is apparently intermediate in characters between *tolmiei* and *philadelphia*, but seems nearer to *tolmiei*.^d Thompson, on the authority of Macoun, records the mourning warbler from Waterhen River and Swan Lake,^e Manitoba, which are not far to the southward of where Nutting collected. As the species has been recorded also from various points to the southeast of Keewatin, there is little question that it breeds in the southern part of the Province.

Wilsonia pusilla (Wils.). Wilson Warbler.

Rather common in the undergrowth bordering a swamp at Robinson Portage June 27. Several were seen at York Factory July 10 to 17, one being taken on July 14.

^a Proc. U. S. Nat. Mus., VIII, p. 237, 1885.

^b Review of American Birds, p. 208, April, 1865.

^c Edin. New Phil. Journ. (new ser.), IX, p. 222, 1859.

^d Nat. Hist. Bull. Univ. Iowa, II, p. 278, 1893.

^e Proc. U. S. Nat. Mus., XIII, p. 622, 1890.

The British Museum Catalogue records a specimen from Hudson Bay collected by Captain Herd. A specimen taken at Moose Factory in the summer of 1881 by Walton Haydon is in the U. S. National Museum collection.

Wilsonia canadensis (Linn.). Canadian Warbler.

The catalogue of birds in the U. S. National Museum collection records a specimen taken at Moose Factory in the summer of 1881 by Walton Haydon. Nutting records the species from Grand Rapids, Saskatchewan.^a

Setophaga ruticilla (Linn.). Redstart.

Baird recorded a specimen taken at Moose Factory by Drexler,^b and Thompson quotes Hutchins's manuscript to the effect that one was shot at Fort Albany.^c

Anthus pensilvanicus (Lath.). Pipit.

Rather common July 24 to 30 on the rocky hills at Fort Churchill, where a pair were taken. A large flock was seen on lower Hayes River as we were ascending it August 29.

Murray recorded the species from Hudson Bay.^d

Olbiorchilus hiemalis (Vieill.). Winter Wren.

The catalogue of birds in the U. S. National Museum collection records a specimen taken at Moose Factory by Walton Haydon.

Cistothorus stellaris (Licht.). Short-billed Marsh Wren.

A male was taken in a wet meadow at Norway House June 20. From its actions it probably had a nest in the vicinity, but despite a careful search none was found.

Sitta carolinensis Lath. White-breasted Nuthatch.

An adult female taken at Fort Churchill many years ago is recorded by Clarke.^e

Sitta canadensis Linn. Red-breasted Nuthatch.

Heard on the Echimamish June 25, and a few seen on an island in Knee Lake on the forenoon of July 5.

In his narrative Dr. Rae speaks of taking one above Broad River, between York Factory and Fort Churchill.^f

Parus atricapillus Linn. Chickadee.

Baird recorded a specimen taken at Moose Factory.^g A chickadee in the U. S. National Museum that was taken at the same place by

^a Nat. Hist. Bull. Univ. Iowa, II, p. 279, 1893.

^b Review of American Birds, p. 256, May, 1865.

^c Proc. U. S. Nat. Mus., XIII, p. 624, 1890.

^d Edin. New Phil. Journ. (new ser.), IX, p. 222, 1859.

^e Auk, VII, p. 322, 1890.

^f Narrative of An Expedition to the Shores of the Arctic Sea, p. 11, 1850.

^g Review of American Birds, p. 81, July, 1864.

Walton Haydon is referable to the eastern form. Forster recorded *Parus atricapillus* from Fort Albany.^a

Parus atricapillus septentrionalis (Harris). Long-tailed Chickadee.

One taken on the lower Echimamish June 24. Nutting reported a specimen from Grand Rapids, Saskatchewan.^b

Parus hudsonicus Forst. Hudsonian Chickadee.

We first met with this species on the Echimamish June 24. We noted it again at Robinson Portage three days later, and found it common at Oxford House, where we secured a male July 3. We saw several on an island in Knee Lake July 5, and a number near York Factory July 13, collecting two on the latter date. On our return we saw several on Hill River September 3.

The species was first described by Forster from Severn River.^c It is recorded from Fort Churchill by Clarke,^d and from Moose Factory by Rhoads.^e

Regulus satrapa Licht. Golden-crowned Kinglet.

One was seen on the lower Echimamish June 24.

Regulus calendula (Linn.). Ruby-crowned Kinglet.

I saw one at Norway House June 17 and took a specimen on the Echimamish June 24. It was common at Oxford House June 30 to July 4. One was observed as we were ascending Hill River September 1.

Forster recorded a specimen probably sent from Severn River;^f Bell recorded the species from York Factory;^g and Clarke an adult from Fort Churchill.^d The catalogue of birds in the U. S. National Museum collection records a specimen taken at Moose Factory in the summer of 1881 by Walton Haydon.

Hylocichla fuscescens salicicola Ridgw. Willow Thrush.

The characteristic 'veery' call note and song were heard several times, and the singer was seen once as we floated down Red River between Winnipeg and West Selkirk June 14. None were taken, but specimens from the region seem referable to the western form.

Hylocichla aliciae (Baird). Gray-checked Thrush.

Not met with until we reached York Factory, where a female and two young just from the nest were taken in a dense willow thicket

^aPhil. Trans., LXII, p. 407, 1772.

^bNat. Hist. Bull. Univ. Iowa, 11, p. 279, 1893.

^cPhil. Trans., LXII, p. 408, 430, 1772.

^dAuk, VII, p. 322, 1890.

^eAuk, X, p. 328, 1893.

^fRept. Prog. Can. Geol. Surv., 1882-3-4, App. III, p. 54DD (1885).

July 13. The young birds may be described as follows: Back and head dark olive-brown, each feather tipped with dusky and with a longitudinal spot of brown; rump and upper tail-coverts brownish spotted with rusty; lower parts white, slightly tinged on breast and sides with buffy, each feather tipped with a dusky bar, those on breast heavily marked, the marking decreasing in size posteriorly; throat almost unmarked; cheeks grayish, spotted with dusky; wings and tail olive-brown, the wing quills lighter on outer edges.

I again met with the species July 24 at Fort Churchill, where I saw several in stunted spruce woods.

***Hylocichla ustulata swainsoni* (Cab.).** Olive-backed Thrush.

The song of this species was heard at Bull Head Point, Lake Winnipeg, on the morning of June 16. The birds were rather common at Norway House, and were seen or heard daily between there and Oxford House. They were common at Oxford House, and a specimen was taken at that point. While descending the streams between Oxford House and York Factory we found them abundant; every wooded islet in the lakes seemed to be the home of a pair, and wherever we camped we heard their songs, which began soon after midnight. A nest found in a bush overhanging Jack River, between Knee and Swampy lakes, July 6, contained eggs on the point of hatching. At York Factory, where we took two specimens, the species was apparently less abundant, and beyond that point we did not meet with it.

Baird recorded a specimen collected at Moose Factory in July, 1860, by Drexler.^a

***Hylocichla guttata pallasi* (Cab.).** Hermit Thrush.

Nutting found the hermit thrush abundant at Grand Rapids, Saskatchewan, in the summer of 1891.^b Though it doubtless occurs in southern Keewatin, I find no published records of such occurrence.

***Merula migratoria* (Linn.).** Robin.

Found throughout the region, but seldom seen elsewhere than in the vicinity of the posts, where, however, they were rather common. Many old and young were seen at Fort Churchill during the latter part of July. On our return trip we noted the species on Hayes River August 30, Steel River August 31, Hill River September 4, and between Oxford and Windy lakes September 12.

Forster recorded it from Severn River,^c and Murray from Severn House and Trout Lake.^d

^a Review of American Birds, p. 21, June, 1864.

^b Nat. Hist. Bull. Univ. Iowa, II, p. 279, 1893.

^c Phil. Trans., LXII, p. 399, 1772.

^d Edin. New Phil. Journ. (new ser.), IX, p. 222, 1859.

Saxicola œnanthe leucorhoa (Gmel.). Greenland Wheatear.

James Clark Ross recorded a specimen of *Sylvia œnanthe* obtained at Felix Harbor, Gulf of Boothia,^a which is probably referable to the race recently recognized by Stejneger.^b The British Museum Catalogue records from Albany River an adult male *œnanthe*, collected by Barnston, which is also probably referable to the Greenland race. If, as is probable, this bird inhabits the country to the north of Hudson Bay, its most natural route of migration would seem to be along the borders of the Bay, and it is not unlikely that it is a regular breeder about the northern shores.

Sialia sialis (Linn.). Bluebird.

The U. S. National Museum collection contains a specimen taken at Moose Factory in the summer of 1881 by Walton Haydon.

^aAppendix to Ross's Second Voyage, p. xxvi, 1835.

^bProc. U. S. Nat. Mus., XXIII, p. 476, 1901.

BATRACHIANS OF KEEWATIN.

We made a small collection of the species of frogs noted during the trip, and extended their previously recorded ranges. A gradual shortening of the hind legs as the northern limit of the ranges of these species is approached seems to be the rule, and is evidently correlated with the shorter period of activity. In addition to this collection I include references to several species of frogs and salamanders recorded by Cope from the region about James Bay, and from the mouth of Nelson River.

Rana pipiens Gmel. Leopard Frog.

We noted this species at two points—in the meadows near Norway House, where it was fairly common, and at Sea Falls, about 20 miles farther north, where we saw several individuals while we were making a portage. We collected two specimens at each place.

Rana palustris Le Conte. Le Conte Leopard Frog.

Cope records specimens from James Bay, collected by C. Drexler.^a These specimens, which are preserved in the U. S. National Museum, have been re-examined in connection with this report.

Rana cantabrigensis latiremis Cope. Northern Wood Frog.

We collected a series of wood frogs that includes specimens from Taft's Fishery (on Great Playgreen Lake), Norway House, York Factory, and Fort Churchill. According to measurements, this series is referable to *latiremis* as restricted by Howe.^b

Eleven well-grown specimens from Norway House average: Length of body (nose to anus) 46.3; femur (measured from central line) 19.1; tibia 19.9. Seven specimens from York Factory average: Length of body 43.9; femur 18.7; tibia 17.7. A single specimen taken at Fort Churchill measures: Length of body 50; femur 19; tibia 19.

Cope records *cantabrigensis* from the mouth of Nelson River, and from James Bay.^c The James Bay specimens have not been critically examined, and may be nearer to *cantabrigensis* than to *latiremis*.

This frog was by far the most abundant species throughout the region between Lake Winnipeg and York Factory, and many were

^a *Batrachia of North America* (Bull. 34, U. S. Nat. Mus.), p. 409, 1889.

^b *Proc. Boston Soc. Nat. Hist.*, vol. 28, No. 14, p. 373, Feb., 1899.

^c *Batrachia of North America* (Bull. 34, U. S. Nat. Mus.), p. 437, 1889.

taken in our traps as well as by hand. At Fort Churchill, though frogs were reported to be frequently heard in the marshes, we were able to obtain but one specimen. This is characterized by extremely short legs, and differs further from any others collected in being heavily vermiculated on the sides with black. Most of the specimens collected have a grayish median dorsal stripe. The color from life of a York Factory specimen is as follows: Back grayish green, sparingly spotted with black, and with a greenish-white median dorsal stripe; beneath greenish white, darkest on sides.

Rana septentrionalis Baird.

Specimens recorded by Cope under the name *Rana cantabrigensis evittata* from Moose River, Ontario, are referable to *Rana septentrionalis*, as stated by Howe.^a

Chorophilus septentrionalis Boulenger. Northern Chorophilus.

Chorophilus septentrionalis Boulenger, Cat. Batrachia Salientia Brit. Mus., p. 335, 1882.

We found this species throughout the region between Lake Winnipeg and York Factory, and took specimens at the following localities: Taft's Fishery (Great Playgreen Lake), 1; Norway House, 3; Oxford House, 1; York Factory. 3.

These specimens appear to be referable to *septentrionalis*, the type locality of which is Great Bear Lake, as the tibio-tarsal joint does not reach the tympanum when the leg is stretched forward. The following brief description of the color was taken from a live specimen from Oxford House: Body light green above, greenish white beneath; body stripes bronzy lavender; tympanum brownish; hind legs light green above, flesh color beneath.

Amblystoma jeffersonianum platineum Cope.

Cope records a specimen collected by C. Drexler on Moose River.^b

Chondrotus microstomus Cope.

Cope records a specimen from Hudson Bay, probably from James Bay, collected by F. W. Hayden^c (probably mistake for W. Haydon).

Plethodon cinereus Green.

Cope records four specimens from 'Hudson's Bay Territory,' probably from the region about James Bay, collected by C. Drexler.^d

^a Proc. Boston Soc. Nat. Hist., vol. 28, No. 14, p. 374, Feb., 1899.

^b Batrachia of North America (Bull. 34, U. S. Nat. Mus.), p. 94, 1889.

^c Ibid., p. 103, 1889.

^d Ibid., p. 135, 1889.

INDEX.

[Names of new species in **bold-face type**.]

	Page.		Page.
<i>Abies balsamea</i>	13	Bear, Barren Ground.....	64
<i>Acanthis hornemanni</i>	118	black.....	64
<i>hornemanni exilipes</i>	118	polar.....	21, 64-65
<i>linaria</i>	118	Beaver, Canadian.....	48-49
<i>linaria holbrelli</i>	118	<i>Betula glandulosa</i>	17
<i>Accipiter atricapillus</i>	106	<i>nana</i>	20
<i>cooperi</i>	106	<i>papyrifera</i>	12, 13, 16
<i>pennsylvanicus</i>	106	Bibliography.....	27-38
<i>velox</i>	105-106	Birch.....	12
<i>Acer negundo</i>	12, 22	canoe.....	13, 16, 23
<i>Acorus calamus</i>	14	dwarf.....	17, 20
<i>Actitis macularia</i>	99-100	Birds.....	75-131
<i>Agialitis meloda circumcincta</i>	101-102	Bittern.....	91
<i>semipalmata</i>	101	least.....	91
<i>vocifera</i>	101	Blackbird, Brewer.....	117
<i>Agelaius phoeniceus</i>	116	red-winged.....	116
<i>Aix sponsa</i>	84-85	rusty.....	116-117
<i>Alces americanus</i>	43	yellow-headed.....	116
Alle alle.....	78	<i>Blarina brevicauda</i>	22
<i>Amblystoma jeffersonianum platinum</i>	134	Bluebird.....	131
<i>Ammodramus bairdi</i>	120	Bog-bean.....	17
<i>sandwichensis savanna</i>	120	<i>Bonasa umbellus togata</i>	103
<i>Ampelis cedrorum</i>	23, 124	<i>Botaurus lentiginosus</i>	91
<i>garrulus</i>	124	<i>Branta berniela</i>	90
<i>Anas boschas</i>	82-83	<i>canadensis</i>	93
<i>labradoria</i>	86	<i>canadensis hutchinsi</i>	90
<i>obscura rubripes</i>	83	<i>leucopsis</i>	91
<i>Anser albifrons gambeli</i>	89	<i>Bubo virginianus arcticus</i>	110
<i>fabalis</i>	90	Buckthorn.....	16
<i>segetum</i>	90	Buffalo-berry.....	21
<i>Anthus pensilvanicus</i>	23, 128	Canadian.....	16
<i>Antrostomus vociferus</i>	113	Buffle-head.....	86
<i>Aquila chrysaetos</i>	107	Bulrush.....	13
<i>Archibuteo lagopus sancti-johannis</i>	106-107	<i>Buteo borealis</i>	106
<i>Arctomys monax empetra</i>	47-48	<i>lineatus</i>	106
<i>Parryi</i>	46	<i>platypterus</i>	106
<i>Arctostaphylos uva-ursi</i>	56	<i>swainsoni</i>	106
<i>Ardea herodias</i>	92	<i>Calcarius lapponicus</i>	23, 119
<i>Ardea exilis</i>	91	<i>pectus</i>	23, 120
<i>Arenaria interpres</i>	102	<i>Calidris arenaria</i>	97
<i>morinella</i>	102	<i>Calla palustris</i>	15
<i>Arvicola hudsonius</i>	58	<i>Campolaimus labradorius</i>	86-87
<i>Asio accipitrinus</i>	109	<i>Canachites canadensis</i>	22, 102-103
<i>wilsonianus</i>	109	<i>Canis albus</i>	61-62
<i>Aythya affinis</i>	85	<i>occidentalis</i>	62
<i>americana</i>	85	Canvas-back.....	85
<i>marila</i>	85	Caribou, Barren Ground.....	21, 23, 41-43
<i>vallisneria</i>	85	woodland.....	40-41
<i>Balena mysticetus</i>	39	<i>Carpodacus purpureus</i>	23, 118
Baldpate.....	83	<i>Castor canadensis</i>	48-49
<i>Bartramia longicauda</i>	99	<i>Ceophloeus pileatus abieticola</i>	112
Basswood.....	11	<i>Cephalus mandti</i>	77
Bat, little brown.....	73	<i>Ceryle alcyon</i>	111
<i>Batrachians</i>	133-134	<i>Charadrius dominicus</i>	101

	Page.		Page.
Charadrius melodus	101	Duck, scaup	85
Charitonetta albeola	86	wood	84-85
Chaulelasmus streperus	83	Dunlin	96
Chen caerulescens	89	Eagle	14
hyperborea nivalis	89	bald	107
rossi	89	golden	107
Chickadee	128-129	Ectopistes migratorius	105
Hudsonian	129	Eider, American	87
long-tailed	129	king	87-88
Chipmunk, Lake Superior	45-46	northern	87
northeastern	45	Pacific	87
Chondrotus microstomus	134	Eleagnus argentea	16
Chordeiles virginianus	22, 113	Elm	11
Chorophilus, northern	134	Elymus mollis	20, 52
Chorophilus septentrionalis	134	Emberiza nivalis	119
Circus hudsonius	105	Empetrum nigrum	17, 20
Cistothorus stellaris	128	Empidonax minimus	114
Clangula clangula americana	85	trailli alnorum	114
islandica	86	Equisetum	16
Coccythraustes vespertinus	117	Erethizon dorsatum	59
Colaptes auratus luteus	112	Ereunetes pusillus	97
Colymbus auritus	75	Erignathus barbatus	70-71
holbelli	75	Erismatura jamaicensis	88
Condylura cristata	23, 73	Eutamias neglectus	45-46
Contopus borealis	114	Evotomys gapperi	50-51
Coot	93	Falco columbarius	108
Cormorant, double-crested	81-82	hudsonius	105
Corvus americanus	116	islandus	107
corax principalis	115-116	peregrinus anatum	107-108
Corylus americana	12	richardsoni	108
rostrata	12	rusticolus gyrfalco	107
Crane, little brown	92	sparverius	108
whooping	92	Fiber zibethicus hudsonius	38, 53-54
Cratægus coccinea	12	Finch, purple	118
Crossbill, red	118	Fir, balsam	13
white-winged	118	Fisher	69
Crow	116	Flicker, northern	112
Crowberry, black	17, 20	Flycatcher, alder	114
Crymophilus fulvicaeus	93-94	least	114
Curlew, Eskimo	100	olive-sided	114
Hudsonian	100	scissor-tailed	113
Cyanocitta cristata	115	Fox, Continental Arctic	62-63
Cystophora cristata	70	red	62
Dafla acuta	84	Fringilla hudsonia	122
Delphinapterus catodon	40	Frog, leopard	133
Dendroica æstiva	125-126	northern wood	133-134
blackburniæ	126	Fulca americana	93
castanea	126	Fulmar	81
coronata	126	Fulmarus glacialis	81
maculosa	23, 126	Gadwall	83
palmarum	126	Gallinago delicata	94
palmarum hypochrysea	127	major	95
striata	126	Gavia adamsi	76
tigrina	125	arctica	76
Dicrostonyx	19, 20, 21	imber	75-76
richardsoni	55-58	lumme	77
Dove, mourning	105	pacificæ	76-77
Dovekie	78	Geothlypis philadelphia	127
Dowitcher, long-billed	95	Godwit, Hudsonian	97-98
Dryobates pubescens medianus	111	marbled	97
villosus leucomelas	111	red-breasted	97
Duck, harlequin	86	Golden-eye	85
Labrador	86-87	Barrow	86
lesser scaup	85	Goose, barnacle	91
red-legged black	83	bean	90
ruddy	88	blue	89

	Page.		Page.
Goose, Canada.....	90	Jaeger, pomarine.....	20, 78
greater snow.....	89	Jay, blue.....	115
Hutchins.....	90	Canada.....	115
Ross snow.....	89	Junco hyemalis.....	122
white-fronted.....	89	Junco, slate-colored.....	122
Grackle, bronzed.....	117	Killdeer.....	101
Grebe, Hobbell.....	75	Kingbird.....	113
horned.....	75	Kinglet, golden-crowned.....	129
pied-billed.....	75	ruby-crowned.....	129
Grosbeak, evening.....	117	Kittiwake.....	79
rose-breasted.....	123	Knot.....	95
pine.....	117-118	Lagopus lagopus.....	23, 103-104
Grouse, Canadian ruffed.....	103	ruepestris.....	104
Hudsonian spruce.....	102-103	Lanius borealis.....	124
sharp-tailed.....	104	Larix laricina.....	13
Grus americanus.....	92	Lark, horned.....	19, 20, 114
canadensis.....	92	Hoyt horned.....	114-115
Guillemot, Mandt.....	77	Larus argentatus.....	79
Gull, Bonaparte.....	80	delawarensis.....	79-80
Franklin.....	80	franklini.....	80
glaucous.....	79	glaucus.....	79
great black-backed.....	79	keeask.....	78
herring.....	79	leucopterus.....	79
Iceland.....	79	marinus.....	79
ivory.....	79	philadelphia.....	80
ring-billed.....	79-80	roseus.....	80
Ross.....	80	rossii.....	80
Sabine.....	80	Ledum.....	17
Gulo luscus.....	69	palustre.....	20
Gyrfalcon.....	107	Lemming.....	19, 20, 21
white.....	107	Back.....	54-55
Haliaeetus leucocephalus.....	107	pied.....	20
Hare, Arctic.....	21	Richardson.....	23, 55-58
Hudson Bay varying.....	59	Lemmus.....	20
Keewatin Arctic.....	59-61	trinueronatus.....	54-55
Harelda hyemalis.....	86	Lepargyrea canadensis.....	16, 21
Hawk, broad-winged.....	106	Lepus americanus.....	59
Cooper.....	106	arcticus canus.....	38, 59-61
duck.....	107-108	Life zones.....	22-23
marsh.....	105	Lily, pond.....	13
pigeon.....	108	Limosa fedoa.....	97
red-tailed.....	106	haemastica.....	23, 97-98
rough-legged.....	106	Longspur, Lapland.....	20, 61, 119
sharp-shinned.....	105-106	Smith.....	19, 120
sparrow.....	108	Lonicera glaucescens.....	16
Swainson.....	106	Loon.....	75-76
Hawthorn.....	12	black-throated.....	76
Hazel.....	12	Pacific.....	20, 76-77
Helminthophila celata.....	125	red-throated.....	20, 77
peregrina.....	125	yellow-billed.....	76
Helodromas ochropus.....	99	Lophodytes cucullatus.....	82
solitarius.....	99	Loxia curvirostra minor.....	118
Heron, great blue.....	92	leucoptera.....	118
Heteractites incanus.....	99	Lutra canadensis.....	65
Heterocelus brevipes.....	93	Lutreola vilson lacustris.....	38, 66
Hirundo erythrogastra.....	123	Lynx, Canada.....	61
Histrionicus histrionicus.....	86	Lynx canadensis.....	22, 61
Honeysuckle.....	16	Macrorhampus scolopaceus.....	95
Hydrochelidon nigra surinamensis.....	81	Magpie.....	115
Hylocichla affinis.....	129-130	Mallard.....	82-83
fusciceps salicicola.....	129	Mammals.....	39-73
guttata pallasi.....	130	Maple, ash-leaved.....	12
ustulata swainsoni.....	22, 130	Mareca americana.....	83
Icterus galbula.....	22, 116	Marten, Hudson Bay.....	68
Jaeger, long-tailed.....	78-79	Martin, purple.....	123
parasitic.....	20, 78	Meadowlark, western.....	116

	Page.		Page.
Megalestris skua	78	Olor columbianus	91
Megascops asio	110	Oriole, Baltimore	116
Melospiza georgiana	123	Osprey	108
lincolni	123	Otocoris alpestris	114
melodia	122	alpestris hoyti	114-115
Menyanthes trifoliata	17	Otter, Canada	65
Mephitis mephitis	65	Oven-bird	127
Merganser	82	Ovibos moschatus	43-44
hooded	82	Owl, Arctic horned	110
red-breasted	82	barred	109
Merganser americanus	82	great gray	109-110
serrator	82	hawk	111
Merlin, Richardson	108	long-eared	109
Merula migratoria	130	Richardson	110
Micropalama himantopus	95	saw-whet	110
Microtus	20	screech	110
aphorodermus	38, 52-53	snowy	110-111
drummondii	51-52	Pagophila alba	79
xanthognathus	53	Pandion haliaëtus carolinensis	108
Milfoil, water	15	Parus atricapillus	128-129
Milvulus forficatus	113	atricapillus septentrionalis	129
Mink, Keewatin	66	hudsonicus	22, 129
Mniotilta varia	125	Passerella iliaca	123
Mole, star-nosed	73	Passerina nivalis	119
Monodon monoceros	39-40	Pediæcetes phasianellus	104
Moose, eastern	43	Pelecanus erythrorhynchos	82
Mosquito	13, 18	Pelican, white	82
Mouse, clouded white-footed	49-50	Perisoreus canadensis	22, 115
house	49	Peromyscus canadensis umbrinus	49-50
Hudson Bay jumping	58	Petrochelidon lunifrons	123
meadow	20	Phalacrocorax dilophus	81-82
red-backed	50-51	Phalarope, northern	94
Murre	77	red	93-94
Brünnich	77	Wilson	94
Mus empetra	47	Phalaropus lobatus	23, 94
musculus	49	Phenacomys, Mackenzie	50
Muscivora forficata	113	Phenacomys mackenzii	38, 50
Musk-ox	23, 43-44	Philohela minor	94
Muskkrat, Hudson Bay	53-54	Phoca grœnlandica	70
Mustela americana abieticola	38, 68	hispidâ	70
pennanti	22, 69	vitulina	71
Myotis lucifugus	73	Phœbe	113-114
Myrica gale	16	Pica pica hudsonia	115
Myriophyllum	15	Picea alba	13
Narwhal	39-40	nigra	13
Neosorex palustris	71-72	Picoides americanus	112
Neotoma drummondii	50	arcticus	22, 112
Nettion carolinensis	83-84	tridactylus	112
New species	38	Pigeon, passenger	105
Night-hawk	113	Pine, Banksian	13, 16, 23
Numenius borealis	100	Pinicola enucleator leucura	117-118
hudsonicus	23, 100	Pintail	84
Nuthatch, red-breasted	128	Pinus divaricata	13, 16
white-breasted	128	Pipit	128
Nyctala acadica	110	Plethodon cinereus	134
tengmalmi richardsoni	110	Plover, belted piping	101-102
Nyctea nyctea	110-111	black-bellied	100
Nymphæa	13	golden	101
Oak, mossy cup	11	semipalmated	17, 101
Odobenus rosmarus	69-70	Podilymbus podiceps	75
Oidemia americana	88	Pond-weed	15, 17
deglandi	88	Pœcætes gramineus	120
perspicillata	88	Poplar	12
Olbiorchilus hiemalis	128	aspens	13, 16, 23
Old-squaw	86	balsam	13, 23
Olor buccinator	91	Populus balsamifera	12, 13

	Page.		Page.
<i>Populus tremuloides</i>	13, 16	Scoter, white-winged	88
Porcupine, Canada	59	<i>Scotiaptex nebulosum</i>	109
<i>Porzana carolina</i>	92-93	Scouring-rush	16
<i>novaboracensis</i>	93	Seal, bearded	70-71
Potamogeton	15, 17	harbor	71
<i>Potentilla tridentata</i>	14	harp	70
<i>Progne subis</i>	123	hooded	70
<i>Ptarmigan, rock</i>	104	rough	70
willow	20, 103-104	<i>Sciurus aurocapillus</i>	127
<i>Putorius arcticus</i>	67	<i>novaboracensis notabilis</i>	127
<i>cicognani</i>	67	<i>Setophaga ruticilla</i>	128
<i>cicognani richardsoni</i>	67	Shoveller	84
<i>rixosus</i>	67-68	Shrew, Coles	73
Rail, yellow	18, 93	eastern	72
Virginia	92	Keewatin	72-73
<i>Rallus virginianus</i>	92	marsh	71-72
<i>Rana cantabrigensis latiremis</i>	133	Richardson	73
<i>palustris</i>	133	Shrike, northern	124
<i>pipiens</i>	133	<i>Sialia sialis</i>	23, 131
<i>septentrionalis</i>	134	Silver-berry	16
<i>Rangifer arcticus</i>	41-43	Siskin, pine	119
caribou	40-41	<i>Sitta canadensis</i>	128
Raven, northern	115-116	<i>carolinensis</i>	128
Redhead	85	Skua	78
Redpoll	20, 118	Skunk, Canada	65
Greenland	118	Snipe, greater	95
hoary	118	Wilson	94
Holtboll	118	Snowflake	119
Redshank	98	<i>Somateria dresseri</i>	87
Redstart	128	<i>mollissima borealis</i>	87
<i>Regulus calendula</i>	129	<i>spectabilis</i>	87-88
<i>satrapa</i>	22, 129	<i>v-nigra</i>	87
<i>Rhamnus alnifolia</i>	16	Sora	92-93
<i>Rhodostethia rosea</i>	80	Sorex (Microsorex) aluorum	38, 72-73
<i>Riparia riparia</i>	124	<i>personatus</i>	72
<i>Rissa tridactyla</i>	79	<i>richardsoni</i>	73
Robin	130	<i>sphagnicola</i>	73
<i>Querens macrocarpa</i>	11, 22	Sparrow, Baird	120
<i>Querquedula discors</i>	84	chipping	122
<i>Quisenlus quiscula aeneus</i>	117	clay-colored	122
<i>Salix angularum</i>	20	fox	123
<i>phylicifolia</i>	20	Harris	120-121
Sanderling	97	Lincoln	123
Sandpiper, Baird	96	savanna	20, 120
Bartramian	99	song	122
buff-breasted	99	swamp	123
green	99	tree	20, 122
least	96	white-crowned	121
pectoral	96	white-throated	121-122
purple	95-96	<i>Spatula clypeata</i>	84
red-backed	96-97	<i>Spermophile, Hudson Bay</i>	46-47
semipalmated	97	<i>Spermophilus parryi</i>	46-47
solitary	99	<i>Sphyrapicus varius</i>	112
spotted	99-100	<i>Spinus pinus</i>	119
stilt	95	<i>Spizella monticola</i>	122
white-rumped	96	<i>pallida</i>	122
Sapsucker, yellow-bellied	112	<i>socialis</i>	122
<i>Saxicola oenanthe leucorhoa</i>	131	Spruce, black	13
<i>Sayornis phoebe</i>	113-114	white	13
<i>Scirpus lacustris</i>	13	<i>Squatrola squatarola</i>	100
<i>Sciuropterus sabrinus</i>	44-45	Squirrel, Hudson Bay flying	41-45
<i>Scirpus hudsonicus</i>	45	Hudson Bay red	45
<i>Scotocophagus carolinus</i>	116-117	<i>Steganopus tricolor</i>	94
<i>cyanocephalus</i>	117	<i>Stereorarius longicaudus</i>	78-79
Scoter, American	88	<i>parasiticus</i>	78
surf	88	<i>pomarinus</i>	78

	Page.		Page.
<i>Stercorarius richardsoni</i>	78	<i>Vireo olivaceus</i>	124-125
<i>Sterna caspia</i>	81	<i>philadelphicus</i>	125
<i>hirundo</i>	81	<i>solitarius</i>	125
<i>paradisaea</i>	81	<i>Vireo Philadelphia</i>	125
<i>Strix cinerea</i>	109	<i>red-eyed</i>	124-125
<i>nebulosa</i>	109	<i>Vole, Barren Ground</i>	52-53
<i>Sturnella magna neglecta</i>	116	<i>chestnut-cheeked</i>	53
<i>Surnia ulula caparoch</i>	111	<i>Drummond</i>	51-52
<i>Swallow, bank</i>	124	<i>northern lemming</i>	54
<i>barn</i>	123	<i>Vulpes fulvus</i>	62
<i>cliff</i>	123	<i>lagopus innuitus</i>	38, 62-63
<i>tree</i>	124	<i>Walrus, Atlantic</i>	69-70
<i>Swan, trumpeter</i>	91	<i>Warbler, bay-breasted</i>	126
<i>whistling</i>	91	<i>black and white</i>	125
<i>Sweet-flag</i>	14	<i>blackburnian</i>	126
<i>Symphoricarpos occidentalis</i>	12	<i>black-poll</i>	126
<i>Synaptomys (Mictomys) bullatus</i>	38, 54	<i>Canadian</i>	128
<i>Syrnium nebulosum</i>	109	<i>Cape May</i>	125
<i>varium</i>	109	<i>magnolia</i>	126
<i>Tachycineta bicolor</i>	124	<i>myrtle</i>	126
<i>Tamarack</i>	13, 21, 23	<i>orange-crowned</i>	125
<i>Tamias quadrivittatus</i>	46	<i>palm</i>	126
<i>striatus lysteri</i>	45	<i>Tennessee</i>	125
<i>Tattler, wandering</i>	99	<i>Wilson</i>	127-128
<i>Tea, Labrador</i>	17, 20	<i>yellow</i>	125-126
<i>Teal, blue-winged</i>	84	<i>yellow palm</i>	127
<i>green-winged</i>	83-84	<i>Water-thrush, Grinnell</i>	127
<i>Tern, Arctic</i>	17, 19, 81	<i>Waxwing, Bohemian</i>	124
<i>black</i>	81	<i>cedar</i>	124
<i>Caspian</i>	81	<i>Weasel, Bangs</i>	67-68
<i>common</i>	81	<i>Bonaparte</i>	67
<i>Tetrao canadensis</i>	102	<i>Richardson</i>	67
<i>phasianellus</i>	104	<i>tundra</i>	67
<i>Thalarectos maritimus</i>	64-65	<i>Whale, Greenland</i>	39
<i>Thrush, gray-cheeked</i>	129-130	<i>white</i>	40
<i>hermit</i>	130	<i>Wheatear, Greenland</i>	131
<i>olive-backed</i>	130	<i>Whip-poor-will</i>	113
<i>willow</i>	129	<i>Wilsonia canadensis</i>	23, 128
<i>Tilia americana</i>	11-12	<i>pusilla</i>	127
<i>Totanus flavipes</i>	98	<i>Wolf, Barren Ground</i>	61-62
<i>melanolencus</i>	98	<i>gray</i>	62
<i>totanus</i>	98	<i>Wolfberry</i>	12
<i>Tringa alpina</i>	96	<i>Wolverine, Hudson Bay</i>	69
<i>alpina pacifica</i>	96-97	<i>Woodchuck, Canadian</i>	47-48
<i>bairdi</i>	96	<i>Woodcock</i>	94
<i>canutus</i>	95	<i>Woodpecker, Arctic three-toed</i>	112
<i>fuscicollis</i>	96	<i>downy</i>	111
<i>maculata</i>	96	<i>northern pileated</i>	112
<i>maritima</i>	95-96	<i>striped-backed three-toed</i>	112
<i>minutilla</i>	96	<i>Wood-rat, Drummond</i>	50
<i>Tryngites subruficollis</i>	99	<i>Wren, short-billed marsh</i>	128
<i>Turnstone, ruddy</i>	102	<i>winter</i>	128
<i>Tyrannus tyrannus</i>	113	<i>Xanthocephalus xanthocephalus</i>	116
<i>Ulmus americana</i>	11, 22	<i>Xema sabinii</i>	80
<i>Uria lomvia</i>	77	<i>Yellow-legs</i>	98
<i>troile</i>	77	<i>greater</i>	98
<i>Ursus americanus</i>	64	<i>Zamelodia ludoviciana</i>	123
<i>richardsoni</i>	64	<i>Zapus hudsonius</i>	58
<i>Viburnum</i>	12	<i>Zenaidura macroura</i>	22, 105
<i>small-flowered</i>	16	<i>Zonotrichia albicollis</i>	22, 121-122
<i>pauciflorum</i>	16	<i>leucophrys</i>	22, 121
<i>Vireo, blue-headed</i>	125	<i>querula</i>	120-121

