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ORNITHOLOGICAL RESULTS OF THE BAFFIN ISLAND EXPEDITIONS OF 1928–1929 AND 1930–1931, TOGETHER WITH MORE RECENT RECORDS[1]

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Plates 1, 2

INTRODUCTION

THE chief object of the present paper is to record the writer's bird observations of the two southern Baffin Island expeditions which were carried out for the Dominion Government from 1928 to 1931. These were closely interrelated in the broader objectives; they also constituted a logical continuation of the work commenced on two former expeditions undertaken for the National Museum of Canada. The first of the latter projects covered the eastern Canadian Arctic, in general, during the cruise of the C. G. S. *Arctic* in 1923, while the second was devoted to widespread investigations in south-central and southwestern Baffin Island from 1924 to 1926. The results of these first two expeditions, together with many notes by earlier naturalists, were published in 'A Faunal Investigation of Southern Baffin Island,' 1928. To secure a complete picture of the avifaunal resources of the territory in question, this publication should be read in conjunction with the present report. In addition, there are many valuable papers listed in the bibliography which deal with various phases of the subject.

The bird investigations of 1928 to 1931, recorded in the present paper, were designed as much as possible to cover territory not explored on the two earlier expeditions. In actual field work the plan was notably successful, although a slight overlapping necessarily occurred in the Cape Dorset locality. However, as most of the work was conducted here earlier and later in the season than during the

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(*Upper figure*), COASTAL HILLS OF PRE-CAMBRIAN ROCK AT LAKE HARBOUR, BAFFIN ISLAND, JULY, 1931. ALL HIGHER ELEVATIONS ARE REFERABLE TO THE *Desert Tundra* (*c*). MODIFIED *Grass Tundra* (*b*) CONDITIONS PREVAIL IN MANY OF THE MOIST, SHELTERED VALLEYS.

(*Lower figure*), HEAVY GROWTH OF WILLOWS ALONG A BROOK TRIBUTARY TO SOPER RIVER IN LATITUDE 63° 08′ 53″ N., NORTH OF LAKE HARBOUR, BAFFIN ISLAND. ECOLOGICAL CONDITIONS REPRESENTATIVE OF THE POLAR *Transition Zone* (*a*). EARLY JULY, 1931.

summer of 1926, there is scarcely any similarity in the results. By far the greater part of the investigations was carried out in more remote areas. Most of the region at that time had not been previously visited by any naturalist, and, incidentally, it still holds true that as yet the author is the only one to have primarily pursued wild-life inquiries over certain extensive coastal and interior areas of southern Baffin Island.

On his third Arctic expedition, the writer proceeded to southwestern Baffin Island aboard the S. S. *Nascopie,* arriving at Cape Dorset in late July, 1928. Headquarters were established in the Hudson's Bay Company post at that place for the following year. Long journeys were immediately undertaken with Eskimo assistants along the coast to the east and west and into the interior. During August, a trip was made to Cape Dorchester. In September, the party travelled to Andrew Gordon Bay, thence north through a chain of lakes to Ungmaluktuk Lake in latitude 65° N.; return to Cape Dorset was made on October 1. As winter was now setting in, serious travel was impossible for many following weeks and investigations were consequently confined to the Cape Dorset locality.

In January, 1929, an overland traverse of Foxe Peninsula was run from Andrew Gordon Bay to Nuwata, thence eastward to Ungmaluktuk, Shidawatalik, and Tessikjuak lakes, with a return to Cape Dorset via Andrew Gordon Bay. This was followed by extensive detail work in the Cape Dorset sector. The party then left on the longest journey of the expedition; a third crossing of the Foxe Peninsula interior was made from Andrew Gordon Bay to Bowman Bay, thence the west coast was explored to the mouth of Hantzsch River in latitude 67° 33′ 30″ N., and the latter ascended for 39 miles from the sea. A return was then made to Foxe Basin over a new route across the tundra; this part of the coast was then retraced to Bowman Bay to recover supplies at previously established depots en route. Following a reconnaissance survey to Putnam Highland as a side-trip, the fourth traverse of Foxe Peninsula was run from Bowman Bay to Andrew Gordon Bay, via a route west of Tessikjuak Lake. This entailed a non-stop journey of 35 days, from March 11 to April 14, over a distance of 820 miles.

The fifth and last major undertaking involved a journey east from Cape Dorset to Chorkbak Inlet, from which the fifth track survey of Foxe Peninsula was carried northeast across the interior to Bowman Bay and north. A summer camp (Camp Kunkovik) was established on Blue Goose River in latitude 65° 35′ 18″ N., which was

occupied from May 24 to July 20. It was during this period that a study of the Blue Goose was made and zoological activities in general carried out on a comparatively large scale. Return was made by canoe down Blue Goose River to Bowman Bay and along the south coast of Foxe Basin to the mouth of Kommanik River. This river was then ascended and the journey continued via the lake chain over the height of land to Andrew Gordon Bay, and thence to Dorset. The party was absent from headquarters for three months, beginning May 17, 1929 (Soper, 1930d). Work was then carried out in late August from Cape Dorset to Lake Harbour. The writer returned to civilization on the S. S. *Beothic.*

Again under instructions from the Department of the Interior, Ottawa, the writer sailed for Lake Harbour in July, 1930, aboard the S. S. *Nascopie* from Montreal, and took up residence there for a year. Sufficient materials were taken north a few weeks later on the S. S. *Beothic* to build a research station as headquarters. During the year in the region, the same plans for investigations were followed as on the former expedition, in which biological and other work was combined with surveys of coasts and interior.

Minute attention was given to the main coast from Crooks Inlet southeastward to Ayde Point, near Icy Cove, with somewhat extended investigations locally into the interior from several feasible points. Much detailed work was carried out in the general neighborhood of Lake Harbour and west through White Strait. The major undertaking of 1931, aside from the investigations on the outer coastline east and west of North Bay, was the exploration and survey of Soper River, north through the mountains to Mount Joy and beyond, to latitude 63° 16′ N. (Soper, 1936). Taking the Hudson's Bay Company's S. S. *Ungava* from Lake Harbour, the return was made to Ottawa via Port Churchill, Hudson Bay, during the early part of August, 1931.

The region covered by these investigations embraces a direct coastline distance of nearly 800 miles, as well as large bordering and extraterritorial areas of the interior. In pursuit of the desired information the writer made journeys by freighter canoe and dog sledge over a total travelled distance of some 4,500 miles, bringing under more or less direct observation an area of not less than 10,000 square miles. From a geographic angle, uniting direct observation with correlation of widespread route survey data, the area retrieved from the unknown may be said to represent a tract of no less than 20,000 square miles. It was in this newly explored territory in

southern and western Baffin Island that the avifaunal information of the present report was secured.

It is with deep personal pleasure that acknowledgement is here made of the numerous courtesies received during the course of the Baffin Island investigations through the unvarying kindness and coöperation of the Royal Canadian Mounted Police and Hudson's Bay Company officers. It is also with lasting gratitude that the many faithful Eskimo assistants of the expeditions are remembered, without whose loyal help the more ambitious plans could not have succeeded. At home, much appreciated coöperation was received from Dr. R. M. Anderson and Dr. A. L. Rand, National Museum of Canada, Ottawa, and especially Mr. P. A. Taverner who was formerly in charge of the ornithological section of that institution. Finally, acknowledgements are due to Mr. E. F. G. White, officers of the Royal Ontario Museum of Zoology and Mr. T. H. Manning, for kindly placing at my disposal Baffin Island records of birds acquired at various times after the close of the 1931 expedition. Since then most of these have been published.

The writer's total contribution to a knowledge of Baffin Island's higher vertebrates, so far as collected material is concerned, embraces a total of about 1,850 specimens taken from 1923 to 1931. Those preserved from 1923 to 1926, inclusive, were collected directly for the National Museum of Canada, while those taken from 1928 to 1931 were presented to that museum by the former Northwest Territories and Yukon Branch, Department of the Interior, Ottawa.

In nomenclature and sequence of species, the bird list follows the Fourth Edition of the American Ornithologists' Union Check-List, 1931, and the Nineteenth and Twentieth Supplements thereto. Descriptive colors are based on Ridgway's 'Color Standards and Color Nomenclature,' 1912. Measurements are in inches. The following account includes only those birds which were observed during the expeditions from 1928 to 1931, together with a few others that have been added to the southern Baffin Island list since that time. By following this course, the present report and that of 1928 conveniently include all species and subspecies recorded in the territory under consideration. A number of species are preceded by an asterisk; this is designed to draw the reader's attention to the fact that more lengthy treatment of these is to be found in the author's much earlier preliminary paper entitled, 'Interesting Bird Records for Southern Baffin Island,' 1934.

OTHER ORNITHOLOGICAL INVESTIGATORS

It is not proposed here to enter into a long discussion of southern Baffin Island explorations. A splendid, detailed account of this is given by Millward (1930), particularly for that period from 1874 until 1928, and should be consulted by all those interested in this historic background. Anything like lengthy investigations by qualified naturalists have been few.

The earliest faunal investigator in Baffin Island was Ludwig Kumlien of the Smithsonian Institution, Washington, D. C. As most of his observations in 1877–1878 were made in Cumberland Sound, and outside of the territory strictly dealt with here, casual mention is all that is necessary in this place (see Kumlien, 1879, and Taylor, 1937). Next in order was Bernhard A. Hantzsch, a German naturalist of Dresden, Saxony. From 1909 to 1911 he observed and collected from Blacklead Island, Cumberland Sound, west to Nettilling Lake and Foxe Basin. In the spring of the latter year he died and was buried by Eskimos about 12 miles north of the river that now bears his name (Hantzsch, Hesse and Rosenmuller, 1913–1915, and Anderson, 1928). Part of Hantzsch's work was done in territory involved in the present paper.

The Donald B. MacMillan Expedition, of 1921–1922, wintered in the motor-ship *Bowdoin* at Schooner Harbour (longitude 77° 52′ W., latitude 64° 24′ N.), west coast of Foxe Peninsula. Observations were made on the birds of the general vicinity during the winter and spring. In the year 1926, MacMillan again briefly visited southern Baffin Island in command of the Rawson-MacMillan Subarctic Expedition, Field Museum, Chicago. The following summer the *Bowdoin,* under temporary command of J. T. Crowell, Jr., circumnavigated Frobisher Bay, where the party made investigations in several branches of natural science, including zoology.

The Putnam Baffin Island Expedition in 1927 surveyed the north coast of Foxe Peninsula east to Bowman Bay and north to latitude 66° 17′ N. The expedition was chiefly concerned with geography, but a few references are made to birds in a geographic article published the next year (Putnam, 1928). In the summer of 1937, the Donald B. MacMillan Arctic Expedition again visited Frobisher Bay, Baffin Island, and engaged in faunal investigations. Apparently the only published result as yet is Forbes' (1938) paper on the Greenland Wheatear.

Dr. R. M. Anderson, National Museum of Canada, visited several points on Baffin Island during the Canadian Arctic Expedition

of 1928, adding to our knowledge of the wild life. The following summer, P. A. Taverner (1930), of the same institution, made a similar trip aboard the S. S. *Beothic* on the Dominion Government's annual expedition into the Arctic regions, during which many specimens of birds were secured. On government voyages of the same character some ornithological work was carried out in 1938 by T. M. Shortt, Royal Ontario Museum of Zoology, Toronto, and by H. S. Peters, in 1939, for the United States Fish and Wildlife Service, Washington; their results were jointly published in 1942.

After spending three years in and about Southampton Island, T. H. Manning (1942) of the British-Canadian Arctic Expedition crossed over to Baffin Island in 1938, where he worked until 1940. His most important faunal investigations on this island were conducted in northern Foxe Peninsula and north along the west coast, particularly at Taverner Bay. In association with him, at times, was Reynold Bray who was drowned in September, 1938 (McAtee, 1940). Results of his work were later published by Manning (Bray, 1943).

PHYSICAL CHARACTERISTICS

Much the greater part of the territory under review is either hilly or mountainous. However, surface conditions vary enormously from place to place; in general, the terrain is high and rugged in the east and south and gradually decreases in altitude to meet the great grass tundra along the west coast. Most of the country has a bleak and barren appearance characteristic of polar lands.

Three principal mountain ranges occupy the southeastern part of Baffin Island. All trend in a northwesterly direction nearly parallel with the northeastern coast of the island. The outer or northernmost range in Cumberland Peninsula is the highest, and the one along Hudson Strait the lowest. In the former, the mountains rise from about 5,000 to 8,000 feet, in that between Cumberland Sound and Frobisher Bay, 2,500 to probably 4,000 feet, and in the one bordering on Hudson Strait, from about 1,000 to 3,000 feet. This southernmost range rapidly decreases in height to the westward until at Cape Dorset and King Charles Cape it is no more than 800 to 1,000 feet in its highest parts (Soper, 1930b).

The land in the Lake Harbour district (Soper, 1936), including the coastal fringe of islands to the east and west, varies in height from 50 to 600 or 700 feet. Ten to 12 miles north of the harbor the well-marked southern wall of the interior highlands rises roughly parallel to the coast, with elevations of 1,200 to 1,500 feet; north-

ward there is a gradual increase in height to the top of the divide (at about 3,000 feet), which lies closest to Frobisher Bay. On the northern watershed of this peninsula the Grinnell Glacier apparently occupies an area of about 1,600 square miles. The mountains inland to the northeast of Markham Bay and southeast of Amadjuak Lake are probably the highest in the whole sector bordering upon Hudson Strait. Through the effects of weathering, most of the terrain is very rough, with numerous talus slides on the valley slopes.

Foxe Peninsula is characterized by far-reaching lowlands north of the big hill belt along Hudson Strait. These are interspersed with innumerable low ridges and several well-defined ranges of Laurentian rock with a northwest-southeast trend. Small lakes are plentiful, of which the largest known in the peninsula is Tessikjuak, with a length of 17 miles. The low, rolling terrain of northern Foxe Peninsula merges into the western grass tundra east and north of Bowman Bay. This plain extends from Putnam Highland along the Foxe Basin coast north beyond Koukdjuak River to latitude 67° 15′ N., and east to Nettilling Lake, with an area of about 5,500 square miles. Two conspicuous and isolated table-top plateaus of Ordovician limestone in part flank the grass tundra on the east—Soper Highland northwest of Nettilling Lake, averaging about 200 feet in height, and Putnam Highland northwest of Amadjuak Lake rising to 600 or 700 feet. Streams of varying size occur in large numbers, though many flow only during the spring run-off. The two largest known streams in the southern territory are Koukdjuak River, which drains Nettilling Lake, and Soper River that discharges into Hudson Strait near Lake Harbour.

One of the notable physical features of the south coast is the profusion of rocky islands that front it, particularly in its central section. In some areas they are very thickly clustered, forming a bewildering maze. This archipelago is most pronounced between Fair Ness and Chorkbak Inlet, where it extends from the coast to varying distances of 10 to 25 miles; it attains its maximum width in the neighborhood of Amadjuak Bay. Beyond Chorkbak Inlet the islands are much less numerous, as is also the case between North Bay and the Middle Savage Islands and eastwardly to Gabriel Strait.

CLIMATIC CONDITIONS

The climate of the region is essentially similar throughout. From place to place, however, there are generally some differences in the amount and direction of winds and in temperatures, snowfall, fog, and other phenomena. As these vary markedly from year to year in the

same place, the scantiness of data for the area renders definite comparisons impossible. On the whole, the climate seems to be somewhat milder in southeastern Baffin Island than in the western parts, and is naturally so in comparison with substantially higher latitudes. Winds are definitely less violent at Lake Harbour than at Cape Dorset or about Cumberland Sound.

Climatic conditions throughout are unconditionally Arctic; though the lower part of the region lies at the southeastern extremity of the Canadian Arctic Archipelago, it is still nearly 400 miles north of the climatic limit of the polar zones. For this boundary the mean isotherm of 50 degrees (Fahr.) for the warmest month of the year is usually adopted, which closely coincides with the tree limit of circumpolar lands.

The length of the southern Baffin Island winter fluctuates from year to year, but it may be said to last from late September until late May. Arrival of the first permanent snowfall of the season varies from about September 20 to early October. Slob ice begins to form in the bays and inlets late in September, but usually it is not very pronounced until the early half of October. Bay ice is normally safe for travel in late November. The small lakes and ponds freeze over in early October, if not sooner. Ice continues to increase in depth until about the last of April, as modified winter conditions prevail until about that time.

The first evidences of spring usually appear in early May. On occasional days the sun feels warm again in sheltered nooks, with a slight softening of the snow, and rocks are slowly exposed on the ridges. Once fairly under way, spring advances with the magical rapidity characteristic of the polar lands. By the middle of May there are great changes. Extensive areas of higher elevations and slopes are bare and brown, and during the third or last week of the month, the purple saxifrages begin to burst into bloom.

In southern Baffin Island the country is practically snow free by the middle of June. However, belated snowbanks commonly persist on shadowed northern slopes and on the high mountains until August. By late June the smaller lakes are again open, but the larger ones are progressively later according to size. Bodies such as Amadjuak and Nettilling lakes remain frozen over until late July or early August. The Arctic spring, although amazingly rapid in its action, is still laggard in many respects, fickle and fluctuating as to temperature, and with snow flurries some years until the middle of June. This month is essentially spring-like.

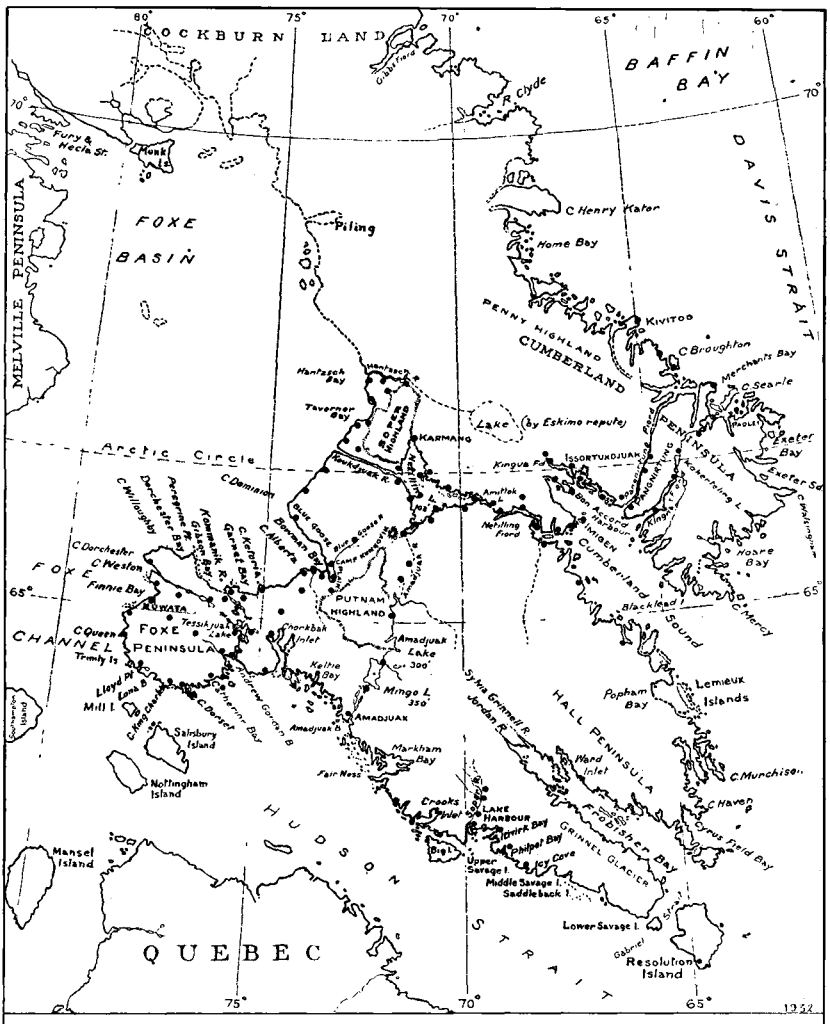
Summer may be regarded as commencing about the first of July. Insect life is aroused to great activity, flies and mosquitoes become annoying and bumblebees and various butterflies add a typical summer touch to the sheltered valleys. This season occupies about six or seven weeks of the year. By late August the nights become much cooler again, introducing numerous suggestions of early autumn. Another week and night-time freezing temperatures occur, with the crisp tang of fall days. Most of September is characteristically autumn, but with its later days, winter is once more reinstated, or close at hand.

The extreme range of temperature for the region is approximately 130 degrees; that is, from about 75 degrees above to 60 or 70 degrees below zero. July is the warmest month of the year, with a mean temperature of about 45 degrees. February is usually the coldest, with a monthly mean of about 20 degrees below zero, but sometimes this distinction falls to either January or March. The southwestern part of the island has a consistently colder climate (Soper, 1930d: 33–37) and a somewhat longer winter than the Lake Harbour region. Winter temperatures along the south and east coasts would be considerably lower were it not for the influence of much open sea all winter in Hudson and Davis straits. In closing, it may be broadly stated that degrees of frost steadily increase until late February or early March, when with the rapidly mounting sun the cold gradually diminishes until a maximum temperature of relative stability and uniformity is attained during July and early August.

THE ARCTIC LIFE ZONE

Baffin Island lies entirely within the Arctic Zone or Tundra Biome. Technically, the Arctic Circle (66° 33′ 03″ N.) becomes the southern edge of this division in the way it defines certain natural phenomena; it is, for example, the practical southern limit of day without night during the summer solstice and night without day at the winter solstice; all north of this line during midsummer is the "Land of the midnight sun." Owing, however, to the effects of cold, southward-setting ocean currents, of winds, slope, and temperature, the zoögeographic southern limit of the Arctic Zone is in many places far south of the Arctic Circle. Of the five areas into which this zone is divided, we are concerned here only with the Barren-ground Subfauna, which, including vast areas of the northern Canadian mainland and adjacent polar islands, totally embraces Baffin Island.

Because of certain well-recognized factors, a pronounced local dispersion of land fauna exists in Baffin Island which is well worthy



SOUTHERN BAFFIN ISLAND

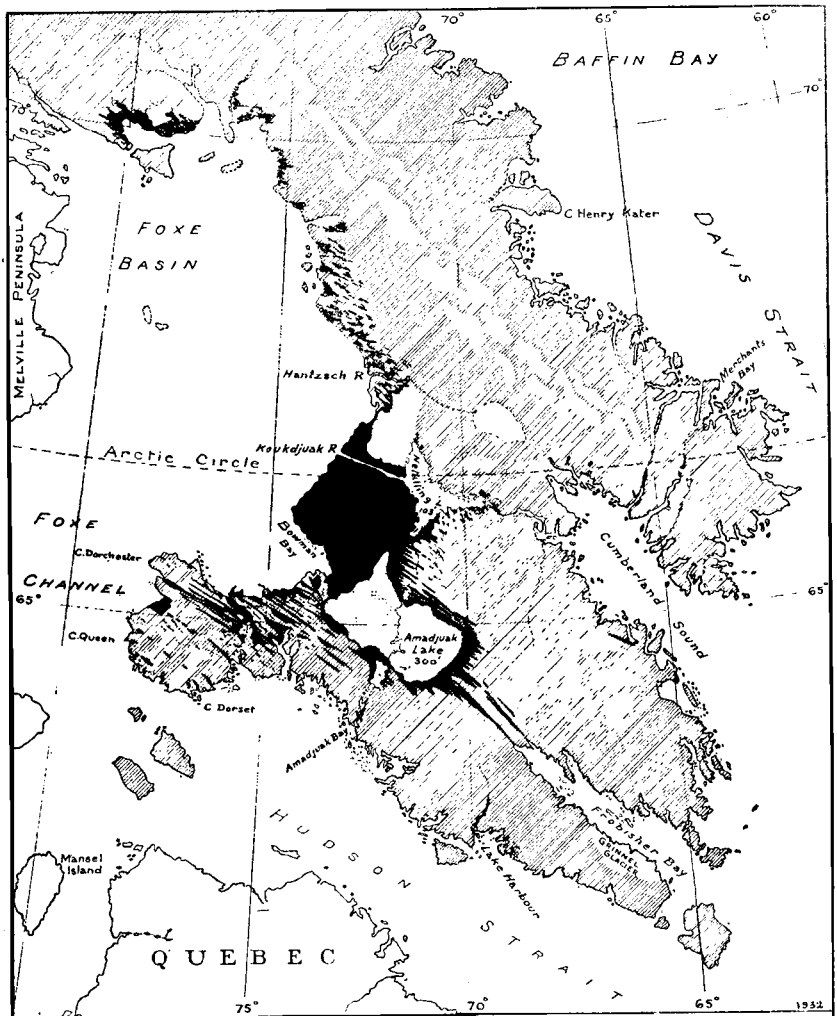
SCALE OF MILES

50 0 50 100 150 200 250

SKETCH MAP SHOWING LOCATION OF AUTHOR'S CAMPS FOR OBSERVATION AND COLLECTION OF SPECIMENS DURING VARIOUS EXPEDITIONS FROM 1923 TO 1931

Camps •

TEXT-FIGURE 1



SOUTHERN BAFFIN ISLAND

SKETCH MAP OUTLINING THE FLORA-CLIMATIC POLAR ZONES IN RELATION TO LOCAL DISTRIBUTION OF MAMMALS & BIRDS

SCALE OF MILES
50 0 50 100 150 200 250

Glaciers & Ice-fields, Polar Desert Zone; large areas provisional
Pre Cambrian mountain & hill masses, Desert Tundra Zone
Many incorporated valleys & flats referable to Grass Tundra Zone
Limestone Highlands, subdivision of the Desert Tundra Zone
Grass Tundra Zone Main western area flat and underlain with sedimentary rock
NOTE Polar Transition Zone areas too small to indicate

TEXT-FIGURE 2

of remark. Conditions are by no means uniform in the Arctic as one might imagine, but vary markedly in degree and extent. This especially encourages uneven distribution in the bird life. To get an intelligent grasp of the situation some classification is necessary. For this purpose it is proposed to use Nordenskjold's (1928) divisions of the polar world (which he refers to as zones) as the most useful and convenient; these express relationship between climate and vegetation and are four in number, as follows:

(a) A *transition zone* with small thickets of willow and, more exceptionally, of dwarf birch, alder, and mountain ash. Only the next zone, however, is truly polar; (b) the *grass tundra* interspersed with mosses and lichens and, on the whole, still having a continuous plant cover; (c) the *desert tundra* consisting of individuals of cushion and mat types of higher plants scattered and separated by areas that are either bare or overgrown with scanty lichens; (d) the *polar desert,* which comprises the vast areas of polar lands dominated by the inland ice.

These floral-climatic divisions of the polar world, as they occur in Baffin Island, are broadly delineated on the accompanying sketch map (Text-figure 2) as known at present. The territory under review may rightly be regarded as having representations of these ecological divisions from one extreme to the other. The two outer ones, however, are quite restricted. Owing to lack of space, this subject in relation to the dispersal of the avifauna cannot be discussed in detail here and, moreover, the writer has already published on this topic in The Auk, 57: 13–21, January, 1940, to which the reader is referred. For an immediate, broad understanding of the situation, however, a few brief comments may be made.

First, in respect to division (a), it may be said that several species of willows occur along Soper River, some 30 miles inland from North Bay, one of which, at least, grows up to 12 feet in height The Eskimos speak of other mountain valleys to the southeast where similar growths occur. In addition, the dwarf birch (*Betula nana*) develops bushes up to three or four feet high. It is obvious on grounds of vegetation that some highly localized areas of extreme southeastern Baffin Island are referable to the *polar transition zone* (a) as classified by Nordenskjold, and are fairly comparable (but in lesser degree) to this same zone that occurs in southwestern Greenland. Representative areas in sheltered valleys of southeastern Baffin Island are too restricted as yet to have attracted any peculiar fauna.

Most of the region, however, is to be placed in the first true polar zone (b), the *grass tundra,* with its prostrate shrubs, grasses, flow-

ering phanerogams, and, as well, a fairly continuous cover of mosses and lichens on open plains and favorable valley floors and sheltered slopes. A vast area of flat tundra lands in northern Foxe Peninsula and northward along the west coast of Baffin Island falls within this zone; also isolated tracts of rocky lowland along the coasts and in sheltered valleys all over the land. This is the great, intermediate zone of Baffin Island wild life, which harbors the majority of terrestrial species. Parts of this territory fairly teem with birds of numerous species and are by all odds the most attractive to the naturalist. Swampy portions are particularly rich in nesting waders and the section along the western coast north of Bowman Bay is also notable for its breeding Blue and Lesser Snow Geese.

The next two divisions, from a naturalist's viewpoint, are of minor interest. The *desert tundra* (c) is represented in Baffin Island by areas as great as, if not greater in extent than, that of the preceding zone. The present one is fixed on the elevated areas of Laurentian granites, etc., the cold mountain plateaus, and the table-tops of Putnam and Soper highlands. It also occupies large tracts of high and intermediate mountain slopes, and frequently the tops of hills and ridges only a few hundred feet high; the condition even creeps lower in many places where peculiarly rigorous, climatic conditions prevail. This zone is poor in bird life, but not devoid of it. The commoner species are Snow Bunting, American Pipit, Horned Lark and Rock Ptarmigan, but all of these are much more abundant on the *grass tundra.* On the whole, the *desert tundra,* especially in its more austere limits, will be found comparatively lifeless.

The *polar desert* (d) calls up visions of perpetual ice and snow. The Grinnell Glacier with an area of probably 1,600 square miles of ice is representative of this subdivision; it occurs on the north side of Grinnell Peninsula and discharges into Frobisher Bay—the only active glacier in southern Baffin Island. Farther north, in the magnificent 5,000 to 8,000-foot mountains of the Cumberland Highlands and northwestwards, large ice-fields of unknown extent occur in hanging valleys and on high plateaus. In the region under review the two zonal extreme occur by chance almost side by side; that is, as seen in the Grinnell Glacier on the north slope of the peninsula, and in the small, scattered areas of high willow shrubs in the Hudson Strait valleys south of the height of land. In winter the *polar desert zone* is absolutely lifeless, for no food exists; in summer, waves of migrating birds drift over the white fields in migration, or a few ubiquitous Snow Buntings curiously explore the scanty morainal debris of the ice wastes in search of spiders. Even in summer, however, it is practically lifeless.

ANNOTATED LIST OF BIRDS

1. **Gavia immer immer** (Brünnich), COMMON LOON. Eskimo: *Tūd"lĭk'*.—Very scarce throughout the entire length of the south and west coasts of Foxe Peninsula, though it is occasionally observed in various localities. During the voyage from Cape Dorset to Cape Dorchester and return in August 1928, not one was positively identified. It is there supplanted by the Red-throated Loon. On the September trip to the interior north of Andrew Gordon Bay, on the other hand, it was found common (and to the exclusion of *stellata*) on all fresh waters north to Tessikjuak and Ungmaluktuk Lakes.

The species is rare in the Bowman Bay sector. Only one was observed there (July 1) during the spring and summer, and none thereafter until the party reached Tessikjuak Lake in mid-August. The Pacific Loon, conversely, is common and the Red-throated Loon is scarce. These facts make it plainly evident that the different species of loons may, on occasion, have well-defined and locally separated breeding ranges. They are also known to overlap, however, for two species may be tolerably common in the same district, as *immer* and *pacifica* at Nettilling Lake.

Immer is relatively common in the Lake Harbour region, where it was noted on numerous occasions during August, 1930, especially about White Strait. The Eskimos report it in fair numbers on the numerous small lakes of Grinnell Peninsula, where it breeds regularly; its nests are said never to be numerous. It seems to be a well-established fact that this loon has a more distinct tendency—at least during the breeding season—to resort to freshwater lakes than to the sea. When the small lakes freeze over in early October it is forced to the larger lakes, or to salt water along the coast, where individuals are known to linger until at least the middle of the month.

The species usually arrives in Baffin Island during the first week of June. At Lake Harbour, in 1931, the first individual was noted on June 7, followed by numerous others migrating northwards during the next ten days. At this time the lakes, and all the bays and inlets along the coast, are still frozen over. In July, scattered examples were noted along Soper River, far into the interior, and in ponds along the coast southeast to Philpot Bay.

2. **Gavia arctica pacifica** (Lawrence), PACIFIC LOON. Eskimo: *Kūdlu"lĭk'*.—Like the Common Loon, this species is comparatively rare along the coasts of Foxe Peninsula. It is so uncommon, in fact, that not a single individual was positively recorded by the writer, in 1928, along the south and west coasts, nor in the interior north of Andrew Gordon Bay to the Foxe Basin watershed. Many of the Eskimos of the peninsula are unfamiliar with it, and Mr. Henry Voisey, after two years at Cape Dorset, did not know it.

In the spring of 1929 it was first noted at Camp Kungovik on June 11. It steadily increased in numbers until June 23, thereafter becoming one of the most characteristic birds of the tundra. On July 5, a set of two fresh eggs was collected on marshy ground at the margin of Blue Goose River. The nest consisted of a simple, shallow depression in the wet soil of the tundra, sparingly lined with grasses. The species was found almost as common along the south coast of Foxe Basin, especially in the region of Bowman Bay, and at Cape Alberta, where it was a familiar occupant of the small ponds and lakes, Its lonely wail was almost constantly heard floating with dismal insistence on the varying winds of the tundra—the most melancholy voice of the Arctic lands. During early August it was almost hourly seen, or heard, all along the low, southern coast of Foxe Basin. Upon ascending Kommanik River, the species became increasingly scarcer to the south, and finally almost disappeared on the Hudson Strait watershed.

The Pacific Loon is not as common as the preceding species in the Lake Harbour region. It was noted on a few occasions, at wide intervals, during the summer and fall of 1930, and again sparingly in the spring and summer of 1931. The Eskimos report these birds from various localities along the coast, and state that they nest both in the vicinity of the sea and about freshwater lakes in the interior. Apparently the species is nowhere very common in the region.

Two specimens of this loon were taken in the Lake Harbour district by Rev. C. L. W. Bailey and forwarded to the Royal Ontario Museum of Zoology. He secured one at the end of May near the settlement, and the other on June 17, 1930, at Saddleback Islands. The following day at an island off Big Island he collected an egg of the species from a nest located in a colony of eider ducks.

3. **Gavia stellata** (Pontoppidan), RED-THROATED LOON. Eskimo: *Kŏk'său.*—The Red-throated Loon is by far the commonest diver in the coastal areas of southwestern Foxe Peninsula. In August, 1928, it was observed in large numbers between Capes Dorset and Dorchester, where it breeds freely; the population, however, is concentrated to the northward of Cape Queen. It is particularly abundant in the vicinity of Nuwata and Cape Weston, where the coastal swamp lands with their plethora of small ponds and lakes are eminently suited to its requirements. On August 24, two adults were collected at Storm Cove, Cape Weston, as well as a downy young 13 inches in length. Southeast of Trinity Islands it is markedly scarcer, but persists with more or less frequency to Cape Dorset and eastwardly along Hudson Strait.

In the Bowman Bay region the Red-throated Loon is not uncommon, but much less numerous than the preceding species. It put in its first appearance at Camp Kungovik on June 22, 1929—eleven days later than *pacifica*—after which it was observed almost daily. Fair numbers were seen along the south coast of Foxe Basin to Kommanik River, but rapidly decreased southwards in the central interior north of Hudson Strait.

Along the southeastern coast of Baffin Island, *stellata* is a regular breeder. It was several times observed by the writer during August and September, 1930, about Lake Harbour and west to White Strait. In 1931 it made its first appearance on June 6. The following day, several individuals were noted in McKellar Bay, and a male and female collected. At this time they were frequenting the open sea along the floe-edge, tidal cracks in the ice near shore, and small, open ponds on the land. Although apparently almost indifferent to topographical conditions, it appears to favor lowlands with swampy lake surroundings for bringing forth its young. The most rugged and mountainous districts of eastern Baffin Island, however, also attract large numbers during the breeding season.

4. **Podilymbus podiceps** (Linnaeus), PIED-BILLED GREBE.—During the first week of November, 1932, one of these birds was taken at Fair Ness, Markham Bay, and forwarded by the Rev. C. L. W. Bailey to the Royal Ontario Museum of Zoology, Toronto (Snyder, 1935). This is a most unusual incident and constitutes the first and only record of the species in Baffin Island.

5. **Fulmarus glacialis glacialis** (Linnaeus), ATLANTIC FULMAR. Eskimo: *Kŏk''ŏdlŭk'.*—Not observed by the writer anywhere in the region from 1928 to 1931. Its rarity is, therefore, well established; that it occasionally occurs, however, is evident from the reports of the Eskimos at both Cape Dorset and Lake Harbour. They report that it is occasionally met with well off the coast in Hudson Strait.

It is not known to breed anywhere in the latter region, but it does so in several colonies along the east coast of Baffin Island.

6. **Phalacrocorax auritus** (Lesson), DOUBLE-CRESTED CORMORANT.—Through the courtesy of the Hudson's Bay Company, a cormorant skin was secured from an Eskimo in Frobisher Bay in February, 1931. This turned out to be not *carbo* as listed by Kumlien (1879: 94), but the present form, and supplies the first record for it in Baffin Island. The native who shot the bird said that it was taken the previous summer between Ward Inlet and Mingooktok, while it was drinking at the margin of a small sea-coast lake. The report was received that this was the first cormorant that the Eskimos, or others, had ever seen in that part of the country.

7. **Cygnus columbianus** (Ord), WHISTLING SWAN. Eskimo: *Kūŏd''jūk'*.—The Whistling Swan is occasionally observed migrating over Cape Dorset about the middle of June. The Eskimos report the species from time to time during the spring migration, in particular, and more frequently in the western part of the island than to the east. It is not known to breed anywhere along the south coast.

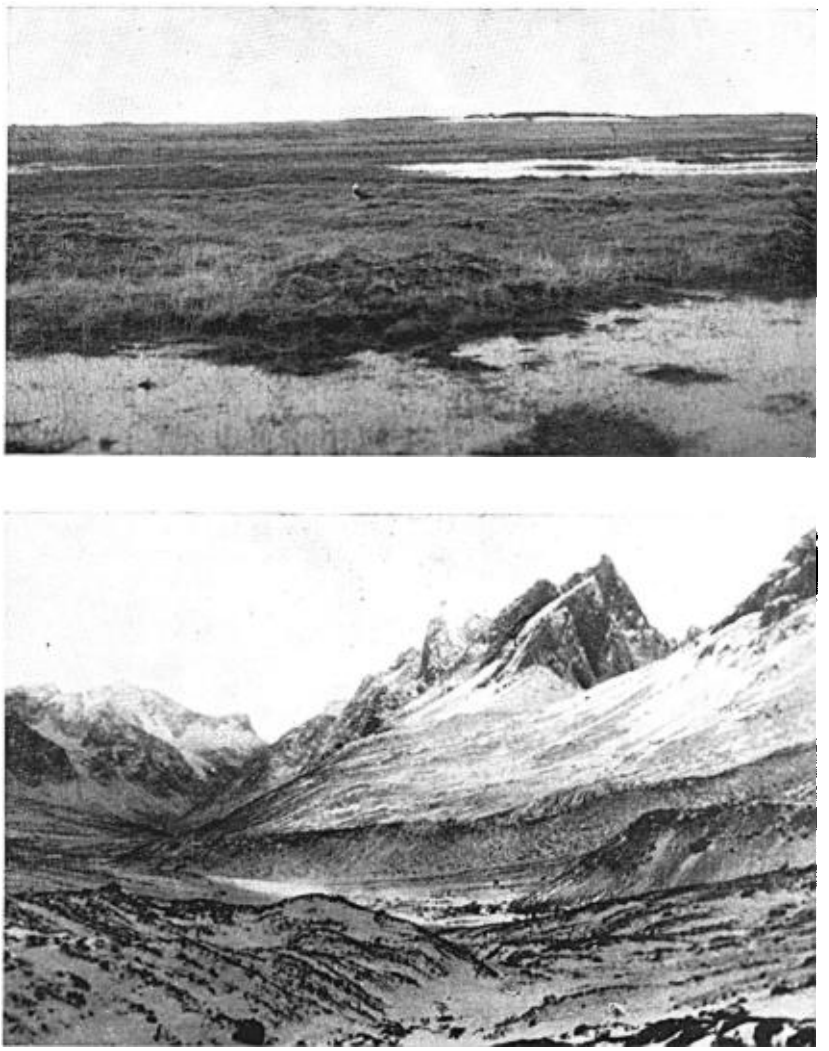
While encamped at the Eskimo settlement of Nuwata, on August 27, 1928, a native hunter presented me with four nearly full-grown but flightless immatures. More particularly are these of interest in view of the fact that they represent the first authentic evidence of the breeding of the Whistling Swan on the island. The Eskimos state that a few of these birds nest each year in this territory, but that on the whole the species is very scarce in Foxe Peninsula. A pair of adults with two large young of the season were encountered on Kommanik River, August 13, 1929, about five miles from Foxe Basin. These were the only swans observed during the summer.

The Lake Harbour Eskimos are more or less familiar with this bird, and state that it has occasionally been seen in the district. A summary of reports indicates, conclusively, that it is extremely rare in the east. Nothing was seen of the species in 1930–1931. The main migration is far to the west.

8. **Branta canadensis canadensis** (Linnaeus), COMMON CANADA GOOSE. Eskimo: *Nĕd''lĭk'*.—Breeds very sparingly along the southern coast of Foxe Peninsula. In the southwest this race appears to be confined to the immediate vicinity of Hudson Strait, with more liberal numbers and evidently average larger size eastwardly from at least Amadjuak Bay to Gabriel Strait. Along the Baffin Island coasts of Foxe Channel and Basin, it appears to be totally absent as a breeder; in the Cape Dorset district it is associated to a limited extent with breeding *B. c. hutchinsi*. None was taken or observed during the expedition of 1928–1929 to the southwestern part of the island, though specimens and eggs were taken there in 1926.

Nothing was seen of it at Lake Harbour during the late summer and the fall of 1930. The Eskimos, however, reported that the *Nedlik* nested at many places along the coast and inland on meadowlands bordering the larger streams. The first migrating Canada Geese were noted the following spring on May 20. A week from that date the birds, in small migrating flocks, became much more numerous. They were now frequently seen feeding on the lowland margins of lakes among the hills and the Eskimos reported them almost daily from outlying localities. Small flocks continued to pass over until the first week of June. The last flock, composed of about forty individuals, was observed flying northward on June 7.

During this period the writer collected several specimens of the present form. These impressed him as being somewhat larger and heavier, on an average, than any



(*Upper figure*), SWAMPY LOWLANDS ALONG THE FOXE BASIN COAST AT BOWMAN BAY, WESTERN BAFFIN ISLAND. EXAMPLE OF THE *Grass Tundra* (*b*). PARASITIC JAEGER IN THE MIDDLE DISTANCE. LATE JUNE, 1929.

(*Lower figure*), MOUNTAINS AT PANGNIRTUNG PASS, CUMBERLAND PENINSULA, BAFFIN ISLAND, RANGING UP TO ABOUT 5000 FEET ABOVE SEA-LEVEL; TYPICAL OF MANY SECTORS ALONG THE EASTERN SEABOARD. FOREGROUND, AT ABOUT 2000 FEET, REFERABLE TO THE *Desert Tundra* (*c*), WHILE THE UPPER HEIGHTS, WITH THEIR PERMANENT SNOW AND ICE FIELDS, FALL WITHIN THE *Polar Desert* (*d*); GLACIER ON THE RIGHT. JANUARY, 1925.

geese he had formerly taken in Baffin Island. The Eskimos have a belief that the largest individuals of *canadensis* occur in the country to the eastward of Lake Harbour, and that the birds become progressively smaller to the westward.

Numerous small flocks and individuals were observed along Soper River in late June and early July—a total of forty-six individuals. Judging by the actions of some of these birds, young were undoubtedly present, but none was seen. One of the Eskimo assistants stated that he saw several downy young following a pair of geese on a grassy flat some distance from the river, but a careful search by the whole party failed to disclose them. The Eskimos stated that large Canada Geese nested on these flats every year. Some of the birds observed and collected were molting and incapable of flight. Those suspected of having young, on the other hand, were invariably strong on the wing, and when pressed too close would fly away and alight on the broad expanse of the river. This same condition and trait were observed two years before with respect to the Blue Goose. The present form evidently nests more or less uniformly all the way along the south coast from Gabriel Strait to Cape Dorset, resorting to islands as well as mainland. On June 17, 1930, Rev. C. L. W. Bailey collected a single egg of the Canada Goose from a nest of four addled eggs at Ashe Inlet, Big Island, which was forwarded to the Royal Ontario Museum of Zoology.

During the course of the expedition nine specimens of *canadensis* were collected. The average length of these is 32.6 inches, and the weight 7.6 pounds; the minimum and maximum lengths and weights were 31 and 35 inches, and 6¼ and 8½ pounds, respectively. Shortt (in Shortt and Peters, 1942: 341) collected an immature *B. c. canadensis* specimen at Lake Harbour on August 17, 1938, and Peters (*loc. cit.*) saw numerous signs of geese in the same locality a year later.

9. **Branta canadensis hutchinsi** (Richardson), HUTCHINS'S (RICHARDSON'S) GOOSE. Eskimo: *Nĕd'lēnŭk"*.—Full details regarding the status of this form, and its rediscovery in southwestern Baffin Island in 1926, cannot be presented here, but the reader can secure this information by consulting earlier publications by the writer (1928: 94–95), Taverner (1931: 37–39) and Kortright (1942: 95–98).

Following the author's observations of this subspecies during the summer of 1926 near Cape Dorset, it was next met with by him in the Nuwata–Cape Weston sector along Foxe Channel in August, 1928. In this locality it breeds rather commonly on small islets in the ponds of the swampy, coastal plain which is here of considerable extent. On August 21 and 22, many small flocks were seen along and near this coast, when the young of the year were nearly full-grown and able to fly. Six specimens were collected with average measurements as follows: Two males—length, 24.00; wing, 12.00; tarsus, 2.75; culmen, 1.27 inches; corresponding measurements of four females—23.70; 11.77; 2.70; and 1.27 inches.

Hutchinsi was next seen the following season in the Bowman Bay locality. The earliest migrants reached Camp Kungovik on June 9, when several small flocks passed over to the north. By June 14 large numbers were inhabiting the surrounding tundra in company with Blue and Lesser Snow Geese and American Brant. At the same time a strong migration flight continued to the north-northwest, parallel to the Foxe Basin coast. This continued up to June 18, after which numbers rapidly diminished until by late June only a few breeding pairs remained. Six examples were collected at this period, with the following average measurements and weights: Three males—length, 25.40 wing, 16.03; tarsus, 2.97; culmen, 1.38 in., weight, 3 lbs. 9 oz.; three females—25.20; 15.02; 2.63; 1.32; 4 lbs.

These birds appear invariably to nest on rocks, hummocks, or islets in the ponds and lakes near the seacoast. I have never seen them nesting elsewhere, and they normally are undoubtedly of marine habit like Snow and Blue Geese. On July 2, a breeding pair was found with nest five miles south of Camp Kungovik; the nest was bulkily constructed of dead grasses and placed on a small, swampy islet in a tundra pond 15 yards from shore; it contained four eggs that had been incubated about a week. Several other mated pairs were observed in the district at this period, assumed to be breeding, but whose nests were not discovered. On July 25, an adult with three downy young about a week old was seen in a lake at Cape Alberta. No others were encountered during the season.

I did not see this form in the Lake Harbour region, 1930–1931. My Eskimo assistant, Moosa, stated that on June 7, 1931, he saw a flock of about forty of these little geese migrating northwestward in the vicinity of Beacon Island. From all available local accounts it appears evident that *hutchinsi* is only a casual migrant in these parts. The Eskimos assert that it never breeds in this region, but passes on to nesting grounds of which they have no knowledge.

As our information stands today, it appears very doubtful if *hutchinsi* nests anywhere in eastern Baffin Island; even as a migrant it is apparently scarce, but, as noted, is common along parts of the western seaboard. The Canada Goose breeds all along the south coast of the island, overlapping the nesting range of *hutchinsi* in the neighborhood of Cape Dorset, or a little farther east, but, so far as ascertained, without tendency to interbreeding. Over northern Foxe Peninsula, and the coastal lowlands at Bowman Bay, *hutchinsi* migrates and nests, apparently, to the complete exclusion of *canadensis*.

10. **Branta bernicla hrota** (Müller), AMERICAN BRANT. Eskimo: *Nĕdlĕŏk''juk'*.—Brant were not seen in Foxe Peninsula during the late summer and fall of 1928. In the spring of 1929 they were first observed at Bowman Bay on June 7, when a flock of twenty-six individuals passed over rapidly to the north. From this date until June 24, the birds were common in the locality as they migrated northward or lingered in the neighbourhood to feed and rest. Small flocks up to twenty-five or thirty birds habitually associated at this time with Richardson's, Blue, and Snow Geese. After the latter date the brant gradually decreased in numbers until they disappeared from the locality in late June. On July 27, however, a pair of adults was seen at Cape Alberta with two downy young about three weeks old. Between Cape Alberta and the mouth of Kommanik River none was noted during early August, but while I was ascending this river on August 13, a pair was observed with two well-grown but flightless young. The following day another pair without offspring was encountered on the river a short distance northwest of Ungmaluktuk Lake. These were the last observed for the season.

In the Lake Harbour region it occurs as a sparing migrant, more frequently noted in the spring. It is not known to breed. No brant were observed in 1930. The following spring, the first intimation of them came with a specimen to the post on June 18; this was shot by an Eskimo at Tanfield Cape where many other individuals were seen at the same time. On June 25, the writer saw a flock of eight birds loitering on a sandbar in Soper Lake, from which a male was taken weighing three pounds. No other record was secured during the summer.

11. **Chen hyperborea hyperborea** (Pallas), LESSER SNOW GOOSE. Eskimo: *Kŭng'ō*.—This bird is an abundant migrant over Cape Dorset during the first and second weeks of June. The migration is usually maintained over the mountainous

terrain of this locality at altitudes of 1,000 to 2,000 feet, thence diagonally across Foxe Peninsula to Bowman Bay where a highly concentrated flight persists northward along the east coast of Foxe Basin. In the autumn of 1928 the first observed migrating Snow Geese were a flock of six over Tessikjuak Lake on September 16. Numerous large flocks were noted migrating south at high altitudes over Kingungealuk and Sheneruin Lakes and Andrew Gordon Bay from September 24 to 29, inclusive.

The first geese observed in the spring of 1929 appeared at Camp Kungovik on June 2—a flock composed of eleven Snow Geese and two Blue Geese. After circling and calling loudly for a time in the vicinity, they flew south again. The weather at this date was still decidedly cold and wintry. The next observed was a flock of thirty Snow Geese on June 5, which alighted to feed on a bare strip of tundra on the margin of Blue Goose River. Later in the day another mixed flock of thirty-four appeared. After June 9, the flight of Snow Geese became heavy as they winged their way northwestwardly past Camp Kungovik. Almost invariably the flocks were partly composed of *caerulescens*. From June 9 until June 16 the birds migrated through the region in tens of thousands and numerous large flocks halted for a time in the locality to rest and feed on the patches of snow-free tundra. After June 16 the numbers of Snow Geese gradually diminished until only a small number remained to fly aimlessly about with the large resident population of Blue Geese or to nest in scattered pairs with the latter species.

On June 21, a solitary Snow Goose was found with a nest and one egg on the lowlands near Foxe Basin; the following day another nest was located with one egg. Up to July 3, when sets were complete, several other nests were seen holding from two to five eggs. On the latter date eggs were incubated to a substantial degree. Nests were invariably built on the open, swamp tundra in the vicinity of shallow pools in the same area occupied by nesting Blue Geese. Nests were similar in all respects to those of *caerulescens*, composed of finely plucked tundra mosses, grasses, and chickweed, and invariably of bulky structure, doubtless for the purpose of withstanding the frequent high winds that assail this region.

During the middle of July the birds were tolerably common among large bands of molting "blues." Like the latter the majority were flightless in the summer molt. These carefree flocks were obviously composed of non-breeding birds, presumably one to two years old. Six specimens of both sexes were taken; the average measurements and weights of these are as follows: Length, 27.75 in.; wing (3 only), 16.87; tarsus, 3.52; culmen, 2.23; weight, 5.4 lbs.

On July 20, the first downy young of *hyperborea* were observed on the banks of Blue Goose River. Several broods noted during this and the following three days were composed of from two to five individuals, estimated to be about three days old. In every instance they were accompanied by parents of the same form (no evidence of hybridization), as was also the case with young of the Blue Goose. The downy young of *hyperboreus* are entirely different from those of *caerulescens*, being vivid lemon-yellow except for a slightly dusky cast over the upper parts, including head and neck; feet and legs are dusky vetiver green (Ridgway) with a pale violet cast on the inside of the legs and on the webs of the feet. They may easily be distinguished from the downy young of the Blue Goose at any convenient distance for observation with the unaided eye or binoculars. Neither species was seen anywhere in the region after leaving the Blue Goose Plains in late July.

During the summer of 1938, Manning (1942: 164–167) saw large numbers of Lesser Snow Geese from north of Bowman Bay to and beyond Koukdjuak River. A few were found nesting as far north as Taverner Bay in 1939 and 1940.

Hyperborea occurs very sparingly at times in southeastern districts during the spring and autumn migrations. According to information obtained from white residents at Lake Harbour, it is never plentiful on any migration and some years it apparently does not appear here at all. In 1931, a few small flocks of Snow Geese migrated over Lake Harbour on May 23 and 24. The main migration to the island is much farther to the west by way of Foxe Peninsula.

12. **Chen caerulescens** (Linnaeus), BLUE GOOSE. Eskimo: *Kŭng"ōvĭk'*.—In the summer of 1929, the breeding grounds of the Blue Goose were discovered by the writer along the east coast of Bowman Bay, Foxe Basin, where it commonly nests on the tundra near the sea in latitude 65° 30'. In company with *hyperboreus*, it was first observed at Camp Kungovik on June 2. Shortly after this date, Blue Geese appeared in estimated tens of thousands as they migrated along the coast to the north or halted to feed and rest along Blue Goose River in the neighbourhood of the camp. In these activities they were invariably associated with large numbers of Lesser Snow Geese. [Since these observations were made, Manning (1942: 163–167) found the Blue Goose plentifully distributed along this coast north of Bowman Bay to Koukdjuak River and less numerous beyond to Taverner Bay. Only a few nest between the two latter points where Snow Geese are greatly in the majority.]

On June 26, the first nests and eggs of Blue Geese were discovered five miles south of Camp Kungovik, in which the sets were incomplete. The colony was revisited on July 3, when all the eggs of the eleven full sets collected were slightly incubated and many other nests were located and studied. Downy young only recently hatched were first observed on July 20.

The Blue Goose was under daily observation in the region of Camp Kungovik from the date of its earliest arrival until the party withdrew from the breeding grounds on July 24. During this period a special study was made of the species, and a large mass of data was accumulated respecting its general habits and activities and numerous specimens were collected, including adults, yearlings, downy young, eggs, and a nest. As a full account of this has already been published (Soper, 1930d), it will not be necessary here to go into further detail. A general narrative by the writer dealing with the search for, and the discovery of, the nesting grounds of this species was published in January, 1930 (Soper, 1930a). For full details regarding present knowledge of the species in Baffin Island, the reader is referred to the above publications and the important paper by Manning (1942). Much new general information has also been assembled in the writer's "Life History of the Blue Goose," published in November, 1942.

The species occurs in migration through the Lake Harbour region in company with the Lesser Snow Goose. Neither bird, however, is ever very numerous in this section, and the Blue Goose is evidently always in the minority. The writer saw nothing of this species in 1931, during the insignificant migration of *hyperboreus* over Lake Harbour the last week of May. The few reported by local Eskimos were seen with Snow Geese migrating in a northwesterly direction over White Strait. The Blue Goose occurs irregularly north to Cumberland Sound and Bylot Island, but there is no definite evidence of its breeding anywhere in these more northern localities.

13. **Anas rubripes** Brewster, BLACK DUCK.—During the course of the Canadian Arctic Expedition of 1934, Mr. E. F. G. White obtained the heads of three Black Ducks at Cape Dorset, Baffin Island, presented by Mr. G. C. Russell, Hudson's Bay Company. The specimens in question were taken by the Eskimo, Keakshook, on

June 8, 1934, about sixteen miles northeast of Cape Dorset. The native intimated that only three Black Ducks were in the group observed, all of which were secured. Mr. White deposited the heads of these birds in the National Museum of Canada for permanent record. This is the first certain record of the species on Baffin Island.

*14. **Anas acuta tzitzihoa** Vieillot. AMERICAN PINTAIL.—On July 25, 1929, I secured a female at Cape Alberta, north coast of Foxe Peninsula. No others of its kind were seen. The solitary bird had resorted to a small coastal lake in the lowlands in company with Old-squaws, and female King Eiders with broods of young. It was in a molting condition with all the wing primaries missing, as well as the longer feathers of the tail. The two Eskimo assistants were greatly surprised to see this bird as neither of them had observed it before, nor had heard about it from other natives. This in itself is sufficient proof that the species here is of exceedingly rare occurrence; the above is the first specimen of this species to be taken on Baffin Island.

15. **Clangula hyemalis** (Linnaeus), OLD-SQUAW. Eskimo: *Ŭg'gŭ"*, or *Ŭg'gĭk"*.—Occurs more or less commonly throughout Foxe Peninsula, with its center of abundance on the northwest coast along Foxe Channel. The bird is an especially abundant breeder along that coast between Trinity Islands and Cape Dorchester, and large and numerous broods of young were observed in the lakes about Nuwata in late August, 1928. It is much less numerous along the south coast and in the lakes of the interior. In 1928, the vast majority deserted the region by October 14; a straggler was reported by an Eskimo of Andrew Gordon Bay as late as November 12.

On March 2, an Eskimo seal hunter reported seeing several of these birds at a tide rip several miles southwest of Dorset, associated with a flock of King Eiders. The writer did not see Old-squaws in 1929 until a flock of ten flew over Camp Kungovik on June 9. After June 16, they became increasingly commoner, with a marked migration to the north and northeast. Following June 22, the species was an abundant inhabitant of the surrounding tundra for the remainder of the summer. The soft call of this bird is one of the most memorable sounds of the tundra, and one of the most dominant. All the notes, however, are soft and melodious and are given with a peculiarly hesitant manner. One of the most characteristic calls, as the flocks make their swift and surging flights over the land, is a musical *how-how-how-ung-a-how-ung-a-how-ung-a;* also *ung-a-ung-a* and *hown-a-hown-a*. During early August these ducks were in evidence daily along the north coast of Foxe Peninsula to the mouth of Kommanik River, but were apparently absent from the interior route to Hudson Strait.

In 1930, the species was observed only once, when a flock of twenty-five was encountered in White Strait on August 23. On February 28, 1931, an Eskimo hunter arrived at Lake Harbour with the report that it was fairly common in the open sea about Big Island and off the floe-edge of the mainland coast. This appears to be the earliest spring record of arrival for Baffin Island. Doubtless a few individuals winter in the open waters of Hudson Strait. It was first observed in numbers at Lake Harbour on June 5, 1931. As soon as small ponds and lakes are open, near the coast, the birds at once fly in from the sea and occupy them. Though observed at intervals throughout the summer in all coastal sections visited, and far inland along Soper River, the Old-squaw is not nearly so plentiful in the Lake Harbour region as in the southwestern part of the island. No nests were found, but the Eskimos assert that the species breeds more or less uniformly all along the south and east coasts.

*16. **Histrionicus histrionicus histrionicus** (Linnaeus), EASTERN HARLEQUIN DUCK. Eskimo: *Tŭngăviă*.—Prior to the expedition of 1930–1931, this bird had

been observed in Baffin Island only at Cumberland Sound. Though carefully watched for, the species was nowhere seen in southwestern Baffin Island. It was first observed by the writer in the Lake Harbour district on June 5, 1931, when a flock of six, composed of both sexes, was disporting itself in a swift tide-rip at the northern end of Pleasant Inlet. It was next seen at McKellar Bay on June 7, where specimens, as in the first instance, were secured; both sexes were again represented. Another female was taken on June 8, when it was feeding in company with its mate on the margin of a small coastal lake. The largest ovary of this specimen was three-quarters of an inch in diameter, indicating a close approach to nidification. Three more individuals were seen at an open fissure in Soper Lake on June 10. The bird was next noted on July 8, when two females were collected in McKellar Bay. At the extremity of this bay a flock of eleven was noted later the same day; all the birds were playing about in a foaming eddy at the base of a river cataract joining salt water. After this occurrence it was not again noted during the summer.

From the above observations it will be seen that the Harlequin is more common in the southeastern part of the island than formerly supposed. The natives claim that the species occurs throughout the length of the coast from at least White Strait to Gabriel Strait, and is also to be seen in Frobisher Bay; it is said to nest throughout this territory, both along the coasts and in the interior beside tumultuous streams. Based on present information, it appears certain that the Harlequin has a more or less continuous breeding range along the coast from about Crooks Inlet to and about Frobisher Bay and north into Cumberland Sound.

17. **Somateria mollissima borealis** (Brehm), NORTHERN EIDER. Eskimo: *Mēt"ĭk*.—During early spring, tens of thousands of Northern Eiders frequent the open sea along the land floe of the southern coast of Foxe Peninsula. Here and there they nest on various islands throughout the district in late June and early July. Along Foxe Channel this species is much less numerous and gradually decreases in numbers from King Charles Cape northward to Cape Dorchester, where it is largely replaced by the King Eider, but on the south coast it is the dominant sea duck. The birds continue to haunt tidewater bays and inlets in large numbers until late October, when most of them disappear. A few individuals remain throughout the winter.

Borealis was found very scarce in the Bowman Bay region during the summer of 1929. A small breeding colony was located on July 24, with nests containing from three to five eggs, in which were several young just hatched. Evidently the birds are somewhat later in breeding at Foxe Basin than in Hudson Strait, as the writer saw newly hatched young there in 1926 as early as July 13. Along the north coast of Foxe Peninsula, west of Bowman Bay, the Northern Eider is somewhat more common, where many were seen with broods of downy young in early August.

After incubation has well begun, the males desert their mates and gather in large flocks in the open sea by the middle of July; with them a number of non-breeding females are usually associated. A curious circumstance regarding the males is the fact that they evidently leave the region early in the autumn, many weeks prior to the withdrawal of juveniles and females.

In the summer and fall of 1930, *borealis* was only sparingly observed at Lake Harbour. During the spring, however, these ducks congregate in large numbers along the floe-edge off this section of the coast. In 1931, they were first noted along the margin of the land-fast ice in late February. By May, thousands put in an appearance. The Eskimos report that great numbers nest on the Middle Savage Islands

and in a group of islands west of Big Island. Many other coastal islands are also occupied to the east and west. In the general region of Lake Harbour the most prolific breeding places of these birds, according to Eskimo report, are from Middle Savage to Lower Savage islands. It is said that on some of the islands the nests are so thickly clustered over the surface of the ground that care must be exercised to avoid treading upon the eggs.

In late June and early July a number of individuals and small flocks were observed while I was exploring Soper River; on July 3, a flock of six individuals was encountered on the stream as far inland as the mouth of Livingstone River. In mid-July large numbers were daily met with while I was surveying the coast from Lake Harbour to Philpot Bay. These flocks were composed principally of males, with a generous sprinkling of non-breeding females. *Borealis* not infrequently nests on small islands in freshwater lakes near the coast. The natives report that large nesting colonies of these ducks occur in and about Frobisher Bay, and previous explorations proved the existence of many in Cumberland Sound.

18. **Somateria spectabilis** (Linnaeus), KING EIDER. Eskimo: *Mēt"ēlá.*—This is a much less common bird about Cape Dorset than the Northern Eider. It is not known to breed locally anywhere along the coast to the east, but increases in numbers to the northwest along Foxe Channel. *Spectabilis* occurs abundantly from Cape Enauolik to Cape Dorchester (being especially numerous in the Nuwata district), where *borealis* is scarce. The present species is a common breeder on the coastal islands of this territory, and the Eskimos state that it also nests about lakes in the interior. In the autumn it appears in small flocks along the south coast where in summer it is seldom seen. No males were positively identified after October 1, 1928, though numerous females were collected at Cape Dorset during October. Records indicate that no King Eiders have been seen after October 27.

The earliest spring record is for March 2, 1929, when a native seal hunter shot two females at a tide rip near Dorset and reported observing a considerable number in company with Old-squaws. The species was common in flocks at Cape Dorset and Chorkbak Inlet by early May. It was first noted at Bowman Bay on June 9, when two flocks passed north over Camp Kungovik. Flocks composed of both sexes increased in numbers here until June 21, when the birds became very common.

The first unfinished nest of the species was found on June 26. On July 2 one was located with five eggs, which is normally the full complement; individuals have been known to cease laying with three or four. The nests found in this region were situated in the moss of the open tundra, usually not far removed from small ponds, and consisted of simple depressions in the yielding mosses, some with a mixture of dead grasses, and lined with eiderdown. Of the numerous nests found up to July 8, the eggs were invariably in a fresh condition. On July 26, female King Eiders were found tolerably common along the south coast of Bowman Bay, many with downy young three or four days old. During early August, a few were daily observed westward to the mouth of Kommanik River.

As a general rule the female leads in flight, whether a mated pair or in small flocks. In the latter case, male and female alternate, one behind the other, as they fly rapidly in single file. By the latter part of June the first mating calls of the males are heard, which sound similar to *how-it-to-who-who.* The soft and tender andante character of the notes is singularly dove-like in quality and as they are wafted over the calm level of the plain they sound infinitely sweet and melodious. The mellow *who-whos* at times is reminiscent of the suppressed calls of the Great Horned Owl.

The species prevails in large numbers all along the south coast during early spring and then in most sections vanishes completely late in May or early in June, to nest in more northern or western localities. However, the Eskimos state that a few colonies breed on islands in Gabriel Strait and Frobisher Bay. During the nesting season, this length of coastline from the Lower Savage Islands west to Cape Dorset appears to be held almost exclusively by the Northern Eider, which nests here in enormous numbers. Thus it is seen that the two species may observe a meticulous segregation at this period, not only locally but to such lengths that one or the other may be utterly excluded over extensive coastal areas. At the same time, overlapping of local breeding ranges takes place in some localities. A few scattered individuals and small flocks occur in the vicinity of Lake Harbour during the summer but are not known to nest there. The writer never positively identified this species in Baffin Island during the winter, as was the case with the Northern Eider, but a few may winter in the open sea off the ice-bound coasts of Hudson and Davis Straits.

19. **Mergus serrator** Linnaeus, RED-BREASTED MERGANSER. Eskimo: *Pŷle* or *Pīe*.—Though far from common, this species is observed occasionally in bays and inlets along the south coast of Foxe Peninsula. Only widely scattered individuals and family groups were met with along the coasts and on interior waters during the late summer and fall of 1928. In 1929, the first pair of spring migrants was observed flying northeastward over Camp Kungovik on June 14. A single bird was noted on Blue Goose River, June 18, and a pair in the same locality a week later. The species was not again observed during the season.

In August and September, 1930, a few scattered examples were noted from Lake Harbour to White Strait, and a solitary individual in Pleasant Inlet on September 20. This was the latest date the species was seen. In 1931, it was first noted at Lake Harbour on June 4. Throughout the summer it was sparingly observed on various lakes of the district, far inland along Soper River, and in coastal waters from White Strait to Philpot Bay. No nests were found, but the birds breed throughout the region.

(*To be continued*)

MOURNING DOVES IN NEBRASKA AND THE WEST

BY H. ELLIOTT MCCLURE

THE life-history study of the Mourning Dove, *Zenaidura macroura* (L.), which was begun in Iowa in 1938, has been continued as opportunities presented themselves over a period of seven years. The most intensive investigation concerning their habits was carried on at Lewis, Iowa, through 1940 (McClure 1942, 1943). From 1941 through 1943, nesting habits and population movements were observed in central Nebraska in the vicinity of Ord. Enlistment in the Navy interrupted this work, but the bird has been watched during a tour of duty extending over several months in California.

METHODS

Full time was given to the nesting studies at Lewis. Each nest was observed every other day until it was no longer in use. Loca-